

January 29, 2021

Attn: Mr. Marshall Green
Quick Mount PV
2700 Mitchell Dr.
Walnut Creek, CA, 94598

RE: Quick Mount PV – QRail Standard
PV Panel Racking System
State of Florida Certification Letter

SEI Project No.: 19669.00

Dear Mr. Green:

Structural Engenuity Inc. (SEI) has completed its review of the Quick Mount PV – QRail Standard PV Panel Racking System (QMR-RS) for typical installations in the state of Florida. The QRail Standard is compliant with the sections of the following design references and codes when installed per the conditions and design criteria delineated herein.

Design References and Codes:

- ASCE 7-16 – Minimum Design Loads for Buildings and Other Structures
- 2015 Aluminum Design Manual, by the Aluminum Association
- Materials information and section and details provided by Quick Mount PV as appendages to this letter
- 2018 International Building Code
- 2020 Florida Building Code (7th Edition)
- AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Modules, November 2012 by ICC-ES

General Mounting System and Analysis Overview:

The QRail Standard consists of 6005-T5 (acceptable alternative materials include 6005A-T61 and 6061-T6) extruded aluminum per ASTM B221-08. The rails are used in pairs to support photovoltaic solar panels in order to span between points of attachment to the existing roof structure. The following tables and information summarize the structural analysis performed by SEI in order to certify the QRail Standard for the state noted above.

The analysis for certification included the following parameters for each rail system.

QRail Standard:

- Risk Category II
- Roof Slopes up to 45 degrees
- Portrait & Landscape orientation of photovoltaic panels
- Max Module Dimensions = Varies, see tables
- Max Mean Roof Height = Varies, see tables (If roof slope < 10°, use eave height)

- Wind Analysis:
 - o Wind Category: B, C, and D
 - o Roof Zones varies based on roof slope (See Tables)
 - o Wind Directionality Factor (K_d) = 0.85
 - o Topographic Factor (K_{zt}) = 1
 - o Ground Elevation Factor (K_e): See table below
- Snow Analysis:
 - o Snow Exposure Factor (C_e) = 1.0
 - o Thermal Factor (C_t) = 1.0
 - o Slope Factor (C_s) per ASCE 7-16, Figure 7.4-1
 - o Importance Factor (I_s) = 1
- Seismic Analysis:
 - o Seismic Design Category E or less (S_{ds} = 2.0 max)
 - o Importance Factor (I_p) = 1
 - o Amplification Factor (a_p) = 1.0 per ICC-AC428
 - o Component Response Modification Factor (R_p) = 1.5 per ICC-AC 428

Per ASCE 7-16, for locations above sea level, an additional Ground Elevation Factor may be accounted for. The provided tables take this into account by allowing the Wind Speed to be adjusted by a Wind Speed Velocity Multiplier as follows:

Wind Speed Velocity Multiplier based on Ground Elevation Factor (ASCE 7-16, Table 26.9-1)

Ground Elevation above Sea Level (ft), Z_g	Ground Elevation Factor, K_e	Wind Speed Velocity Multiplier, $\text{Sqrt}(K_e)$
0	1.00	1.00
1,000	0.96	0.98
2,000	0.93	0.96
3,000	0.90	0.95
4,000	0.86	0.93
5,000	0.83	0.91
6,000	0.80	0.89

Notes:

1. The Wind Speed Velocity Multiplier shall be determined from the above table using interpolation or from the following formula for all elevations:

$$\text{Sqrt}(K_e) = \text{Sqrt}(e^{-0.0000362 \cdot Z_g})$$
2. The Wind Speed Velocity Multiplier is permitted to be taken as 1.00 in all cases.
3. The wind speed in the project's region shall be multiplied by Wind Speed Velocity Multiplier. The resulting wind speed shall be rounded up to the nearest value provided in the span tables.
4. No interpolation between wind speeds is permitted.
5. Refer to ASCE 7-16 for additional information about the ground elevation factor and its use in determining velocity pressure per Equation 26.10-1.

ASCE 7-16 has several additional roof zones than previous codes. The zones are outlined in the code and diagrams have been provided below to show wind zone locations

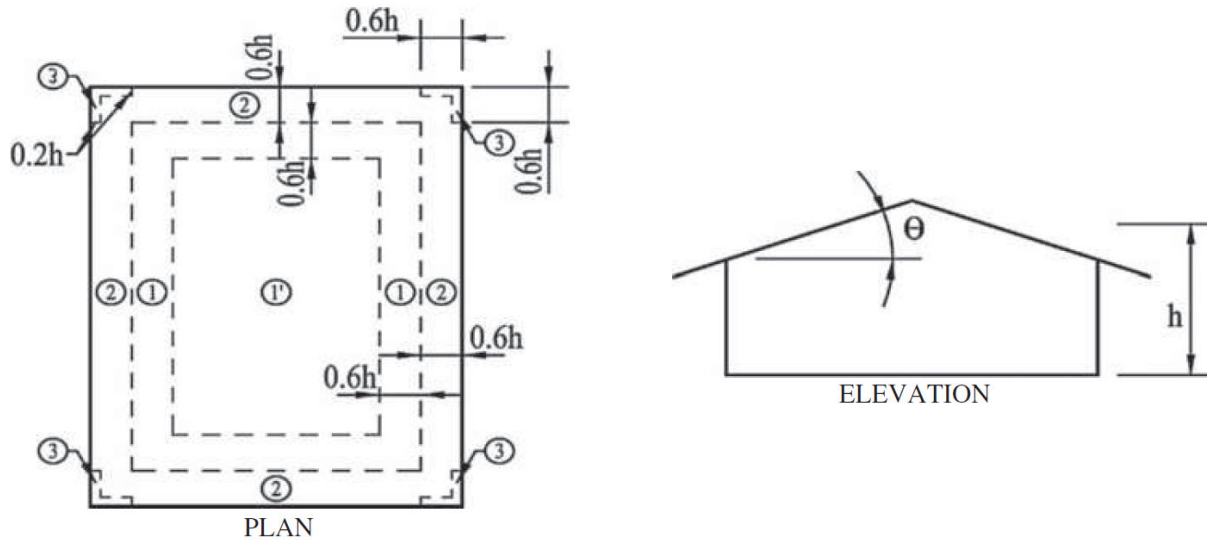


Figure 1: Roof Zones for Gable Roof Slopes Between 0 and 7 degrees

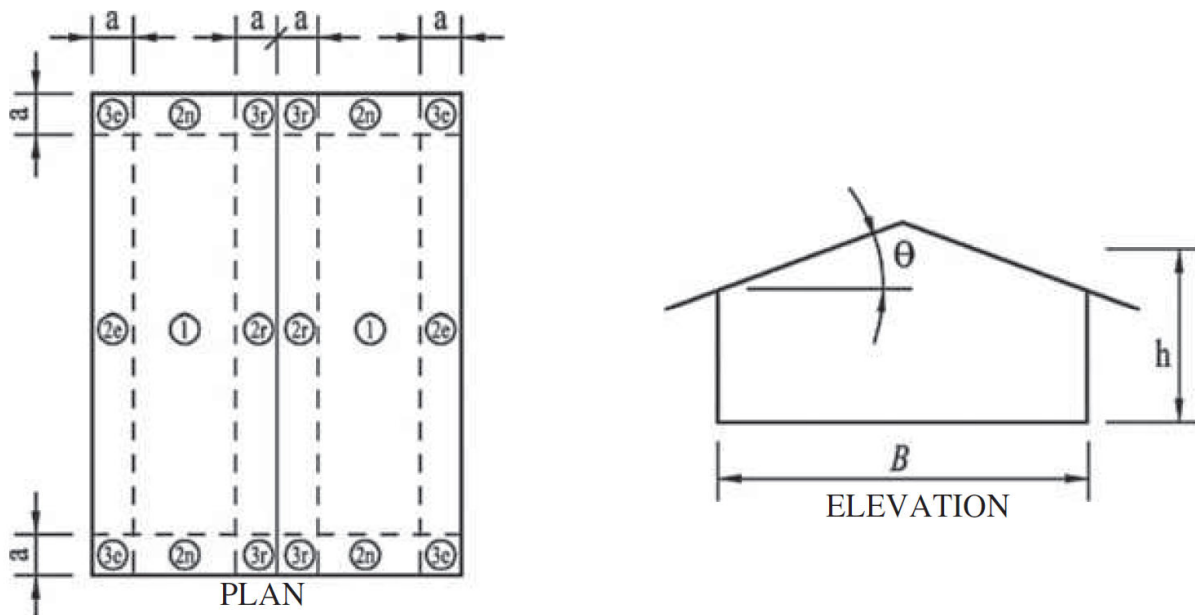


Figure 2: Roof Zones for Gable Roof Slopes Between 7 and 45 degrees

$a = 10\%$ of least horizontal dimension or $0.4h$, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft. 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 the overhang distance.

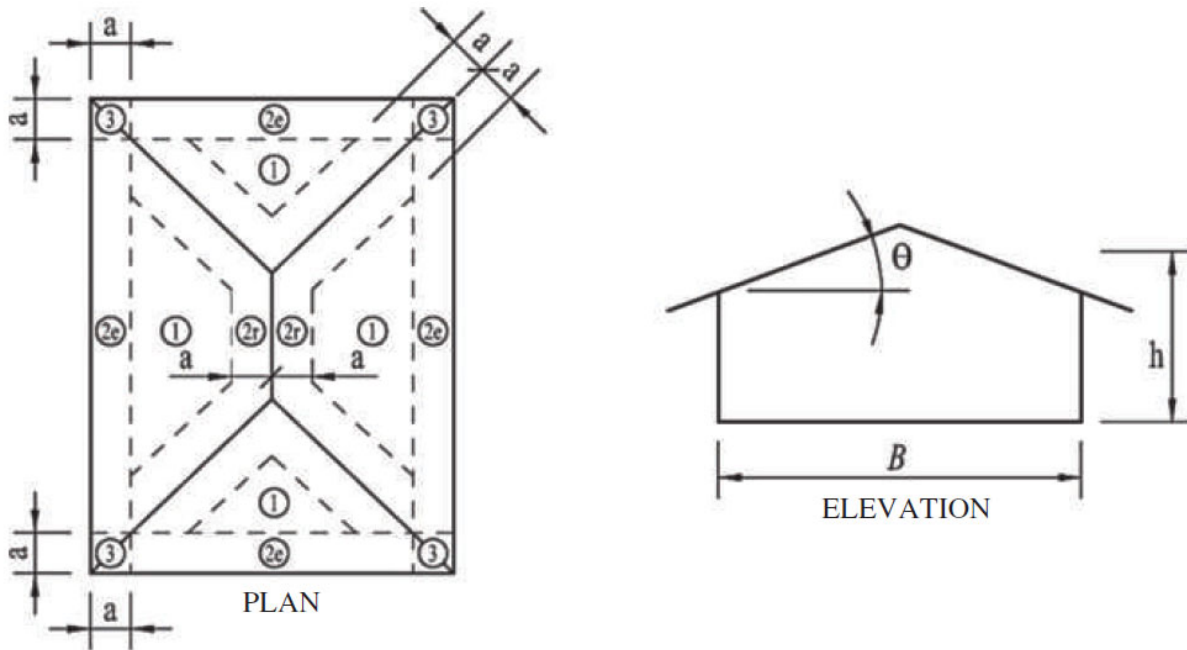


Figure 3: Roof Zones for Hip Roof Slopes Less Than 45 degrees

$a = 10\%$ of least horizontal dimension or $0.4h$, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft. 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 the overhang distance.


For Hip Roofs with a roof slope between 7 and 20 degrees, tables are broken up between buildings with a height to width ratio (h/B) greater than 0.8 or less than 0.5 . If the building the array is being mounted on falls between these values, compare both tables and choose the higher value.

Applicable loading combinations consisting of dead, wind, snow, and seismic loads in accordance with the governing code requirements were used to determine allowable rail span lengths, based on bending stress capacity, shear capacity, axial capacity, and an assumption of a single-span condition with an allowable deflection of $L/60$. Design wind pressures were determined using Components and Cladding calculations per ASCE 7-16, Chapters 26-30 in conjunction with the loading parameters noted above. Applicable roof snow load shall be based on ground snow load maps, equations, and factors of ASCE 7-16, Chapter 7 and applicable sections of the 2018 International Building Code for the location of the project in combination with the loading parameters noted above.

It should be noted that the analysis was limited to the capacity of the QRail Standard. Attachments of the rail to the roof structure and analysis of the roof structure itself shall be the responsibility of the installer, and should be reviewed and approved by a registered design professional where required by the local authority having jurisdiction.

Installation Notes:

The QRail Standard shall be installed with the following guidelines to be in compliance with attached span tables:

- Tables noted below assume two support rails are being used per each row of photovoltaic modules in a roof solar array.
- Rails shall be continuous and not spliced over a minimum of 2 supports except for span lengths shaded with  In these cases it is acceptable to use a minimum of 1 support per rail section as long as all supports are located at a maximum of 48" on center and the first and last rail sections have a minimum of 2 supports.
- System shall be mounted parallel to roof surface with a 2" to 10" gap between roof surface and bottom of module.
- Installation over roof overhangs or within 10" of any roof edge is not recommended
- Maximum end cantilever of aluminum support rail shall not exceed 1/3 of allowable span in the roof wind pressure zone of the cantilever.
- Tables attached are limited to structural capability of the support rails only; therefore, observe all local jurisdiction requirements regarding roof setback requirements when laying out support rails and solar array.
- Actual span lengths used must be within capacity of roof attachment and structural capacity of roof member supporting solar array.

Conclusion and Certification Summary:

Based on the structural analysis performed by SEI in regard to the loading parameters specified above for QRail Standard, the following QRail Span Tables for the Quick Mount PV QRail Standard System were determined. The various span information is controlled by the applicable wind and snow loads to the structure to which the array is being mounted on the roof and based on the roof zone to which the array is installed on the roof. The tables allow for multiple panel sizes and orientations as outlined in the table of contents and on the headers of each table. The tables are organized as follows for each loading condition:

Table A: Non-exposed panels

Table B: Exposed panels

Exposed panels are defined as panels within a distance of 1.5 times the panel chord length when the distance from the edge of the array to the roof edge is greater than 0.5 times the mean roof height and if either d_1 to an adjacent array is greater than 4 ft or d_2 to the next adjacent panel is greater than 4 ft as shown in Figure 4.

Array Edge Factors, γ_e

EXAMPLE PLAN

Where: 1) $d_1 > 0.5h$ and $d_1 > \max(4h_2, 4ft)$
2) $d_2 < \max(4h_2, 4ft)$

LEGEND

□ Non Exposed Solar Collectors ($\gamma_e = 1.0$)

▨ Exposed Solar Panels ($\gamma_e = 1.5$)

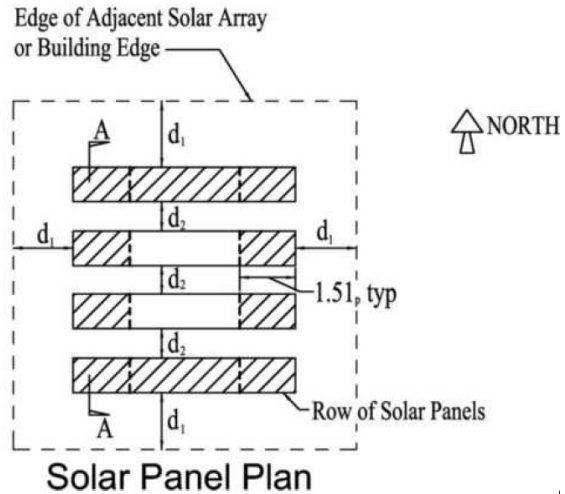


Figure 4: Array Edge Factors

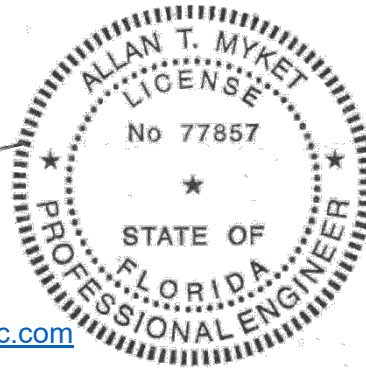
This letter is to certify that the loading criteria and design basis used for the structural analysis of the QRail Standard PV Panel Racking System for the span tables attached is validated and performed in compliance with the applicable design codes noted previously.

Please contact our office if you have any further questions relating to this matter.

Sincerely,

Peter Martin
Engineer III
pmartin@structuralengenuityinc.com

Allan T. Myket, P.E.
President/Founder
amyket@structuralengenuityinc.com



Structural Engenuity Inc.

01/29/2021
FL COA No. 30952
Licensee Name: Allan T. Myket
Registration No. 77857

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY ALLAN T. MYKET,
PE ON 01/29/2021 USING A DIGITAL SIGNATURE.

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60 Cell Module (Portrait Orientation, Max Length 68")	C1-C72
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-Gable Roof, Roof Slope Between 0 and 7 degrees	C1-C3
-Gable Roof, Roof Slope Between 7 and 20 degrees	C4-C6
-Gable Roof, Roof Slope Between 20 and 27 degrees	C7-C9
-Gable Roof, Roof Slope Between 27 and 45 degrees	C10-C12
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C13-C15
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C16-C18
-Hip Roof, Roof Slope Between 20 and 27 degrees	C19-C21
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-Gable Roof, Roof Slope Between 0 and 7 degrees	C25-C27
-Gable Roof, Roof Slope Between 7 and 20 degrees	C28-C30
-Gable Roof, Roof Slope Between 20 and 27 degrees	C31-C33
-Gable Roof, Roof Slope Between 27 and 45 degrees	C34-C36
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C37-C39
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C40-C42
-Hip Roof, Roof Slope Between 20 and 27 degrees	C43-C45
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72 Cell Module (Portrait Orientation, Max Length 80")	C73-C144
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-Gable Roof, Roof Slope Between 20 and 27 degrees	C79-C81
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-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C85-C87
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C88-C90
-Hip Roof, Roof Slope Between 20 and 27 degrees	C91-C93
-Hip Roof, Roof Slope Between 27 and 45 degrees	C94-C96
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-Gable Roof, Roof Slope Between 0 and 7 degrees	C97-C99
-Gable Roof, Roof Slope Between 7 and 20 degrees	C100-C102
-Gable Roof, Roof Slope Between 20 and 27 degrees	C103-C105
-Gable Roof, Roof Slope Between 27 and 45 degrees	C106-C108
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C109-C111
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C112-C114
-Hip Roof, Roof Slope Between 20 and 27 degrees	C115-C117
-Hip Roof, Roof Slope Between 27 and 45 degrees	C118-C120

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72 Cell Module Continued (Portrait Orientation, Max Length 80")

Mean Roof Height Between 30 and 60 Feet

-Gable Roof, Roof Slope Between 0 and 7 degrees	C121-C123
-Gable Roof, Roof Slope Between 7 and 20 degrees	C124-C126
-Gable Roof, Roof Slope Between 20 and 27 degrees	C127-C129
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-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C133-C135
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C136-C138
-Hip Roof, Roof Slope Between 20 and 27 degrees	C139-C141
-Hip Roof, Roof Slope Between 27 and 45 degrees	C142-C144

Module in Landscape Orientation (Max Width 42") C145-C216

Mean Roof Height Less Than 15 Feet

-Gable Roof, Roof Slope Between 0 and 7 degrees	C145-C147
-Gable Roof, Roof Slope Between 7 and 20 degrees	C148-C150
-Gable Roof, Roof Slope Between 20 and 27 degrees	C151-C153
-Gable Roof, Roof Slope Between 27 and 45 degrees	C154-C156
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C157-C159
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C160-C162
-Hip Roof, Roof Slope Between 20 and 27 degrees	C163-C165
-Hip Roof, Roof Slope Between 27 and 45 degrees	C166-C168

Mean Roof Height Between 15 and 30 Feet

-Gable Roof, Roof Slope Between 0 and 7 degrees	C169-C171
-Gable Roof, Roof Slope Between 7 and 20 degrees	C172-C174
-Gable Roof, Roof Slope Between 20 and 27 degrees	C175-C177
-Gable Roof, Roof Slope Between 27 and 45 degrees	C178-C180
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C181-C183
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C184-C186
-Hip Roof, Roof Slope Between 20 and 27 degrees	C187-C189
-Hip Roof, Roof Slope Between 27 and 45 degrees	C190-C192

Mean Roof Height Between 30 and 60 Feet

-Gable Roof, Roof Slope Between 0 and 7 degrees	C193-C195
-Gable Roof, Roof Slope Between 7 and 20 degrees	C196-C198
-Gable Roof, Roof Slope Between 20 and 27 degrees	C199-C201
-Gable Roof, Roof Slope Between 27 and 45 degrees	C202-C204
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C205-C207
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C208-C210
-Hip Roof, Roof Slope Between 20 and 27 degrees	C211-C213
-Hip Roof, Roof Slope Between 27 and 45 degrees	C214-C216

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72 Cell Module (Portrait Orientation, Max Length 82")	C217-C288
Mean Roof Height Less Than 15 Feet	
-Gable Roof, Roof Slope Between 0 and 7 degrees	C217-C219
-Gable Roof, Roof Slope Between 7 and 20 degrees	C220-C222
-Gable Roof, Roof Slope Between 20 and 27 degrees	C223-C225
-Gable Roof, Roof Slope Between 27 and 45 degrees	C226-C228
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C229-C231
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C232-C234
-Hip Roof, Roof Slope Between 20 and 27 degrees	C235-C237
-Hip Roof, Roof Slope Between 27 and 45 degrees	C238-C240
Mean Roof Height Between 15 and 30 Feet	
-Gable Roof, Roof Slope Between 0 and 7 degrees	C241-C243
-Gable Roof, Roof Slope Between 7 and 20 degrees	C244-C246
-Gable Roof, Roof Slope Between 20 and 27 degrees	C247-C249
-Gable Roof, Roof Slope Between 27 and 45 degrees	C250-C252
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C253-C255
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C256-C258
-Hip Roof, Roof Slope Between 20 and 27 degrees	C259-C261
-Hip Roof, Roof Slope Between 27 and 45 degrees	C262-C264
Mean Roof Height Between 30 and 60 Feet	
-Gable Roof, Roof Slope Between 0 and 7 degrees	C265-C267
-Gable Roof, Roof Slope Between 7 and 20 degrees	C268-C270
-Gable Roof, Roof Slope Between 20 and 27 degrees	C271-C273
-Gable Roof, Roof Slope Between 27 and 45 degrees	C274-C276
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \geq 0.8$)	C277-C279
-Hip Roof, Roof Slope Between 7 and 20 degrees ($h/B \leq 0.5$)	C280-C282
-Hip Roof, Roof Slope Between 20 and 27 degrees	C283-C285
-Hip Roof, Roof Slope Between 27 and 45 degrees	C286-C288

Max Rail Spans for Quick Mount PV QRail Standard System

Table 1a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	103	103	103	103	103	103
	10	98	98	98	98	98	98	98	98	98	98	98	98	97
	20	78	78	78	78	78	78	78	78	78	78	78	78	78
	30	76	76	76	76	76	76	76	76	76	76	76	76	76
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	103	103	103	103	103	103	103	103	97	91	86	82
	10	98	98	98	98	98	98	98	98	98	97	91	86	82
	20	78	78	78	78	78	78	78	78	78	78	78	78	78
	30	76	76	76	76	76	76	76	76	76	76	76	76	76
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	103	103	103	103	103	103	103	96	90	84	80	74	69
	10	98	98	98	98	98	98	98	96	90	84	80	74	69
	20	78	78	78	78	78	78	78	78	78	78	78	74	69
	30	76	76	76	76	76	76	76	76	76	76	76	74	69
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	103	103	102	98	94	90	84	79	71	65	60	56
	10	98	98	98	98	98	94	90	84	79	71	65	60	56
	20	78	78	78	78	78	78	78	78	78	71	65	60	56
	30	76	76	76	76	76	76	76	76	76	71	65	60	56
	40	68	68	68	68	68	68	68	68	68	68	65	60	56
	50	61	61	61	61	61	61	61	61	61	61	61	60	56
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 1b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	103	103	103	97	92	88
	10	98	98	98	98	98	98	98	98	98	98	97	92	88
	20	78	78	78	78	78	78	78	78	78	78	78	78	78
	30	76	76	76	76	76	76	76	76	76	76	76	76	76
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	103	103	103	103	103	99	92	86	81	75	69	64
	10	98	98	98	98	98	98	98	92	86	81	75	69	64
	20	78	78	78	78	78	78	78	78	78	78	75	69	64
	30	76	76	76	76	76	76	76	76	76	76	75	69	64
	40	68	68	68	68	68	68	68	68	68	68	68	68	64
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	103	103	101	97	93	89	86	80	73	67	61	57	53
	10	98	98	98	97	93	89	86	80	73	67	61	57	53
	20	78	78	78	78	78	78	78	78	73	67	61	57	53
	30	76	76	76	76	76	76	76	76	73	67	61	57	53
	40	68	68	68	68	68	68	68	68	68	67	61	57	53
	50	61	61	61	61	61	61	61	61	61	61	61	57	53
	60	56	56	56	56	56	56	56	56	56	56	56	56	53
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	98	93	89	85	81	78	73	66	60	54	50	46	43
	10	98	93	89	85	81	78	73	66	60	54	50	46	43
	20	78	78	78	78	78	78	73	66	60	54	50	46	43
	30	76	76	76	76	76	76	73	66	60	54	50	46	43
	40	68	68	68	68	68	68	68	66	60	54	50	46	43
	50	61	61	61	61	61	61	61	61	60	54	50	46	43
	60	56	56	56	56	56	56	56	56	56	54	50	46	43
	70	52	52	52	52	52	52	52	52	52	52	50	46	43
	80	49	49	49	49	49	49	49	49	49	49	49	46	43
	90	47	47	47	47	47	47	47	47	47	47	47	46	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 2a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $0 < \theta \leq 7$ degrees Exposure Category: C								Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	103	103	103	97	92	88
	10	98	98	98	98	98	98	98	98	97	96	95	92	88
	20	78	78	78	78	78	78	78	78	78	78	78	78	78
	30	76	76	76	76	76	76	76	76	76	76	76	76	76
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	103	103	103	103	103	99	92	86	81	75	69	64
	10	98	98	98	98	98	98	98	92	86	81	75	69	64
	20	78	78	78	78	78	78	78	78	78	78	75	69	64
	30	76	76	76	76	76	76	76	76	76	76	75	69	64
	40	68	68	68	68	68	68	68	68	68	68	68	68	64
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	103	103	101	97	93	89	86	80	73	67	62	57	53
	10	98	98	98	97	93	89	86	80	73	67	62	57	53
	20	78	78	78	78	78	78	78	78	73	67	62	57	53
	30	76	76	76	76	76	76	76	76	73	67	62	57	53
	40	68	68	68	68	68	68	68	68	68	67	62	57	53
	50	61	61	61	61	61	61	61	61	61	61	61	57	53
	60	56	56	56	56	56	56	56	56	56	56	56	56	53
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	98	93	89	85	82	78	74	66	60	55	50	46	43
	10	98	93	89	85	82	78	74	66	60	55	50	46	43
	20	78	78	78	78	78	78	74	66	60	55	50	46	43
	30	76	76	76	76	76	76	74	66	60	55	50	46	43
	40	68	68	68	68	68	68	68	66	60	55	50	46	43
	50	61	61	61	61	61	61	61	61	60	55	50	46	43
	60	56	56	56	56	56	56	56	56	56	55	50	46	43
	70	52	52	52	52	52	52	52	52	52	52	50	46	43
	80	49	49	49	49	49	49	49	49	49	49	49	46	43
	90	47	47	47	47	47	47	47	47	47	47	47	46	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 2b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	98	92	87	82	78	72
	10	98	98	98	98	98	98	98	98	92	87	82	78	72
	20	78	78	78	78	78	78	78	78	78	78	78	78	72
	30	76	76	76	76	76	76	76	76	76	76	76	76	72
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	102	97	93	89	86	83	76	69	63	58	53	50
	10	98	98	97	93	89	86	83	76	69	63	58	53	50
	20	78	78	78	78	78	78	78	76	69	63	58	53	50
	30	76	76	76	76	76	76	76	76	69	63	58	53	50
	40	68	68	68	68	68	68	68	68	68	63	58	53	50
	50	61	61	61	61	61	61	61	61	61	61	58	53	50
	60	56	56	56	56	56	56	56	56	56	56	56	53	50
	70	52	52	52	52	52	52	52	52	52	52	52	52	50
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	93	88	85	81	77	73	69	62	56	52	48	44	41
	10	93	88	85	81	77	73	69	62	56	52	48	44	41
	20	78	78	78	78	77	73	69	62	56	52	48	44	41
	30	76	76	76	76	76	73	69	62	56	52	48	44	41
	40	68	68	68	68	68	68	68	62	56	52	48	44	41
	50	61	61	61	61	61	61	61	61	56	52	48	44	41
	60	56	56	56	56	56	56	56	56	56	52	48	44	41
	70	52	52	52	52	52	52	52	52	52	52	48	44	41
	80	49	49	49	49	49	49	49	49	49	49	48	44	41
	90	47	47	47	47	47	47	47	47	47	47	47	44	41
Zone 3	0	82	77	72	67	63	59	56	50	46	42	39	37	35
	10	82	77	72	67	63	59	56	50	46	42	39	37	35
	20	78	77	72	67	63	59	56	50	46	42	39	37	35
	30	76	76	72	67	63	59	56	50	46	42	39	37	35
	40	68	68	68	67	63	59	56	50	46	42	39	37	35
	50	61	61	61	61	61	59	56	50	46	42	39	37	35
	60	56	56	56	56	56	56	56	50	46	42	39	37	35
	70	52	52	52	52	52	52	52	50	46	42	39	37	35
	80	49	49	49	49	49	49	49	49	46	42	39	37	35
	90	47	47	47	47	47	47	47	47	46	42	39	37	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 3a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	103	101	95	90	85	81
	10	98	98	98	98	98	98	98	97	96	95	90	85	81
	20	78	78	78	78	78	78	78	78	78	78	78	78	77
	30	76	76	76	76	76	76	76	76	76	76	76	76	76
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	103	103	102	98	94	91	84	79	72	66	61	57
	10	98	98	98	98	98	94	91	84	79	72	66	61	57
	20	78	78	78	78	78	78	78	78	78	72	66	61	57
	30	76	76	76	76	76	76	76	76	76	72	66	61	57
	40	68	68	68	68	68	68	68	68	68	68	66	61	57
	50	61	61	61	61	61	61	61	61	61	61	61	61	57
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	102	97	93	89	85	82	79	71	65	59	54	50	47
	10	98	97	93	89	85	82	79	71	65	59	54	50	47
	20	78	78	78	78	78	78	78	71	65	59	54	50	47
	30	76	76	76	76	76	76	76	71	65	59	54	50	47
	40	68	68	68	68	68	68	68	68	65	59	54	50	47
	50	61	61	61	61	61	61	61	61	61	59	54	50	47
	60	56	56	56	56	56	56	56	56	56	56	54	50	47
	70	52	52	52	52	52	52	52	52	52	52	52	50	47
	80	49	49	49	49	49	49	49	49	49	49	49	49	47
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	90	85	82	78	73	68	65	58	53	48	44	41	39
	10	90	85	82	78	73	68	65	58	53	48	44	41	39
	20	78	78	78	78	73	68	65	58	53	48	44	41	39
	30	76	76	76	76	73	68	65	58	53	48	44	41	39
	40	68	68	68	68	68	68	65	58	53	48	44	41	39
	50	61	61	61	61	61	61	61	58	53	48	44	41	39
	60	56	56	56	56	56	56	56	56	53	48	44	41	39
	70	52	52	52	52	52	52	52	52	52	48	44	41	39
	80	49	49	49	49	49	49	49	49	49	48	44	41	39
	90	47	47	47	47	47	47	47	47	47	47	44	41	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 3b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	100	96	90	85	80	74	69	64
	10	98	98	98	98	98	98	96	90	85	80	74	69	64
	20	78	78	78	78	78	78	78	78	78	78	74	69	64
	30	76	76	76	76	76	76	76	76	76	76	74	69	64
	40	68	68	68	68	68	68	68	68	68	68	68	68	64
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	98	93	89	85	82	79	74	67	61	55	51	47	44
	10	98	93	89	85	82	79	74	67	61	55	51	47	44
	20	78	78	78	78	78	78	74	67	61	55	51	47	44
	30	76	76	76	76	76	76	74	67	61	55	51	47	44
	40	68	68	68	68	68	68	68	67	61	55	51	47	44
	50	61	61	61	61	61	61	61	61	61	55	51	47	44
	60	56	56	56	56	56	56	56	56	56	55	51	47	44
	70	52	52	52	52	52	52	52	52	52	52	51	47	44
	80	49	49	49	49	49	49	49	49	49	49	49	47	44
	90	47	47	47	47	47	47	47	47	47	47	47	47	44
Zone 2	0	85	81	77	72	68	64	61	55	50	46	42	40	37
	10	85	81	77	72	68	64	61	55	50	46	42	40	37
	20	78	78	77	72	68	64	61	55	50	46	42	40	37
	30	76	76	76	72	68	64	61	55	50	46	42	40	37
	40	68	68	68	68	68	64	61	55	50	46	42	40	37
	50	61	61	61	61	61	61	61	55	50	46	42	40	37
	60	56	56	56	56	56	56	56	55	50	46	42	40	37
	70	52	52	52	52	52	52	52	52	50	46	42	40	37
	80	49	49	49	49	49	49	49	49	49	46	42	40	37
	90	47	47	47	47	47	47	47	47	47	46	42	40	37
Zone 3	0	73	67	63	59	55	52	49	45	41	38	36	33	31
	10	73	67	63	59	55	52	49	45	41	38	36	33	31
	20	73	67	63	59	55	52	49	45	41	38	36	33	31
	30	73	67	63	59	55	52	49	45	41	38	36	33	31
	40	68	67	63	59	55	52	49	45	41	38	36	33	31
	50	61	61	61	59	55	52	49	45	41	38	36	33	31
	60	56	56	56	56	55	52	49	45	41	38	36	33	31
	70	52	52	52	52	52	52	49	45	41	38	36	33	31
	80	49	49	49	49	49	49	49	45	41	38	36	33	31
	90	47	47	47	47	47	47	47	45	41	38	36	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 4a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$						
		Exposure Category: B							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	103	103	103	103	103	103	103	103	102	94	87	82	78	73
	10	92	92	92	92	92	92	92	92	92	92	87	82	78	73
	20	72	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	72	72	72	72	72	72	72	72	72	72	72	72	72	72
	40	63	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	103	103	103	103	103	99	95	88	83	77	70	64	59	
	10	92	92	92	92	92	92	92	88	83	77	70	64	59	
	20	72	72	72	72	72	72	72	72	72	72	70	64	59	
	30	72	72	72	72	72	72	72	72	72	72	70	64	59	
	40	63	63	63	63	63	63	63	63	63	63	63	63	59	
	50	57	57	57	57	57	57	57	57	57	57	57	57	57	
	60	53	53	53	53	53	53	53	53	53	53	53	53	53	
	70	49	49	49	49	49	49	49	49	49	49	49	49	49	
	80	46	46	46	46	46	46	46	46	46	46	46	46	46	
	90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 3r	0	103	103	103	100	95	91	88	82	75	68	62	57	52	
	10	92	92	92	92	92	91	88	82	75	68	62	57	52	
	20	72	72	72	72	72	72	72	72	72	68	62	57	52	
	30	72	72	72	72	72	72	72	72	72	68	62	57	52	
	40	63	63	63	63	63	63	63	63	63	63	62	57	52	
	50	57	57	57	57	57	57	57	57	57	57	57	57	52	
	60	53	53	53	53	53	53	53	53	53	53	53	53	52	
	70	49	49	49	49	49	49	49	49	49	49	49	49	49	
	80	46	46	46	46	46	46	46	46	46	46	46	46	46	
	90	44	44	44	44	44	44	44	44	44	44	44	44	44	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 4b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	98	93	89	82	78	71	66	61	57
	10	92	92	92	92	92	92	89	82	78	71	66	61	57
	20	72	72	72	72	72	72	72	72	72	71	66	61	57
	30	72	72	72	72	72	72	72	72	72	71	66	61	57
	40	63	63	63	63	63	63	63	63	63	63	63	61	57
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	103	98	93	89	85	82	79	71	64	58	53	49	45
	10	92	92	92	89	85	82	79	71	64	58	53	49	45
	20	72	72	72	72	72	72	72	71	64	58	53	49	45
	30	72	72	72	72	72	72	72	71	64	58	53	49	45
	40	63	63	63	63	63	63	63	63	63	58	53	49	45
	50	57	57	57	57	57	57	57	57	57	57	53	49	45
	60	53	53	53	53	53	53	53	53	53	53	53	49	45
	70	49	49	49	49	49	49	49	49	49	49	49	49	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 3r	0	95	90	86	82	79	75	70	62	56	51	47	43	40
	10	92	90	86	82	79	75	70	62	56	51	47	43	40
	20	72	72	72	72	72	72	70	62	56	51	47	43	40
	30	72	72	72	72	72	72	70	62	56	51	47	43	40
	40	63	63	63	63	63	63	63	62	56	51	47	43	40
	50	57	57	57	57	57	57	57	57	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	49	49	49	49	49	49	49	49	49	49	47	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 5a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Portrait				
		Exposure Category: C								North/South Support $X_E = 1$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	98	93	89	83	78	71	66	61	57
	10	92	92	92	92	92	92	89	83	78	71	66	61	57
	20	72	72	72	72	72	72	72	72	72	71	66	61	57
	30	72	72	72	72	72	72	72	72	72	71	66	61	57
	40	63	63	63	63	63	63	63	63	63	63	63	61	57
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	103	98	94	89	86	82	79	71	64	58	53	49	45
	10	92	92	92	89	86	82	79	71	64	58	53	49	45
	20	72	72	72	72	72	72	72	71	64	58	53	49	45
	30	72	72	72	72	72	72	72	71	64	58	53	49	45
	40	63	63	63	63	63	63	63	63	63	58	53	49	45
	50	57	57	57	57	57	57	57	57	57	57	53	49	45
	60	53	53	53	53	53	53	53	53	53	53	53	49	45
	70	49	49	49	49	49	49	49	49	49	49	49	49	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 3r	0	95	91	86	83	79	75	70	63	56	51	47	43	40
	10	92	91	86	83	79	75	70	63	56	51	47	43	40
	20	72	72	72	72	72	72	70	63	56	51	47	43	40
	30	72	72	72	72	72	72	70	63	56	51	47	43	40
	40	63	63	63	63	63	63	63	63	56	51	47	43	40
	50	57	57	57	57	57	57	57	57	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	49	49	49	49	49	49	49	49	49	49	47	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 5b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	92	87	83	80	77	73	66	60	56	51	48	45
	10	92	92	87	83	80	77	73	66	60	56	51	48	45
	20	72	72	72	72	72	72	72	66	60	56	51	48	45
	30	72	72	72	72	72	72	72	66	60	56	51	48	45
	40	63	63	63	63	63	63	63	63	60	56	51	48	45
	50	57	57	57	57	57	57	57	57	57	56	51	48	45
	60	53	53	53	53	53	53	53	53	53	53	51	48	45
	70	49	49	49	49	49	49	49	49	49	49	49	48	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	86	81	78	72	68	63	60	53	48	44	41	38	36
	10	86	81	78	72	68	63	60	53	48	44	41	38	36
	20	72	72	72	72	68	63	60	53	48	44	41	38	36
	30	72	72	72	72	68	63	60	53	48	44	41	38	36
	40	63	63	63	63	63	63	60	53	48	44	41	38	36
	50	57	57	57	57	57	57	57	53	48	44	41	38	36
	60	53	53	53	53	53	53	53	53	48	44	41	38	36
	70	49	49	49	49	49	49	49	49	48	44	41	38	36
	80	46	46	46	46	46	46	46	46	46	44	41	38	36
90	44	44	44	44	44	44	44	44	44	44	41	38	36	
Zone 3r	0	79	74	68	64	59	56	53	47	43	40	37	35	33
	10	79	74	68	64	59	56	53	47	43	40	37	35	33
	20	72	72	68	64	59	56	53	47	43	40	37	35	33
	30	72	72	68	64	59	56	53	47	43	40	37	35	33
	40	63	63	63	63	59	56	53	47	43	40	37	35	33
	50	57	57	57	57	57	56	53	47	43	40	37	35	33
	60	53	53	53	53	53	53	53	47	43	40	37	35	33
	70	49	49	49	49	49	49	49	47	43	40	37	35	33
	80	46	46	46	46	46	46	46	46	43	40	37	35	33
	90	44	44	44	44	44	44	44	44	43	40	37	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 6a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	98	93	88	85	82	76	69	63	59	54	51
	10	92	92	92	92	88	85	82	76	69	63	59	54	51
	20	72	72	72	72	72	72	72	72	69	63	59	54	51
	30	72	72	72	72	72	72	72	72	69	63	59	54	51
	40	63	63	63	63	63	63	63	63	63	63	59	54	51
	50	57	57	57	57	57	57	57	57	57	57	57	54	51
	60	53	53	53	53	53	53	53	53	53	53	53	53	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	94	90	86	82	79	74	70	62	56	51	47	43	40
	10	92	90	86	82	79	74	70	62	56	51	47	43	40
	20	72	72	72	72	72	72	70	62	56	51	47	43	40
	30	72	72	72	72	72	72	70	62	56	51	47	43	40
	40	63	63	63	63	63	63	63	62	56	51	47	43	40
	50	57	57	57	57	57	57	57	57	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	49	49	49	49	49	49	49	49	49	49	47	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40
Zone 3r	0	87	83	79	74	69	65	61	55	49	45	41	39	37
	10	87	83	79	74	69	65	61	55	49	45	41	39	37
	20	72	72	72	72	69	65	61	55	49	45	41	39	37
	30	72	72	72	72	69	65	61	55	49	45	41	39	37
	40	63	63	63	63	63	63	61	55	49	45	41	39	37
	50	57	57	57	57	57	57	57	55	49	45	41	39	37
	60	53	53	53	53	53	53	53	53	49	45	41	39	37
	70	49	49	49	49	49	49	49	49	49	45	41	39	37
	80	46	46	46	46	46	46	46	46	46	45	41	39	37
	90	44	44	44	44	44	44	44	44	44	44	41	39	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 6b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	88	84	80	77	72	68	65	59	54	50	46	43	40
	10	88	84	80	77	72	68	65	59	54	50	46	43	40
	20	72	72	72	72	72	68	65	59	54	50	46	43	40
	30	72	72	72	72	72	68	65	59	54	50	46	43	40
	40	63	63	63	63	63	63	63	59	54	50	46	43	40
	50	57	57	57	57	57	57	57	57	54	50	46	43	40
	60	53	53	53	53	53	53	53	53	53	50	46	43	40
	70	49	49	49	49	49	49	49	49	49	49	46	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40
Zones 2n, 2r, & 3e	0	79	73	68	63	59	55	52	47	42	39	37	35	33
	10	79	73	68	63	59	55	52	47	42	39	37	35	33
	20	72	72	68	63	59	55	52	47	42	39	37	35	33
	30	72	72	68	63	59	55	52	47	42	39	37	35	33
	40	63	63	63	63	59	55	52	47	42	39	37	35	33
	50	57	57	57	57	57	55	52	47	42	39	37	35	33
	60	53	53	53	53	53	53	52	47	42	39	37	35	33
	70	49	49	49	49	49	49	49	47	42	39	37	35	33
	80	46	46	46	46	46	46	46	46	42	39	37	35	33
	90	44	44	44	44	44	44	44	44	42	39	37	35	33
Zone 3r	0	69	64	59	55	52	49	46	42	38	36	33	31	30
	10	69	64	59	55	52	49	46	42	38	36	33	31	30
	20	69	64	59	55	52	49	46	42	38	36	33	31	30
	30	69	64	59	55	52	49	46	42	38	36	33	31	30
	40	63	63	59	55	52	49	46	42	38	36	33	31	30
	50	57	57	57	55	52	49	46	42	38	36	33	31	30
	60	53	53	53	53	52	49	46	42	38	36	33	31	30
	70	49	49	49	49	49	49	46	42	38	36	33	31	30
	80	46	46	46	46	46	46	46	42	38	36	33	31	30
	90	44	44	44	44	44	44	44	42	38	36	33	31	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 7a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	103	103	103	103	103	99	93	88	84
	10	100	100	100	100	100	100	100	100	100	99	93	88	84
	20	85	85	85	85	85	85	85	85	85	85	85	83	82
	30	72	72	72	72	72	72	72	72	72	72	72	72	72
	40	64	64	64	64	64	64	64	64	64	64	64	64	64
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	103	103	103	103	103	103	103	95	89	84	79	74	68
	10	100	100	100	100	100	100	100	95	89	84	79	74	68
	20	85	85	85	85	85	85	85	85	85	84	79	74	68
	30	72	72	72	72	72	72	72	72	72	72	72	72	68
	40	64	64	64	64	64	64	64	64	64	64	64	64	64
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 3r	0	103	103	103	103	103	102	97	90	84	79	73	67	61
	10	100	100	100	100	100	100	97	90	84	79	73	67	61
	20	85	85	85	85	85	85	85	85	84	79	73	67	61
	30	72	72	72	72	72	72	72	72	72	72	72	67	61
	40	64	64	64	64	64	64	64	64	64	64	64	64	61
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 7b		Mean Roof Height: $h \leq 15$ ft Roof Angle: $20 < \theta \leq 27$ degrees Exposure Category: B								Panel Orientation: Portrait North/South Support $X_E = 1.5$ Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	103	103	101	93	87	82	78	73	68
	10	100	100	100	100	100	100	100	93	87	82	78	73	68
	20	85	85	85	85	85	85	85	85	85	82	78	73	68
	30	72	72	72	72	72	72	72	72	72	72	72	72	68
	40	64	64	64	64	64	64	64	64	64	64	64	64	64
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	103	103	101	96	92	88	85	79	73	66	60	55	51
	10	100	100	100	96	92	88	85	79	73	66	60	55	51
	20	85	85	85	85	85	85	85	79	73	66	60	55	51
	30	72	72	72	72	72	72	72	72	72	66	60	55	51
	40	64	64	64	64	64	64	64	64	64	64	60	55	51
	50	58	58	58	58	58	58	58	58	58	58	58	55	51
	60	53	53	53	53	53	53	53	53	53	53	53	53	51
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 3r	0	103	100	95	91	87	84	80	74	66	59	54	50	46
	10	100	100	95	91	87	84	80	74	66	59	54	50	46
	20	85	85	85	85	85	84	80	74	66	59	54	50	46
	30	72	72	72	72	72	72	72	72	66	59	54	50	46
	40	64	64	64	64	64	64	64	64	64	59	54	50	46
	50	58	58	58	58	58	58	58	58	58	58	54	50	46
	60	53	53	53	53	53	53	53	53	53	53	53	50	46
	70	50	50	50	50	50	50	50	50	50	50	50	50	46
	80	47	47	47	47	47	47	47	47	47	47	47	47	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 8a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	103	103	101	94	88	83	78	74	69
	10	100	100	100	100	100	100	100	94	88	83	78	74	69
	20	85	85	85	85	85	85	85	85	83	82	78	74	69
	30	72	72	72	72	72	72	72	72	72	72	71	70	69
	40	64	64	64	64	64	64	64	64	64	64	64	64	63
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	103	103	101	96	92	89	85	80	73	66	60	55	51
	10	100	100	100	96	92	89	85	80	73	66	60	55	51
	20	85	85	85	85	85	85	85	80	73	66	60	55	51
	30	72	72	72	72	72	72	72	72	72	66	60	55	51
	40	64	64	64	64	64	64	64	64	64	64	60	55	51
	50	58	58	58	58	58	58	58	58	58	58	58	55	51
	60	53	53	53	53	53	53	53	53	53	53	53	53	51
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 3r	0	103	101	96	91	87	84	81	74	66	60	54	50	46
	10	100	100	96	91	87	84	81	74	66	60	54	50	46
	20	85	85	85	85	85	84	81	74	66	60	54	50	46
	30	72	72	72	72	72	72	72	72	66	60	54	50	46
	40	64	64	64	64	64	64	64	64	64	60	54	50	46
	50	58	58	58	58	58	58	58	58	58	58	54	50	46
	60	53	53	53	53	53	53	53	53	53	53	53	50	46
	70	50	50	50	50	50	50	50	50	50	50	50	50	46
	80	47	47	47	47	47	47	47	47	47	47	47	47	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 8b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	99	95	91	87	84	79	73	67	62	57	53
	10	100	100	99	95	91	87	84	79	73	67	62	57	53
	20	85	85	85	85	85	85	84	79	73	67	62	57	53
	30	72	72	72	72	72	72	72	72	72	67	62	57	53
	40	64	64	64	64	64	64	64	64	64	64	62	57	53
	50	58	58	58	58	58	58	58	58	58	58	58	57	53
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	92	88	84	80	77	73	68	61	55	50	46	42	40
	10	92	88	84	80	77	73	68	61	55	50	46	42	40
	20	85	85	84	80	77	73	68	61	55	50	46	42	40
	30	72	72	72	72	72	72	68	61	55	50	46	42	40
	40	64	64	64	64	64	64	64	61	55	50	46	42	40
	50	58	58	58	58	58	58	58	58	55	50	46	42	40
	60	53	53	53	53	53	53	53	53	53	50	46	42	40
	70	50	50	50	50	50	50	50	50	50	50	46	42	40
	80	47	47	47	47	47	47	47	47	47	47	46	42	40
90	44	44	44	44	44	44	44	44	44	44	44	42	40	
Zone 3r	0	87	83	79	75	70	66	62	55	49	45	41	38	36
	10	87	83	79	75	70	66	62	55	49	45	41	38	36
	20	85	83	79	75	70	66	62	55	49	45	41	38	36
	30	72	72	72	72	70	66	62	55	49	45	41	38	36
	40	64	64	64	64	64	64	62	55	49	45	41	38	36
	50	58	58	58	58	58	58	58	55	49	45	41	38	36
	60	53	53	53	53	53	53	53	53	49	45	41	38	36
	70	50	50	50	50	50	50	50	50	49	45	41	38	36
	80	47	47	47	47	47	47	47	47	47	45	41	38	36
	90	44	44	44	44	44	44	44	44	44	44	41	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 9a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $20 < \theta \leq 27$ degrees Exposure Category: D							Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	100	96	92	86	81	76	70	65	61
	10	100	100	100	100	100	96	92	86	81	76	70	65	61
	20	85	85	85	85	85	85	84	83	81	76	70	65	61
	30	72	72	72	72	72	72	72	72	72	71	70	65	61
	40	64	64	64	64	64	64	64	64	64	64	63	63	61
	50	58	58	58	58	58	58	58	58	58	58	58	58	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	102	97	92	88	85	81	78	71	64	58	53	49	45
	10	100	97	92	88	85	81	78	71	64	58	53	49	45
	20	85	85	85	85	85	81	78	71	64	58	53	49	45
	30	72	72	72	72	72	72	72	71	64	58	53	49	45
	40	64	64	64	64	64	64	64	64	64	58	53	49	45
	50	58	58	58	58	58	58	58	58	58	58	53	49	45
	60	53	53	53	53	53	53	53	53	53	53	53	49	45
	70	50	50	50	50	50	50	50	50	50	50	50	49	45
	80	47	47	47	47	47	47	47	47	47	47	47	47	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 3r	0	97	92	87	83	80	77	72	64	57	52	47	44	40
	10	97	92	87	83	80	77	72	64	57	52	47	44	40
	20	85	85	85	83	80	77	72	64	57	52	47	44	40
	30	72	72	72	72	72	72	72	64	57	52	47	44	40
	40	64	64	64	64	64	64	64	64	57	52	47	44	40
	50	58	58	58	58	58	58	58	58	57	52	47	44	40
	60	53	53	53	53	53	53	53	53	53	52	47	44	40
	70	50	50	50	50	50	50	50	50	50	50	47	44	40
	80	47	47	47	47	47	47	47	47	47	47	47	44	40
	90	44	44	44	44	44	44	44	44	44	44	44	44	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 9b		Mean Roof Height: $h \leq 15$ ft Roof Angle: $20 < \theta \leq 27$ degrees Exposure Category: D								Panel Orientation: Portrait North/South Support $X_E = 1.5$ Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	100	95	91	87	83	80	78	71	65	59	55	51	48
	10	100	95	91	87	83	80	78	71	65	59	55	51	48
	20	85	85	85	85	83	80	78	71	65	59	55	51	48
	30	72	72	72	72	72	72	72	71	65	59	55	51	48
	40	64	64	64	64	64	64	64	64	64	59	55	51	48
	50	58	58	58	58	58	58	58	58	58	58	55	51	48
	60	53	53	53	53	53	53	53	53	53	53	53	51	48
	70	50	50	50	50	50	50	50	50	50	50	50	50	48
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	85	81	77	72	67	63	59	53	48	44	41	38	36
	10	85	81	77	72	67	63	59	53	48	44	41	38	36
	20	85	81	77	72	67	63	59	53	48	44	41	38	36
	30	72	72	72	72	67	63	59	53	48	44	41	38	36
	40	64	64	64	64	64	63	59	53	48	44	41	38	36
	50	58	58	58	58	58	58	58	53	48	44	41	38	36
	60	53	53	53	53	53	53	53	53	48	44	41	38	36
	70	50	50	50	50	50	50	50	50	48	44	41	38	36
	80	47	47	47	47	47	47	47	47	47	44	41	38	36
	90	44	44	44	44	44	44	44	44	44	44	41	38	36
Zone 3r	0	80	76	70	65	61	57	53	48	43	40	37	34	32
	10	80	76	70	65	61	57	53	48	43	40	37	34	32
	20	80	76	70	65	61	57	53	48	43	40	37	34	32
	30	72	72	70	65	61	57	53	48	43	40	37	34	32
	40	64	64	64	64	61	57	53	48	43	40	37	34	32
	50	58	58	58	58	58	57	53	48	43	40	37	34	32
	60	53	53	53	53	53	53	53	48	43	40	37	34	32
	70	50	50	50	50	50	50	50	48	43	40	37	34	32
	80	47	47	47	47	47	47	47	47	43	40	37	34	32
	90	44	44	44	44	44	44	44	44	43	40	37	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 10a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	103	103	103	103	103	103	98	92	87	83
	10	101	101	101	101	101	101	101	101	98	96	92	87	83
	20	88	88	88	88	88	88	87	86	84	83	81	79	78
	30	76	76	76	76	76	76	76	76	75	74	73	71	70
	40	67	67	67	67	67	67	67	67	67	67	67	66	65
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zones 2n & 3r	0	103	103	103	103	103	103	103	103	96	91	86	81	77
	10	101	101	101	101	101	101	101	101	96	91	86	81	77
	20	88	88	88	88	88	88	87	86	84	83	81	79	77
	30	76	76	76	76	76	76	76	76	75	74	73	71	70
	40	67	67	67	67	67	67	67	67	67	67	67	66	65
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3e	0	103	103	103	103	103	103	101	94	88	83	78	74	68
	10	101	101	101	101	101	101	101	94	88	83	78	74	68
	20	88	88	88	88	88	88	87	86	84	83	78	74	68
	30	76	76	76	76	76	76	76	76	75	74	73	71	68
	40	67	67	67	67	67	67	67	67	67	67	67	66	65
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 10b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	103	103	103	100	93	87	82	77	72	66
	10	101	101	101	101	101	101	100	93	87	82	77	72	66
	20	88	88	88	88	88	88	87	86	84	82	77	72	66
	30	76	76	76	76	76	76	76	76	75	74	73	71	66
	40	67	67	67	67	67	67	67	67	67	67	67	66	65
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zones 2n & 3r	0	103	103	103	103	100	96	92	86	81	76	70	64	59
	10	101	101	101	101	100	96	92	86	81	76	70	64	59
	20	88	88	88	88	88	88	87	86	81	76	70	64	59
	30	76	76	76	76	76	76	76	76	75	74	70	64	59
	40	67	67	67	67	67	67	67	67	67	67	67	64	59
	50	61	61	61	61	61	61	61	61	61	61	61	61	59
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3e	0	103	103	99	95	91	87	84	79	73	66	60	55	51
	10	101	101	99	95	91	87	84	79	73	66	60	55	51
	20	88	88	88	88	88	87	84	79	73	66	60	55	51
	30	76	76	76	76	76	76	76	76	73	66	60	55	51
	40	67	67	67	67	67	67	67	67	67	66	60	55	51
	50	61	61	61	61	61	61	61	61	61	61	60	55	51
	60	57	57	57	57	57	57	57	57	57	57	57	55	51
	70	53	53	53	53	53	53	53	53	53	53	53	53	51
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 11a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	103	103	103	100	93	87	82	77	72	66
	10	101	101	101	101	100	98	97	93	87	82	77	72	66
	20	88	88	87	86	85	84	83	81	79	77	75	72	66
	30	76	76	76	76	76	75	74	73	71	70	68	67	65
	40	67	67	67	67	67	67	67	67	65	64	63	62	60
	50	61	61	61	61	61	61	61	61	61	60	59	58	57
	60	57	57	57	57	57	57	57	57	57	56	55	54	53
	70	53	53	53	53	53	53	53	53	53	53	52	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zones 2n & 3r	0	103	103	103	103	100	96	92	86	81	76	70	65	60
	10	101	101	101	101	100	96	92	86	81	76	70	65	60
	20	88	88	87	86	85	84	83	81	79	76	70	65	60
	30	76	76	76	76	76	75	74	73	71	70	68	65	60
	40	67	67	67	67	67	67	67	67	65	64	63	62	60
	50	61	61	61	61	61	61	61	61	61	60	59	58	57
	60	57	57	57	57	57	57	57	57	57	56	55	54	53
	70	53	53	53	53	53	53	53	53	53	53	52	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3e	0	103	103	99	95	91	87	84	79	73	66	60	56	51
	10	101	101	99	95	91	87	84	79	73	66	60	56	51
	20	88	88	87	86	85	84	83	79	73	66	60	56	51
	30	76	76	76	76	76	75	74	73	71	66	60	56	51
	40	67	67	67	67	67	67	67	67	65	64	60	56	51
	50	61	61	61	61	61	61	61	61	61	60	59	56	51
	60	57	57	57	57	57	57	57	57	57	56	55	54	51
	70	53	53	53	53	53	53	53	53	53	53	52	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 11b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	99	94	90	87	83	78	71	64	58	53	49
	10	101	101	99	94	90	87	83	78	71	64	58	53	49
	20	88	88	87	86	85	84	83	78	71	64	58	53	49
	30	76	76	76	76	76	75	74	73	71	64	58	53	49
	40	67	67	67	67	67	67	67	67	65	64	58	53	49
	50	61	61	61	61	61	61	61	61	61	60	58	53	49
	60	57	57	57	57	57	57	57	57	57	56	55	53	49
	70	53	53	53	53	53	53	53	53	53	53	52	52	49
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zones 2n & 3r	0	100	95	91	87	84	81	78	71	64	58	53	49	45
	10	100	95	91	87	84	81	78	71	64	58	53	49	45
	20	88	88	87	86	84	81	78	71	64	58	53	49	45
	30	76	76	76	76	76	75	74	71	64	58	53	49	45
	40	67	67	67	67	67	67	67	67	64	58	53	49	45
	50	61	61	61	61	61	61	61	61	61	58	53	49	45
	60	57	57	57	57	57	57	57	57	57	56	53	49	45
	70	53	53	53	53	53	53	53	53	53	53	52	49	45
	80	50	50	50	50	50	50	50	50	50	50	50	49	45
	90	47	47	47	47	47	47	47	47	47	47	47	47	45
Zone 3e	0	91	87	83	79	76	73	68	61	55	50	46	42	40
	10	91	87	83	79	76	73	68	61	55	50	46	42	40
	20	88	87	83	79	76	73	68	61	55	50	46	42	40
	30	76	76	76	76	76	73	68	61	55	50	46	42	40
	40	67	67	67	67	67	67	67	61	55	50	46	42	40
	50	61	61	61	61	61	61	61	61	55	50	46	42	40
	60	57	57	57	57	57	57	57	57	55	50	46	42	40
	70	53	53	53	53	53	53	53	53	53	50	46	42	40
	80	50	50	50	50	50	50	50	50	50	50	46	42	40
	90	47	47	47	47	47	47	47	47	47	47	46	42	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 12a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	103	100	95	92	85	80	75	68	62	57
	10	101	101	100	98	96	95	92	85	80	75	68	62	57
	20	87	86	85	84	83	82	81	79	76	74	68	62	57
	30	76	76	76	75	74	73	73	71	69	67	66	62	57
	40	67	67	67	67	67	67	66	65	64	62	61	59	57
	50	61	61	61	61	61	61	61	61	59	58	57	56	54
	60	57	57	57	57	57	57	57	57	56	55	54	53	52
	70	53	53	53	53	53	53	53	53	53	52	51	50	49
	80	50	50	50	50	50	50	50	50	50	50	49	48	47
	90	47	47	47	47	47	47	47	47	47	47	47	46	45
Zones 2n & 3r	0	103	103	100	96	92	88	85	79	74	67	61	57	52
	10	101	101	100	96	92	88	85	79	74	67	61	57	52
	20	87	86	85	84	83	82	81	79	74	67	61	57	52
	30	76	76	76	75	74	73	73	71	69	67	61	57	52
	40	67	67	67	67	67	67	66	65	64	62	61	57	52
	50	61	61	61	61	61	61	61	61	59	58	57	56	52
	60	57	57	57	57	57	57	57	57	56	55	54	53	52
	70	53	53	53	53	53	53	53	53	53	52	51	50	49
	80	50	50	50	50	50	50	50	50	50	50	49	48	47
	90	47	47	47	47	47	47	47	47	47	47	47	46	45
Zone 3e	0	100	95	91	87	84	81	78	71	64	58	53	49	45
	10	100	95	91	87	84	81	78	71	64	58	53	49	45
	20	87	86	85	84	83	81	78	71	64	58	53	49	45
	30	76	76	76	75	74	73	73	71	64	58	53	49	45
	40	67	67	67	67	67	67	66	65	64	58	53	49	45
	50	61	61	61	61	61	61	61	61	59	58	53	49	45
	60	57	57	57	57	57	57	57	57	56	55	53	49	45
	70	53	53	53	53	53	53	53	53	53	52	51	49	45
	80	50	50	50	50	50	50	50	50	50	50	49	48	45
	90	47	47	47	47	47	47	47	47	47	47	47	46	45

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 12b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	99	94	90	86	83	79	77	69	61	55	51	46	43
	10	99	94	90	86	83	79	77	69	61	55	51	46	43
	20	87	86	85	84	83	79	77	69	61	55	51	46	43
	30	76	76	76	75	74	73	73	69	61	55	51	46	43
	40	67	67	67	67	67	67	66	65	61	55	51	46	43
	50	61	61	61	61	61	61	61	61	59	55	51	46	43
	60	57	57	57	57	57	57	57	57	56	55	51	46	43
	70	53	53	53	53	53	53	53	53	53	52	51	46	43
	80	50	50	50	50	50	50	50	50	50	50	49	46	43
	90	47	47	47	47	47	47	47	47	47	47	47	46	43
Zones 2n & 3r	0	92	87	84	80	77	74	69	62	56	51	47	43	40
	10	92	87	84	80	77	74	69	62	56	51	47	43	40
	20	87	86	84	80	77	74	69	62	56	51	47	43	40
	30	76	76	76	75	74	73	69	62	56	51	47	43	40
	40	67	67	67	67	67	67	66	62	56	51	47	43	40
	50	61	61	61	61	61	61	61	61	56	51	47	43	40
	60	57	57	57	57	57	57	57	57	56	51	47	43	40
	70	53	53	53	53	53	53	53	53	53	51	47	43	40
	80	50	50	50	50	50	50	50	50	50	50	47	43	40
	90	47	47	47	47	47	47	47	47	47	47	47	43	40
Zone 3e	0	83	80	76	72	67	63	59	53	48	44	41	38	35
	10	83	80	76	72	67	63	59	53	48	44	41	38	35
	20	83	80	76	72	67	63	59	53	48	44	41	38	35
	30	76	76	76	72	67	63	59	53	48	44	41	38	35
	40	67	67	67	67	67	63	59	53	48	44	41	38	35
	50	61	61	61	61	61	61	59	53	48	44	41	38	35
	60	57	57	57	57	57	57	57	53	48	44	41	38	35
	70	53	53	53	53	53	53	53	53	48	44	41	38	35
	80	50	50	50	50	50	50	50	50	48	44	41	38	35
	90	47	47	47	47	47	47	47	47	47	44	41	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 13a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Hip $h/B = \geq 0.8$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	98	91	86	82	78
	10	92	92	92	92	92	92	92	92	92	91	86	82	78
	20	72	72	72	72	72	72	72	72	72	72	72	71	70
	30	72	72	72	72	72	72	72	72	72	72	72	71	70
	40	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 2r	0	103	103	103	103	103	103	103	96	89	84	80	74	68
	10	92	92	92	92	92	92	92	92	89	84	80	74	68
	20	72	72	72	72	72	72	72	72	72	72	72	71	68
	30	72	72	72	72	72	72	72	72	72	72	72	71	68
	40	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2e & 3	0	103	103	103	103	103	103	99	92	86	81	76	70	65
	10	92	92	92	92	92	92	92	92	86	81	76	70	65
	20	72	72	72	72	72	72	72	72	72	72	72	70	65
	30	72	72	72	72	72	72	72	72	72	72	72	70	65
	40	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 13b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Hip $h/B = \geq 0.8$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	101	97	93	86	81	76	70	65	61
	10	92	92	92	92	92	92	92	86	81	76	70	65	61
	20	72	72	72	72	72	72	72	72	72	72	70	65	61
	30	72	72	72	72	72	72	72	72	72	72	70	65	61
	40	63	63	63	63	63	63	63	63	63	63	63	63	61
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	103	103	101	97	93	89	86	80	73	66	61	56	52
	10	92	92	92	92	92	89	86	80	73	66	61	56	52
	20	72	72	72	72	72	72	72	72	72	66	61	56	52
	30	72	72	72	72	72	72	72	72	72	66	61	56	52
	40	63	63	63	63	63	63	63	63	63	63	61	56	52
	50	57	57	57	57	57	57	57	57	57	57	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	102	98	93	89	86	83	77	69	63	58	53	49
	10	92	92	92	92	89	86	83	77	69	63	58	53	49
	20	72	72	72	72	72	72	72	72	69	63	58	53	49
	30	72	72	72	72	72	72	72	72	69	63	58	53	49
	40	63	63	63	63	63	63	63	63	63	63	58	53	49
	50	57	57	57	57	57	57	57	57	57	57	57	53	49
	60	53	53	53	53	53	53	53	53	53	53	53	53	49
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 14a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: C							Roof Type : Hip $h/B = \geq 0.8$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	102	97	93	87	81	76	70	65	61
	10	92	92	92	92	92	92	91	87	81	76	70	65	61
	20	72	72	72	72	72	72	72	72	71	70	69	65	61
	30	72	72	72	72	72	72	72	72	71	70	69	65	61
	40	63	63	63	63	63	63	63	63	63	63	63	62	61
	50	57	57	57	57	57	57	57	57	57	57	57	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	103	103	102	97	93	89	86	80	73	67	61	56	52
	10	92	92	92	92	92	89	86	80	73	67	61	56	52
	20	72	72	72	72	72	72	72	72	71	67	61	56	52
	30	72	72	72	72	72	72	72	72	71	67	61	56	52
	40	63	63	63	63	63	63	63	63	63	63	61	56	52
	50	57	57	57	57	57	57	57	57	57	57	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	103	98	93	90	86	83	77	69	63	58	53	49
	10	92	92	92	92	90	86	83	77	69	63	58	53	49
	20	72	72	72	72	72	72	72	72	69	63	58	53	49
	30	72	72	72	72	72	72	72	72	69	63	58	53	49
	40	63	63	63	63	63	63	63	63	63	63	58	53	49
	50	57	57	57	57	57	57	57	57	57	57	57	53	49
	60	53	53	53	53	53	53	53	53	53	53	53	53	49
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 14b		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Portrait				
		Exposure Category: C				North/South Support $X_E = 1.5$								
						Roof Type : Hip $h/B = \geq 0.8$								
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	102	96	92	87	84	81	78	71	65	59	55	51	48
	10	92	92	92	87	84	81	78	71	65	59	55	51	48
	20	72	72	72	72	72	72	72	71	65	59	55	51	48
	30	72	72	72	72	72	72	72	71	65	59	55	51	48
	40	63	63	63	63	63	63	63	63	63	59	55	51	48
	50	57	57	57	57	57	57	57	57	57	57	55	51	48
	60	53	53	53	53	53	53	53	53	53	53	53	51	48
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	93	88	84	81	78	73	69	61	56	51	47	43	40
	10	92	88	84	81	78	73	69	61	56	51	47	43	40
	20	72	72	72	72	72	72	69	61	56	51	47	43	40
	30	72	72	72	72	72	72	69	61	56	51	47	43	40
	40	63	63	63	63	63	63	63	61	56	51	47	43	40
	50	57	57	57	57	57	57	57	57	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	49	49	49	49	49	49	49	49	49	49	47	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40
Zones 2e & 3	0	89	85	82	78	73	69	65	58	53	48	44	41	39
	10	89	85	82	78	73	69	65	58	53	48	44	41	39
	20	72	72	72	72	72	69	65	58	53	48	44	41	39
	30	72	72	72	72	72	69	65	58	53	48	44	41	39
	40	63	63	63	63	63	63	63	58	53	48	44	41	39
	50	57	57	57	57	57	57	57	57	53	48	44	41	39
	60	53	53	53	53	53	53	53	53	53	48	44	41	39
	70	49	49	49	49	49	49	49	49	49	48	44	41	39
	80	46	46	46	46	46	46	46	46	46	46	44	41	39
	90	44	44	44	44	44	44	44	44	44	44	44	41	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 15a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $7 < \theta \leq 20$ degrees Exposure Category: D								Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Hip $h/B = \geq 0.8$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	102	97	93	89	85	80	74	68	62	58	54
	10	92	92	92	92	91	89	85	80	74	68	62	58	54
	20	72	72	72	72	72	72	72	71	70	68	62	58	54
	30	72	72	72	72	72	72	72	71	70	68	62	58	54
	40	63	63	63	63	63	63	63	63	63	62	61	58	54
	50	57	57	57	57	57	57	57	57	57	57	57	56	54
	60	53	53	53	53	53	53	53	53	53	53	53	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	102	97	93	89	85	82	79	71	64	58	54	50	46
	10	92	92	92	89	85	82	79	71	64	58	54	50	46
	20	72	72	72	72	72	72	72	71	64	58	54	50	46
	30	72	72	72	72	72	72	72	71	64	58	54	50	46
	40	63	63	63	63	63	63	63	63	63	58	54	50	46
	50	57	57	57	57	57	57	57	57	57	57	54	50	46
	60	53	53	53	53	53	53	53	53	53	53	53	50	46
	70	49	49	49	49	49	49	49	49	49	49	49	49	46
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	99	94	90	86	82	79	75	67	61	55	51	47	44
	10	92	92	90	86	82	79	75	67	61	55	51	47	44
	20	72	72	72	72	72	72	72	67	61	55	51	47	44
	30	72	72	72	72	72	72	72	67	61	55	51	47	44
	40	63	63	63	63	63	63	63	63	61	55	51	47	44
	50	57	57	57	57	57	57	57	57	57	55	51	47	44
	60	53	53	53	53	53	53	53	53	53	53	51	47	44
	70	49	49	49	49	49	49	49	49	49	49	49	47	44
	80	46	46	46	46	46	46	46	46	46	46	46	46	44
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 15b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Hip $h/B = \geq 0.8$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	92	88	84	81	77	73	69	63	57	53	49	45	43
	10	92	88	84	81	77	73	69	63	57	53	49	45	43
	20	72	72	72	72	72	72	69	63	57	53	49	45	43
	30	72	72	72	72	72	72	69	63	57	53	49	45	43
	40	63	63	63	63	63	63	63	63	57	53	49	45	43
	50	57	57	57	57	57	57	57	57	57	53	49	45	43
	60	53	53	53	53	53	53	53	53	53	53	49	45	43
	70	49	49	49	49	49	49	49	49	49	49	49	45	43
	80	46	46	46	46	46	46	46	46	46	46	46	45	43
	90	44	44	44	44	44	44	44	44	44	44	44	44	43
Zone 2r	0	85	81	77	72	68	64	60	54	49	45	41	39	37
	10	85	81	77	72	68	64	60	54	49	45	41	39	37
	20	72	72	72	72	68	64	60	54	49	45	41	39	37
	30	72	72	72	72	68	64	60	54	49	45	41	39	37
	40	63	63	63	63	63	63	60	54	49	45	41	39	37
	50	57	57	57	57	57	57	57	54	49	45	41	39	37
	60	53	53	53	53	53	53	53	53	49	45	41	39	37
	70	49	49	49	49	49	49	49	49	49	45	41	39	37
	80	46	46	46	46	46	46	46	46	46	45	41	39	37
	90	44	44	44	44	44	44	44	44	44	44	41	39	37
Zones 2e & 3	0	82	78	73	68	64	60	57	51	46	43	40	37	35
	10	82	78	73	68	64	60	57	51	46	43	40	37	35
	20	72	72	72	68	64	60	57	51	46	43	40	37	35
	30	72	72	72	68	64	60	57	51	46	43	40	37	35
	40	63	63	63	63	63	60	57	51	46	43	40	37	35
	50	57	57	57	57	57	57	57	51	46	43	40	37	35
	60	53	53	53	53	53	53	53	51	46	43	40	37	35
	70	49	49	49	49	49	49	49	49	46	43	40	37	35
	80	46	46	46	46	46	46	46	46	46	43	40	37	35
	90	44	44	44	44	44	44	44	44	44	43	40	37	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 16a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	103	103	99	94	89
	10	92	92	92	92	92	92	92	92	92	91	89	88	83
	20	72	72	72	72	72	72	72	72	72	72	71	70	69
	30	72	72	72	72	72	72	72	72	72	72	71	70	69
	40	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 2r	0	103	103	103	103	103	103	103	96	89	84	80	74	68
	10	92	92	92	92	92	92	92	92	89	84	80	74	68
	20	72	72	72	72	72	72	72	72	72	72	71	70	68
	30	72	72	72	72	72	72	72	72	72	72	71	70	68
	40	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2e & 3	0	103	103	103	103	103	103	103	103	101	95	90	85	81
	10	92	92	92	92	92	92	92	92	92	91	89	85	81
	20	72	72	72	72	72	72	72	72	72	72	71	70	69
	30	72	72	72	72	72	72	72	72	72	72	71	70	69
	40	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 16b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	100	93	88	83	79	74
	10	92	92	92	92	92	92	92	92	92	88	83	79	74
	20	72	72	72	72	72	72	72	72	72	72	71	70	69
	30	72	72	72	72	72	72	72	72	72	72	71	70	69
	40	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	103	103	101	97	93	89	86	80	73	66	61	56	52
	10	92	92	92	92	92	89	86	80	73	66	61	56	52
	20	72	72	72	72	72	72	72	72	72	66	61	56	52
	30	72	72	72	72	72	72	72	72	72	66	61	56	52
	40	63	63	63	63	63	63	63	63	63	63	61	56	52
	50	57	57	57	57	57	57	57	57	57	57	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	103	103	103	103	101	97	90	84	79	73	68	63
	10	92	92	92	92	92	92	92	90	84	79	73	68	63
	20	72	72	72	72	72	72	72	72	72	72	71	68	63
	30	72	72	72	72	72	72	72	72	72	72	71	68	63
	40	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 17a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: C							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	100	94	88	83	79	74
	10	92	92	92	92	92	92	91	89	87	83	80	78	74
	20	72	72	72	72	72	72	72	71	70	69	68	66	65
	30	72	72	72	72	72	72	72	71	70	69	68	66	65
	40	63	63	63	63	63	63	63	63	63	63	62	61	60
	50	57	57	57	57	57	57	57	57	57	57	57	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	103	103	102	97	93	89	86	80	73	67	61	56	52
	10	92	92	92	92	92	89	86	80	73	67	61	56	52
	20	72	72	72	72	72	72	72	71	70	67	61	56	52
	30	72	72	72	72	72	72	72	71	70	67	61	56	52
	40	63	63	63	63	63	63	63	63	63	63	61	56	52
	50	57	57	57	57	57	57	57	57	57	57	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	103	103	103	103	101	97	90	84	80	74	68	63
	10	92	92	92	92	92	92	91	89	84	80	74	68	63
	20	72	72	72	72	72	72	72	71	70	69	68	66	63
	30	72	72	72	72	72	72	72	71	70	69	68	66	63
	40	63	63	63	63	63	63	63	63	63	63	62	61	60
	50	57	57	57	57	57	57	57	57	57	57	57	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 17b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	101	97	93	90	84	79	73	67	62	58
	10	92	92	92	92	92	92	90	84	79	73	67	62	58
	20	72	72	72	72	72	72	72	71	70	69	67	62	58
	30	72	72	72	72	72	72	72	71	70	69	67	62	58
	40	63	63	63	63	63	63	63	63	63	63	62	61	58
	50	57	57	57	57	57	57	57	57	57	57	57	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	93	88	84	81	78	73	69	61	56	51	47	43	40
	10	92	88	84	81	78	73	69	61	56	51	47	43	40
	20	72	72	72	72	72	72	69	61	56	51	47	43	40
	30	72	72	72	72	72	72	69	61	56	51	47	43	40
	40	63	63	63	63	63	63	63	61	56	51	47	43	40
	50	57	57	57	57	57	57	57	57	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	49	49	49	49	49	49	49	49	49	49	47	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40
Zones 2e & 3	0	103	100	95	91	87	84	81	74	67	61	56	52	48
	10	92	92	92	91	87	84	81	74	67	61	56	52	48
	20	72	72	72	72	72	72	72	71	67	61	56	52	48
	30	72	72	72	72	72	72	72	71	67	61	56	52	48
	40	63	63	63	63	63	63	63	63	63	61	56	52	48
	50	57	57	57	57	57	57	57	57	57	57	56	52	48
	60	53	53	53	53	53	53	53	53	53	53	53	52	48
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 18a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: D							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	99	92	86	81	77	71	66
	10	92	92	92	92	91	90	89	87	82	79	77	71	66
	20	72	72	72	72	72	72	71	70	68	67	66	64	63
	30	72	72	72	72	72	72	71	70	68	67	66	64	63
	40	63	63	63	63	63	63	63	63	63	61	60	59	58
	50	57	57	57	57	57	57	57	57	57	57	56	55	54
	60	53	53	53	53	53	53	53	53	53	53	53	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	102	97	93	89	85	82	79	71	64	58	54	50	46
	10	92	92	92	89	85	82	79	71	64	58	54	50	46
	20	72	72	72	72	72	72	71	70	64	58	54	50	46
	30	72	72	72	72	72	72	71	70	64	58	54	50	46
	40	63	63	63	63	63	63	63	63	63	58	54	50	46
	50	57	57	57	57	57	57	57	57	57	57	54	50	46
	60	53	53	53	53	53	53	53	53	53	53	53	50	46
	70	49	49	49	49	49	49	49	49	49	49	49	49	46
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	103	103	100	96	92	89	83	78	71	65	60	55
	10	92	92	92	92	91	90	89	83	78	71	65	60	55
	20	72	72	72	72	72	72	71	70	68	67	65	60	55
	30	72	72	72	72	72	72	71	70	68	67	65	60	55
	40	63	63	63	63	63	63	63	63	63	61	60	59	55
	50	57	57	57	57	57	57	57	57	57	57	56	55	54
	60	53	53	53	53	53	53	53	53	53	53	53	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 18b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	102	97	93	89	85	82	77	70	64	59	55	52
	10	92	92	92	92	89	85	82	77	70	64	59	55	52
	20	72	72	72	72	72	72	71	70	68	64	59	55	52
	30	72	72	72	72	72	72	71	70	68	64	59	55	52
	40	63	63	63	63	63	63	63	63	63	61	59	55	52
	50	57	57	57	57	57	57	57	57	57	57	56	55	52
	60	53	53	53	53	53	53	53	53	53	53	53	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	85	81	77	72	68	64	60	54	49	45	41	39	37
	10	85	81	77	72	68	64	60	54	49	45	41	39	37
	20	72	72	72	72	68	64	60	54	49	45	41	39	37
	30	72	72	72	72	68	64	60	54	49	45	41	39	37
	40	63	63	63	63	63	63	60	54	49	45	41	39	37
	50	57	57	57	57	57	57	57	54	49	45	41	39	37
	60	53	53	53	53	53	53	53	53	49	45	41	39	37
	70	49	49	49	49	49	49	49	49	49	45	41	39	37
	80	46	46	46	46	46	46	46	46	46	45	41	39	37
	90	44	44	44	44	44	44	44	44	44	44	41	39	37
Zones 2e & 3	0	96	91	87	84	80	77	73	65	59	54	50	46	43
	10	92	91	87	84	80	77	73	65	59	54	50	46	43
	20	72	72	72	72	72	72	71	65	59	54	50	46	43
	30	72	72	72	72	72	72	71	65	59	54	50	46	43
	40	63	63	63	63	63	63	63	63	59	54	50	46	43
	50	57	57	57	57	57	57	57	57	57	54	50	46	43
	60	53	53	53	53	53	53	53	53	53	53	50	46	43
	70	49	49	49	49	49	49	49	49	49	49	49	46	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
	90	44	44	44	44	44	44	44	44	44	44	44	44	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 19a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	103	103	103	97	92
	10	100	100	100	100	100	100	100	100	100	100	98	96	92
	20	85	85	85	85	85	85	85	85	85	84	82	81	80
	30	72	72	72	72	72	72	72	72	72	72	72	72	71
	40	64	64	64	64	64	64	64	64	64	64	64	64	64
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	103	103	103	103	103	103	103	103	98	92	86	82	78
	10	100	100	100	100	100	100	100	100	98	92	86	82	78
	20	85	85	85	85	85	85	85	85	85	84	82	81	78
	30	72	72	72	72	72	72	72	72	72	72	72	72	71
	40	64	64	64	64	64	64	64	64	64	64	64	64	64
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 19b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	96	90	85	81	77
	10	100	100	100	100	100	100	100	100	96	90	85	81	77
	20	85	85	85	85	85	85	85	85	85	84	82	81	77
	30	72	72	72	72	72	72	72	72	72	72	72	72	71
	40	64	64	64	64	64	64	64	64	64	64	64	64	64
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	103	103	103	103	101	97	93	87	81	77	70	64	59
	10	100	100	100	100	100	97	93	87	81	77	70	64	59
	20	85	85	85	85	85	85	85	85	81	77	70	64	59
	30	72	72	72	72	72	72	72	72	72	72	70	64	59
	40	64	64	64	64	64	64	64	64	64	64	64	64	59
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 20a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	96	90	85	81	77
	10	100	100	100	100	100	100	100	98	96	90	85	81	77
	20	85	85	85	85	85	85	84	83	81	79	78	76	74
	30	72	72	72	72	72	72	72	72	72	70	69	68	67
	40	64	64	64	64	64	64	64	64	64	64	63	62	61
	50	58	58	58	58	58	58	58	58	58	58	58	58	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	103	103	103	103	101	97	93	87	82	77	70	64	59
	10	100	100	100	100	100	97	93	87	82	77	70	64	59
	20	85	85	85	85	85	85	84	83	81	77	70	64	59
	30	72	72	72	72	72	72	72	72	72	70	69	64	59
	40	64	64	64	64	64	64	64	64	64	64	63	62	59
	50	58	58	58	58	58	58	58	58	58	58	58	58	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 20b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: C							Roof Type : Hip						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	103	103	103	103	100	96	92	86	80	75	68	63	58	
	10	100	100	100	100	100	96	92	86	80	75	68	63	58	
	20	85	85	85	85	85	85	84	83	80	75	68	63	58	
	30	72	72	72	72	72	72	72	72	72	70	68	63	58	
	40	64	64	64	64	64	64	64	64	64	64	63	62	58	
	50	58	58	58	58	58	58	58	58	58	58	58	58	57	
	60	53	53	53	53	53	53	53	53	53	53	53	53	53	
	70	50	50	50	50	50	50	50	50	50	50	50	50	50	
	80	47	47	47	47	47	47	47	47	47	47	47	47	47	
	90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2e, 2r, & 3	0	101	96	92	88	84	81	78	71	64	58	53	49	45	
	10	100	96	92	88	84	81	78	71	64	58	53	49	45	
	20	85	85	85	85	84	81	78	71	64	58	53	49	45	
	30	72	72	72	72	72	72	72	71	64	58	53	49	45	
	40	64	64	64	64	64	64	64	64	64	58	53	49	45	
	50	58	58	58	58	58	58	58	58	58	58	53	49	45	
	60	53	53	53	53	53	53	53	53	53	53	53	49	45	
	70	50	50	50	50	50	50	50	50	50	50	50	49	45	
	80	47	47	47	47	47	47	47	47	47	47	47	47	45	
	90	44	44	44	44	44	44	44	44	44	44	44	44	44	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 21a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $20 < \theta \leq 27$ degrees Exposure Category: D							Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	102	94	88	83	78	73	67
	10	100	100	100	100	100	99	98	94	88	83	78	73	67
	20	85	85	85	85	84	83	82	80	79	77	75	73	67
	30	72	72	72	72	72	72	72	71	70	69	67	66	64
	40	64	64	64	64	64	64	64	64	64	63	61	60	59
	50	58	58	58	58	58	58	58	58	58	58	57	56	55
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	50	50	50	50	50	50	50	50	50	50	50	50	49
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	103	103	101	97	93	89	86	80	74	67	61	56	52
	10	100	100	100	97	93	89	86	80	74	67	61	56	52
	20	85	85	85	85	84	83	82	80	74	67	61	56	52
	30	72	72	72	72	72	72	72	71	70	67	61	56	52
	40	64	64	64	64	64	64	64	64	64	63	61	56	52
	50	58	58	58	58	58	58	58	58	58	58	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	50	50	50	50	50	50	50	50	50	50	50	50	49
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 21b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	100	95	91	88	85	79	72	65	60	55	51
	10	100	100	100	95	91	88	85	79	72	65	60	55	51
	20	85	85	85	85	84	83	82	79	72	65	60	55	51
	30	72	72	72	72	72	72	72	71	70	65	60	55	51
	40	64	64	64	64	64	64	64	64	64	63	60	55	51
	50	58	58	58	58	58	58	58	58	58	58	57	55	51
	60	53	53	53	53	53	53	53	53	53	53	53	53	51
	70	50	50	50	50	50	50	50	50	50	50	50	50	49
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	93	88	84	81	78	73	69	62	56	51	47	43	40
	10	93	88	84	81	78	73	69	62	56	51	47	43	40
	20	85	85	84	81	78	73	69	62	56	51	47	43	40
	30	72	72	72	72	72	72	69	62	56	51	47	43	40
	40	64	64	64	64	64	64	64	62	56	51	47	43	40
	50	58	58	58	58	58	58	58	58	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	50	50	50	50	50	50	50	50	50	50	47	43	40
	80	47	47	47	47	47	47	47	47	47	47	47	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 22a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	103	103	97	92	88
	10	101	101	101	101	101	101	101	101	101	101	97	92	88
	20	88	88	88	88	88	88	88	88	88	87	85	84	83
	30	76	76	76	76	76	76	76	76	76	76	76	75	74
	40	67	67	67	67	67	67	67	67	67	67	67	67	67
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	103	103	103	103	103	102	96	90	85
	10	101	101	101	101	101	101	101	101	101	101	96	90	85
	20	88	88	88	88	88	88	88	88	88	87	85	84	83
	30	76	76	76	76	76	76	76	76	76	76	76	75	74
	40	67	67	67	67	67	67	67	67	67	67	67	67	67
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	103	103	103	103	103	103	103	100	94	88	83	78	75
	10	101	101	101	101	101	101	101	100	94	88	83	78	75
	20	88	88	88	88	88	88	88	88	88	87	83	78	75
	30	76	76	76	76	76	76	76	76	76	76	76	75	74
	40	67	67	67	67	67	67	67	67	67	67	67	67	67
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	103	103	103	103	103	103	103	96	90	84	79	75
	10	101	101	101	101	101	101	101	101	96	90	84	79	75
	20	88	88	88	88	88	88	88	88	88	87	84	79	75
	30	76	76	76	76	76	76	76	76	76	76	76	75	74
	40	67	67	67	67	67	67	67	67	67	67	67	67	67
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 22b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	98	91	86	81	77	73
	10	101	101	101	101	101	101	101	98	91	86	81	77	73
	20	88	88	88	88	88	88	88	88	88	86	81	77	73
	30	76	76	76	76	76	76	76	76	76	76	76	75	73
	40	67	67	67	67	67	67	67	67	67	67	67	67	67
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	103	103	103	96	89	84	79	74	67
	10	101	101	101	101	101	101	101	96	89	84	79	74	67
	20	88	88	88	88	88	88	88	88	88	84	79	74	67
	30	76	76	76	76	76	76	76	76	76	76	76	74	67
	40	67	67	67	67	67	67	67	67	67	67	67	67	67
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	103	103	103	101	97	93	89	83	78	72	66	60	55
	10	101	101	101	101	97	93	89	83	78	72	66	60	55
	20	88	88	88	88	88	88	88	83	78	72	66	60	55
	30	76	76	76	76	76	76	76	76	76	72	66	60	55
	40	67	67	67	67	67	67	67	67	67	67	66	60	55
	50	61	61	61	61	61	61	61	61	61	61	61	60	55
	60	57	57	57	57	57	57	57	57	57	57	57	57	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	103	103	103	101	96	92	85	79	73	65	59	53
	10	101	101	101	101	101	96	92	85	79	73	65	59	53
	20	88	88	88	88	88	88	88	85	79	73	65	59	53
	30	76	76	76	76	76	76	76	76	76	73	65	59	53
	40	67	67	67	67	67	67	67	67	67	67	65	59	53
	50	61	61	61	61	61	61	61	61	61	61	61	59	53
	60	57	57	57	57	57	57	57	57	57	57	57	57	53
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 23a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	98	92	86	82	77	73
	10	101	101	101	101	101	101	101	98	92	86	82	77	73
	20	88	88	88	88	88	88	87	86	84	82	80	77	73
	30	76	76	76	76	76	76	76	76	75	74	72	71	70
	40	67	67	67	67	67	67	67	67	67	67	66	65	64
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	57	57	57	57	57	57	57	57	57	57	57	57	56
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	103	103	103	97	90	84	79	75	68
	10	101	101	101	101	101	101	101	97	90	84	79	75	68
	20	88	88	88	88	88	88	87	86	84	82	79	75	68
	30	76	76	76	76	76	76	76	76	75	74	72	71	68
	40	67	67	67	67	67	67	67	67	67	67	66	65	64
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	57	57	57	57	57	57	57	57	57	57	57	57	56
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	103	103	103	102	97	93	90	83	78	73	66	60	55
	10	101	101	101	101	97	93	90	83	78	73	66	60	55
	20	88	88	88	88	88	88	87	83	78	73	66	60	55
	30	76	76	76	76	76	76	76	76	75	73	66	60	55
	40	67	67	67	67	67	67	67	67	67	67	66	60	55
	50	61	61	61	61	61	61	61	61	61	61	61	60	55
	60	57	57	57	57	57	57	57	57	57	57	57	57	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	103	103	103	101	96	92	85	79	73	65	59	54
	10	101	101	101	101	101	96	92	85	79	73	65	59	54
	20	88	88	88	88	88	88	87	85	79	73	65	59	54
	30	76	76	76	76	76	76	76	76	75	73	65	59	54
	40	67	67	67	67	67	67	67	67	67	67	65	59	54
	50	61	61	61	61	61	61	61	61	61	61	61	59	54
	60	57	57	57	57	57	57	57	57	57	57	57	57	54
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 23b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	99	95	91	88	82	77	71	65	59	55
	10	101	101	101	99	95	91	88	82	77	71	65	59	55
	20	88	88	88	88	88	88	87	82	77	71	65	59	55
	30	76	76	76	76	76	76	76	76	75	71	65	59	55
	40	67	67	67	67	67	67	67	67	67	67	65	59	55
	50	61	61	61	61	61	61	61	61	61	61	61	59	55
	60	57	57	57	57	57	57	57	57	57	57	57	57	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	98	93	89	86	79	74	65	59	53	49
	10	101	101	101	98	93	89	86	79	74	65	59	53	49
	20	88	88	88	88	88	88	86	79	74	65	59	53	49
	30	76	76	76	76	76	76	76	76	74	65	59	53	49
	40	67	67	67	67	67	67	67	67	67	65	59	53	49
	50	61	61	61	61	61	61	61	61	61	61	59	53	49
	60	57	57	57	57	57	57	57	57	57	57	57	53	49
	70	53	53	53	53	53	53	53	53	53	53	53	53	49
	80	50	50	50	50	50	50	50	50	50	50	50	50	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	97	92	88	84	81	78	75	66	59	54	49	45	41
	10	97	92	88	84	81	78	75	66	59	54	49	45	41
	20	88	88	88	84	81	78	75	66	59	54	49	45	41
	30	76	76	76	76	76	76	75	66	59	54	49	45	41
	40	67	67	67	67	67	67	67	66	59	54	49	45	41
	50	61	61	61	61	61	61	61	61	59	54	49	45	41
	60	57	57	57	57	57	57	57	57	57	54	49	45	41
	70	53	53	53	53	53	53	53	53	53	53	49	45	41
	80	50	50	50	50	50	50	50	50	50	50	49	45	41
	90	47	47	47	47	47	47	47	47	47	47	47	45	41
Zone 3	0	101	95	90	86	82	78	75	66	58	52	47	43	39
	10	101	95	90	86	82	78	75	66	58	52	47	43	39
	20	88	88	88	86	82	78	75	66	58	52	47	43	39
	30	76	76	76	76	76	76	75	66	58	52	47	43	39
	40	67	67	67	67	67	67	67	66	58	52	47	43	39
	50	61	61	61	61	61	61	61	61	58	52	47	43	39
	60	57	57	57	57	57	57	57	57	57	52	47	43	39
	70	53	53	53	53	53	53	53	53	53	52	47	43	39
	80	50	50	50	50	50	50	50	50	50	50	47	43	39
	90	47	47	47	47	47	47	47	47	47	47	47	43	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 24a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	100	97	90	84	79	75	69	64
	10	101	101	101	101	101	100	97	90	84	79	75	69	64
	20	88	88	88	88	87	86	85	83	81	79	75	69	64
	30	76	76	76	76	76	76	76	74	73	72	70	69	64
	40	67	67	67	67	67	67	67	67	67	66	64	63	62
	50	61	61	61	61	61	61	61	61	61	61	60	59	58
	60	57	57	57	57	57	57	57	57	57	57	56	55	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	52
	80	50	50	50	50	50	50	50	50	50	50	50	50	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	103	99	95	88	82	77	70	63	58
	10	101	101	101	101	101	99	95	88	82	77	70	63	58
	20	88	88	88	88	87	86	85	83	81	77	70	63	58
	30	76	76	76	76	76	76	76	74	73	72	70	63	58
	40	67	67	67	67	67	67	67	67	67	66	64	63	58
	50	61	61	61	61	61	61	61	61	61	61	60	59	58
	60	57	57	57	57	57	57	57	57	57	57	56	55	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	52
	80	50	50	50	50	50	50	50	50	50	50	50	50	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	103	102	97	93	89	85	82	77	70	63	57	52	48
	10	101	101	97	93	89	85	82	77	70	63	57	52	48
	20	88	88	88	88	87	85	82	77	70	63	57	52	48
	30	76	76	76	76	76	76	76	74	70	63	57	52	48
	40	67	67	67	67	67	67	67	67	67	63	57	52	48
	50	61	61	61	61	61	61	61	61	61	61	57	52	48
	60	57	57	57	57	57	57	57	57	57	57	56	52	48
	70	53	53	53	53	53	53	53	53	53	53	53	52	48
	80	50	50	50	50	50	50	50	50	50	50	50	50	48
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	103	101	96	91	87	83	77	70	62	55	50	46
	10	101	101	101	96	91	87	83	77	70	62	55	50	46
	20	88	88	88	88	87	86	83	77	70	62	55	50	46
	30	76	76	76	76	76	76	76	74	70	62	55	50	46
	40	67	67	67	67	67	67	67	67	67	62	55	50	46
	50	61	61	61	61	61	61	61	61	61	61	55	50	46
	60	57	57	57	57	57	57	57	57	57	57	55	50	46
	70	53	53	53	53	53	53	53	53	53	53	53	50	46
	80	50	50	50	50	50	50	50	50	50	50	50	50	46
	90	47	47	47	47	47	47	47	47	47	47	47	47	46

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 24b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	99	95	91	87	84	81	75	68	62	57	52	48
	10	101	99	95	91	87	84	81	75	68	62	57	52	48
	20	88	88	88	88	87	84	81	75	68	62	57	52	48
	30	76	76	76	76	76	76	76	74	68	62	57	52	48
	40	67	67	67	67	67	67	67	67	67	62	57	52	48
	50	61	61	61	61	61	61	61	61	61	61	57	52	48
	60	57	57	57	57	57	57	57	57	57	57	56	52	48
	70	53	53	53	53	53	53	53	53	53	53	53	52	48
	80	50	50	50	50	50	50	50	50	50	50	50	50	48
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	98	93	89	85	81	78	71	63	56	51	46	42
	10	101	98	93	89	85	81	78	71	63	56	51	46	42
	20	88	88	88	88	85	81	78	71	63	56	51	46	42
	30	76	76	76	76	76	76	76	71	63	56	51	46	42
	40	67	67	67	67	67	67	67	67	63	56	51	46	42
	50	61	61	61	61	61	61	61	61	61	56	51	46	42
	60	57	57	57	57	57	57	57	57	57	56	51	46	42
	70	53	53	53	53	53	53	53	53	53	53	51	46	42
	80	50	50	50	50	50	50	50	50	50	50	50	46	42
	90	47	47	47	47	47	47	47	47	47	47	47	46	42
Zone 2r	0	89	84	81	77	74	69	65	57	51	47	43	40	37
	10	89	84	81	77	74	69	65	57	51	47	43	40	37
	20	88	84	81	77	74	69	65	57	51	47	43	40	37
	30	76	76	76	76	74	69	65	57	51	47	43	40	37
	40	67	67	67	67	67	67	65	57	51	47	43	40	37
	50	61	61	61	61	61	61	61	57	51	47	43	40	37
	60	57	57	57	57	57	57	57	57	51	47	43	40	37
	70	53	53	53	53	53	53	53	53	51	47	43	40	37
	80	50	50	50	50	50	50	50	50	50	47	43	40	37
	90	47	47	47	47	47	47	47	47	47	47	43	40	37
Zone 3	0	91	86	82	78	75	69	64	56	50	45	41	38	35
	10	91	86	82	78	75	69	64	56	50	45	41	38	35
	20	88	86	82	78	75	69	64	56	50	45	41	38	35
	30	76	76	76	76	75	69	64	56	50	45	41	38	35
	40	67	67	67	67	67	67	64	56	50	45	41	38	35
	50	61	61	61	61	61	61	61	56	50	45	41	38	35
	60	57	57	57	57	57	57	57	56	50	45	41	38	35
	70	53	53	53	53	53	53	53	53	50	45	41	38	35
	80	50	50	50	50	50	50	50	50	50	45	41	38	35
	90	47	47	47	47	47	47	47	47	47	45	41	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 25a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 0 < θ ≤ 7 degrees							North/South Support X _E = 1					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	103	103	103	103	101	96
	10	98	98	98	98	98	98	98	98	98	98	97	96	95
	20	78	78	78	78	78	78	78	78	78	78	78	78	78
	30	76	76	76	76	76	76	76	76	76	76	76	76	76
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	103	103	103	103	103	103	100	94	88	83	79	73
	10	98	98	98	98	98	98	98	98	94	88	83	79	73
	20	78	78	78	78	78	78	78	78	78	78	78	78	73
	30	76	76	76	76	76	76	76	76	76	76	76	76	73
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	103	103	103	103	102	98	94	87	82	76	70	65	60
	10	98	98	98	98	98	98	94	87	82	76	70	65	60
	20	78	78	78	78	78	78	78	78	78	76	70	65	60
	30	76	76	76	76	76	76	76	76	76	76	70	65	60
	40	68	68	68	68	68	68	68	68	68	68	68	65	60
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	102	97	93	89	86	82	75	68	62	57	53	49
	10	98	98	97	93	89	86	82	75	68	62	57	53	49
	20	78	78	78	78	78	78	78	75	68	62	57	53	49
	30	76	76	76	76	76	76	76	75	68	62	57	53	49
	40	68	68	68	68	68	68	68	68	68	62	57	53	49
	50	61	61	61	61	61	61	61	61	61	61	57	53	49
	60	56	56	56	56	56	56	56	56	56	56	56	53	49
	70	52	52	52	52	52	52	52	52	52	52	52	52	49
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 25b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	103	100	94	89	85	81
	10	98	98	98	98	98	98	98	98	98	94	89	85	81
	20	78	78	78	78	78	78	78	78	78	78	78	78	78
	30	76	76	76	76	76	76	76	76	76	76	76	76	76
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	103	103	101	97	93	90	84	78	71	65	60	56
	10	98	98	98	98	97	93	90	84	78	71	65	60	56
	20	78	78	78	78	78	78	78	78	78	71	65	60	56
	30	76	76	76	76	76	76	76	76	76	71	65	60	56
	40	68	68	68	68	68	68	68	68	68	68	65	60	56
	50	61	61	61	61	61	61	61	61	61	61	61	60	56
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	101	96	92	88	85	82	78	70	64	58	54	50	46
	10	98	96	92	88	85	82	78	70	64	58	54	50	46
	20	78	78	78	78	78	78	78	70	64	58	54	50	46
	30	76	76	76	76	76	76	76	70	64	58	54	50	46
	40	68	68	68	68	68	68	68	68	64	58	54	50	46
	50	61	61	61	61	61	61	61	61	61	58	54	50	46
	60	56	56	56	56	56	56	56	56	56	56	54	50	46
	70	52	52	52	52	52	52	52	52	52	52	52	50	46
	80	49	49	49	49	49	49	49	49	49	49	49	49	46
	90	47	47	47	47	47	47	47	47	47	47	47	47	46
Zone 3	0	89	85	81	77	72	68	64	57	52	48	44	41	38
	10	89	85	81	77	72	68	64	57	52	48	44	41	38
	20	78	78	78	77	72	68	64	57	52	48	44	41	38
	30	76	76	76	76	72	68	64	57	52	48	44	41	38
	40	68	68	68	68	68	68	64	57	52	48	44	41	38
	50	61	61	61	61	61	61	61	57	52	48	44	41	38
	60	56	56	56	56	56	56	56	56	52	48	44	41	38
	70	52	52	52	52	52	52	52	52	52	48	44	41	38
	80	49	49	49	49	49	49	49	49	49	48	44	41	38
	90	47	47	47	47	47	47	47	47	47	47	44	41	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 26a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	103	103	97	92	87	83
	10	98	98	98	98	98	98	98	97	96	95	92	87	83
	20	78	78	78	78	78	78	78	78	78	78	78	78	78
	30	76	76	76	76	76	76	76	76	76	76	76	76	76
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	103	103	103	100	96	93	86	81	75	69	63	59
	10	98	98	98	98	98	96	93	86	81	75	69	63	59
	20	78	78	78	78	78	78	78	78	78	75	69	63	59
	30	76	76	76	76	76	76	76	76	76	75	69	63	59
	40	68	68	68	68	68	68	68	68	68	68	68	63	59
	50	61	61	61	61	61	61	61	61	61	61	61	61	59
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	103	100	95	91	87	84	81	74	67	61	56	52	48
	10	98	98	95	91	87	84	81	74	67	61	56	52	48
	20	78	78	78	78	78	78	78	74	67	61	56	52	48
	30	76	76	76	76	76	76	76	74	67	61	56	52	48
	40	68	68	68	68	68	68	68	68	67	61	56	52	48
	50	61	61	61	61	61	61	61	61	61	61	56	52	48
	60	56	56	56	56	56	56	56	56	56	56	56	52	48
	70	52	52	52	52	52	52	52	52	52	52	52	52	48
	80	49	49	49	49	49	49	49	49	49	49	49	49	48
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	92	87	83	80	75	71	67	60	54	50	46	42	40
	10	92	87	83	80	75	71	67	60	54	50	46	42	40
	20	78	78	78	78	75	71	67	60	54	50	46	42	40
	30	76	76	76	76	75	71	67	60	54	50	46	42	40
	40	68	68	68	68	68	68	67	60	54	50	46	42	40
	50	61	61	61	61	61	61	61	60	54	50	46	42	40
	60	56	56	56	56	56	56	56	56	54	50	46	42	40
	70	52	52	52	52	52	52	52	52	52	50	46	42	40
	80	49	49	49	49	49	49	49	49	49	49	46	42	40
	90	47	47	47	47	47	47	47	47	47	47	46	42	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 26b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 0 < θ ≤ 7 degrees							North/South Support Y _E = 1.5					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	102	99	92	86	82	77	71	66
	10	98	98	98	98	98	98	98	92	86	82	77	71	66
	20	78	78	78	78	78	78	78	78	78	78	77	71	66
	30	76	76	76	76	76	76	76	76	76	76	76	71	66
	40	68	68	68	68	68	68	68	68	68	68	68	68	66
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	100	95	91	87	84	81	77	69	63	57	53	49	45
	10	98	95	91	87	84	81	77	69	63	57	53	49	45
	20	78	78	78	78	78	78	77	69	63	57	53	49	45
	30	76	76	76	76	76	76	76	69	63	57	53	49	45
	40	68	68	68	68	68	68	68	68	63	57	53	49	45
	50	61	61	61	61	61	61	61	61	61	57	53	49	45
	60	56	56	56	56	56	56	56	56	56	56	53	49	45
	70	52	52	52	52	52	52	52	52	52	52	52	49	45
	80	49	49	49	49	49	49	49	49	49	49	49	49	45
	90	47	47	47	47	47	47	47	47	47	47	47	47	45
Zone 2	0	87	83	80	75	70	66	63	57	51	47	44	41	38
	10	87	83	80	75	70	66	63	57	51	47	44	41	38
	20	78	78	78	75	70	66	63	57	51	47	44	41	38
	30	76	76	76	75	70	66	63	57	51	47	44	41	38
	40	68	68	68	68	68	66	63	57	51	47	44	41	38
	50	61	61	61	61	61	61	61	57	51	47	44	41	38
	60	56	56	56	56	56	56	56	56	51	47	44	41	38
	70	52	52	52	52	52	52	52	52	51	47	44	41	38
	80	49	49	49	49	49	49	49	49	49	47	44	41	38
	90	47	47	47	47	47	47	47	47	47	47	44	41	38
Zone 3	0	75	70	65	61	57	54	51	46	42	39	36	34	32
	10	75	70	65	61	57	54	51	46	42	39	36	34	32
	20	75	70	65	61	57	54	51	46	42	39	36	34	32
	30	75	70	65	61	57	54	51	46	42	39	36	34	32
	40	68	68	65	61	57	54	51	46	42	39	36	34	32
	50	61	61	61	61	57	54	51	46	42	39	36	34	32
	60	56	56	56	56	56	54	51	46	42	39	36	34	32
	70	52	52	52	52	52	52	51	46	42	39	36	34	32
	80	49	49	49	49	49	49	49	46	42	39	36	34	32
	90	47	47	47	47	47	47	47	46	42	39	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 27a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait					
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support Y _E = 1					
		Exposure Category: D								Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1'	0	103	103	103	103	103	103	103	102	96	90	85	81	77	
	10	98	98	98	98	98	98	98	97	96	95	90	85	81	77
	20	78	78	78	78	78	78	78	78	78	78	78	77	76	
	30	76	76	76	76	76	76	76	76	76	76	76	76	75	
	40	68	68	68	68	68	68	68	68	68	68	68	68	68	
	50	61	61	61	61	61	61	61	61	61	61	61	61	61	
	60	56	56	56	56	56	56	56	56	56	56	56	56	56	
	70	52	52	52	52	52	52	52	52	52	52	52	52	52	
	80	49	49	49	49	49	49	49	49	49	49	49	49	49	
	90	47	47	47	47	47	47	47	47	47	47	47	47	47	
Zone 1	0	103	103	101	97	93	89	86	80	73	67	61	57	53	
	10	98	98	98	97	93	89	86	80	73	67	61	57	53	
	20	78	78	78	78	78	78	78	78	73	67	61	57	53	
	30	76	76	76	76	76	76	76	76	73	67	61	57	53	
	40	68	68	68	68	68	68	68	68	68	67	61	57	53	
	50	61	61	61	61	61	61	61	61	61	61	61	57	53	
	60	56	56	56	56	56	56	56	56	56	56	56	56	53	
	70	52	52	52	52	52	52	52	52	52	52	52	52	52	
	80	49	49	49	49	49	49	49	49	49	49	49	49	49	
	90	47	47	47	47	47	47	47	47	47	47	47	47	47	
Zone 2	0	97	92	88	85	81	78	73	66	60	55	51	47	44	
	10	97	92	88	85	81	78	73	66	60	55	51	47	44	
	20	78	78	78	78	78	78	73	66	60	55	51	47	44	
	30	76	76	76	76	76	76	73	66	60	55	51	47	44	
	40	68	68	68	68	68	68	68	66	60	55	51	47	44	
	50	61	61	61	61	61	61	61	61	60	55	51	47	44	
	60	56	56	56	56	56	56	56	56	56	55	51	47	44	
	70	52	52	52	52	52	52	52	52	52	52	51	47	44	
	80	49	49	49	49	49	49	49	49	49	49	49	47	44	
	90	47	47	47	47	47	47	47	47	47	47	47	47	44	
Zone 3	0	85	81	76	71	67	63	60	54	49	45	41	39	36	
	10	85	81	76	71	67	63	60	54	49	45	41	39	36	
	20	78	78	76	71	67	63	60	54	49	45	41	39	36	
	30	76	76	76	71	67	63	60	54	49	45	41	39	36	
	40	68	68	68	68	67	63	60	54	49	45	41	39	36	
	50	61	61	61	61	61	61	60	54	49	45	41	39	36	
	60	56	56	56	56	56	56	56	54	49	45	41	39	36	
	70	52	52	52	52	52	52	52	52	49	45	41	39	36	
	80	49	49	49	49	49	49	49	49	49	45	41	39	36	
	90	47	47	47	47	47	47	47	47	47	45	41	39	36	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 27b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	99	95	92	86	81	75	69	64	60
	10	98	98	98	98	98	95	92	86	81	75	69	64	60
	20	78	78	78	78	78	78	78	78	78	75	69	64	60
	30	76	76	76	76	76	76	76	76	76	75	69	64	60
	40	68	68	68	68	68	68	68	68	68	68	68	64	60
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	93	88	84	81	77	73	69	62	56	51	47	44	41
	10	93	88	84	81	77	73	69	62	56	51	47	44	41
	20	78	78	78	78	77	73	69	62	56	51	47	44	41
	30	76	76	76	76	76	73	69	62	56	51	47	44	41
	40	68	68	68	68	68	68	68	62	56	51	47	44	41
	50	61	61	61	61	61	61	61	61	56	51	47	44	41
	60	56	56	56	56	56	56	56	56	56	51	47	44	41
	70	52	52	52	52	52	52	52	52	52	51	47	44	41
	80	49	49	49	49	49	49	49	49	49	49	47	44	41
	90	47	47	47	47	47	47	47	47	47	47	47	44	41
Zone 2	0	81	76	71	67	63	59	56	51	46	42	40	37	35
	10	81	76	71	67	63	59	56	51	46	42	40	37	35
	20	78	76	71	67	63	59	56	51	46	42	40	37	35
	30	76	76	71	67	63	59	56	51	46	42	40	37	35
	40	68	68	68	67	63	59	56	51	46	42	40	37	35
	50	61	61	61	61	61	59	56	51	46	42	40	37	35
	60	56	56	56	56	56	56	56	51	46	42	40	37	35
	70	52	52	52	52	52	52	52	51	46	42	40	37	35
	80	49	49	49	49	49	49	49	49	46	42	40	37	35
	90	47	47	47	47	47	47	47	47	46	42	40	37	35
Zone 3	0	67	62	58	54	51	48	46	41	38	36	33	31	30
	10	67	62	58	54	51	48	46	41	38	36	33	31	30
	20	67	62	58	54	51	48	46	41	38	36	33	31	30
	30	67	62	58	54	51	48	46	41	38	36	33	31	30
	40	67	62	58	54	51	48	46	41	38	36	33	31	30
	50	61	61	58	54	51	48	46	41	38	36	33	31	30
	60	56	56	56	54	51	48	46	41	38	36	33	31	30
	70	52	52	52	52	51	48	46	41	38	36	33	31	30
	80	49	49	49	49	49	48	46	41	38	36	33	31	30
	90	47	47	47	47	47	47	46	41	38	36	33	31	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 28a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	103	103	99	91	84	80	74	69	64
	10	92	92	92	92	92	92	92	91	84	80	74	69	64
	20	72	72	72	72	72	72	72	72	72	72	72	69	64
	30	72	72	72	72	72	72	72	72	72	72	72	69	64
	40	63	63	63	63	63	63	63	63	63	63	63	63	63
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	103	103	103	98	94	90	87	80	74	67	61	56	52
	10	92	92	92	92	92	90	87	80	74	67	61	56	52
	20	72	72	72	72	72	72	72	72	72	67	61	56	52
	30	72	72	72	72	72	72	72	72	72	67	61	56	52
	40	63	63	63	63	63	63	63	63	63	63	61	56	52
	50	57	57	57	57	57	57	57	57	57	57	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 3r	0	103	99	95	90	87	83	80	72	65	59	54	49	46
	10	92	92	92	90	87	83	80	72	65	59	54	49	46
	20	72	72	72	72	72	72	72	72	65	59	54	49	46
	30	72	72	72	72	72	72	72	72	65	59	54	49	46
	40	63	63	63	63	63	63	63	63	63	59	54	49	46
	50	57	57	57	57	57	57	57	57	57	57	54	49	46
	60	53	53	53	53	53	53	53	53	53	53	53	49	46
	70	49	49	49	49	49	49	49	49	49	49	49	49	46
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 28b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	97	92	88	84	81	75	68	63	58	54	50
	10	92	92	92	92	88	84	81	75	68	63	58	54	50
	20	72	72	72	72	72	72	72	72	68	63	58	54	50
	30	72	72	72	72	72	72	72	72	68	63	58	54	50
	40	63	63	63	63	63	63	63	63	63	63	58	54	50
	50	57	57	57	57	57	57	57	57	57	57	57	54	50
	60	53	53	53	53	53	53	53	53	53	53	53	53	50
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	94	89	85	81	78	73	69	61	55	50	46	42	40
	10	92	89	85	81	78	73	69	61	55	50	46	42	40
	20	72	72	72	72	72	72	69	61	55	50	46	42	40
	30	72	72	72	72	72	72	69	61	55	50	46	42	40
	40	63	63	63	63	63	63	63	61	55	50	46	42	40
	50	57	57	57	57	57	57	57	57	55	50	46	42	40
	60	53	53	53	53	53	53	53	53	53	50	46	42	40
	70	49	49	49	49	49	49	49	49	49	49	46	42	40
	80	46	46	46	46	46	46	46	46	46	46	46	42	40
90	44	44	44	44	44	44	44	44	44	44	44	42	40	
Zone 3r	0	86	82	79	73	68	64	60	54	49	44	41	38	36
	10	86	82	79	73	68	64	60	54	49	44	41	38	36
	20	72	72	72	72	68	64	60	54	49	44	41	38	36
	30	72	72	72	72	68	64	60	54	49	44	41	38	36
	40	63	63	63	63	63	63	60	54	49	44	41	38	36
	50	57	57	57	57	57	57	57	54	49	44	41	38	36
	60	53	53	53	53	53	53	53	53	49	44	41	38	36
	70	49	49	49	49	49	49	49	49	49	44	41	38	36
	80	46	46	46	46	46	46	46	46	46	44	41	38	36
	90	44	44	44	44	44	44	44	44	44	44	41	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 29a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	101	95	91	87	83	78	71	65	60	56	52
	10	92	92	92	92	91	87	83	78	71	65	60	56	52
	20	72	72	72	72	72	72	72	72	71	65	60	56	52
	30	72	72	72	72	72	72	72	72	71	65	60	56	52
	40	63	63	63	63	63	63	63	63	63	63	60	56	52
	50	57	57	57	57	57	57	57	57	57	57	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	97	92	88	84	80	77	72	64	58	53	48	44	41
	10	92	92	88	84	80	77	72	64	58	53	48	44	41
	20	72	72	72	72	72	72	72	64	58	53	48	44	41
	30	72	72	72	72	72	72	72	64	58	53	48	44	41
	40	63	63	63	63	63	63	63	63	58	53	48	44	41
	50	57	57	57	57	57	57	57	57	57	53	48	44	41
	60	53	53	53	53	53	53	53	53	53	53	48	44	41
	70	49	49	49	49	49	49	49	49	49	49	48	44	41
	80	46	46	46	46	46	46	46	46	46	46	46	44	41
	90	44	44	44	44	44	44	44	44	44	44	44	44	41
Zone 3r	0	89	85	81	77	72	67	63	57	51	46	43	40	38
	10	89	85	81	77	72	67	63	57	51	46	43	40	38
	20	72	72	72	72	72	67	63	57	51	46	43	40	38
	30	72	72	72	72	72	67	63	57	51	46	43	40	38
	40	63	63	63	63	63	63	63	57	51	46	43	40	38
	50	57	57	57	57	57	57	57	57	51	46	43	40	38
	60	53	53	53	53	53	53	53	53	51	46	43	40	38
	70	49	49	49	49	49	49	49	49	49	46	43	40	38
	80	46	46	46	46	46	46	46	46	46	46	43	40	38
	90	44	44	44	44	44	44	44	44	44	44	43	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 29b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	91	86	82	79	75	71	67	61	55	51	47	44	41
	10	91	86	82	79	75	71	67	61	55	51	47	44	41
	20	72	72	72	72	72	71	67	61	55	51	47	44	41
	30	72	72	72	72	72	71	67	61	55	51	47	44	41
	40	63	63	63	63	63	63	63	61	55	51	47	44	41
	50	57	57	57	57	57	57	57	57	55	51	47	44	41
	60	53	53	53	53	53	53	53	53	53	51	47	44	41
	70	49	49	49	49	49	49	49	49	49	49	47	44	41
	80	46	46	46	46	46	46	46	46	46	46	46	44	41
	90	44	44	44	44	44	44	44	44	44	44	44	44	41
Zones 2n, 2r, & 3e	0	80	76	70	65	61	57	54	48	44	40	38	35	33
	10	80	76	70	65	61	57	54	48	44	40	38	35	33
	20	72	72	70	65	61	57	54	48	44	40	38	35	33
	30	72	72	70	65	61	57	54	48	44	40	38	35	33
	40	63	63	63	63	61	57	54	48	44	40	38	35	33
	50	57	57	57	57	57	57	54	48	44	40	38	35	33
	60	53	53	53	53	53	53	53	48	44	40	38	35	33
	70	49	49	49	49	49	49	49	48	44	40	38	35	33
	80	46	46	46	46	46	46	46	46	44	40	38	35	33
	90	44	44	44	44	44	44	44	44	44	40	38	35	33
Zone 3r	0	72	66	62	57	54	51	48	43	39	37	34	32	30
	10	72	66	62	57	54	51	48	43	39	37	34	32	30
	20	72	66	62	57	54	51	48	43	39	37	34	32	30
	30	72	66	62	57	54	51	48	43	39	37	34	32	30
	40	63	63	62	57	54	51	48	43	39	37	34	32	30
	50	57	57	57	57	54	51	48	43	39	37	34	32	30
	60	53	53	53	53	53	51	48	43	39	37	34	32	30
	70	49	49	49	49	49	49	48	43	39	37	34	32	30
	80	46	46	46	46	46	46	46	43	39	37	34	32	30
	90	44	44	44	44	44	44	44	43	39	37	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 30a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	97	92	87	83	81	78	70	64	59	54	51	47
	10	92	92	92	87	83	81	78	70	64	59	54	51	47
	20	72	72	72	72	72	72	72	70	64	59	54	51	47
	30	72	72	72	72	72	72	72	70	64	59	54	51	47
	40	63	63	63	63	63	63	63	63	63	59	54	51	47
	50	57	57	57	57	57	57	57	57	57	57	54	51	47
	60	53	53	53	53	53	53	53	53	53	53	53	51	47
	70	49	49	49	49	49	49	49	49	49	49	49	49	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	89	85	81	78	72	68	64	57	51	47	43	40	38
	10	89	85	81	78	72	68	64	57	51	47	43	40	38
	20	72	72	72	72	72	68	64	57	51	47	43	40	38
	30	72	72	72	72	72	68	64	57	51	47	43	40	38
	40	63	63	63	63	63	63	63	57	51	47	43	40	38
	50	57	57	57	57	57	57	57	57	51	47	43	40	38
	60	53	53	53	53	53	53	53	53	51	47	43	40	38
	70	49	49	49	49	49	49	49	49	49	47	43	40	38
	80	46	46	46	46	46	46	46	46	46	46	43	40	38
	90	44	44	44	44	44	44	44	44	44	44	43	40	38
Zone 3r	0	83	79	73	68	64	60	56	50	45	42	39	36	34
	10	83	79	73	68	64	60	56	50	45	42	39	36	34
	20	72	72	72	68	64	60	56	50	45	42	39	36	34
	30	72	72	72	68	64	60	56	50	45	42	39	36	34
	40	63	63	63	63	63	60	56	50	45	42	39	36	34
	50	57	57	57	57	57	57	56	50	45	42	39	36	34
	60	53	53	53	53	53	53	53	50	45	42	39	36	34
	70	49	49	49	49	49	49	49	49	45	42	39	36	34
	80	46	46	46	46	46	46	46	46	45	42	39	36	34
	90	44	44	44	44	44	44	44	44	44	42	39	36	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 30b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	83	80	76	71	67	64	60	55	50	46	43	40	38
	10	83	80	76	71	67	64	60	55	50	46	43	40	38
	20	72	72	72	71	67	64	60	55	50	46	43	40	38
	30	72	72	72	71	67	64	60	55	50	46	43	40	38
	40	63	63	63	63	63	63	60	55	50	46	43	40	38
	50	57	57	57	57	57	57	57	55	50	46	43	40	38
	60	53	53	53	53	53	53	53	53	50	46	43	40	38
	70	49	49	49	49	49	49	49	49	49	46	43	40	38
	80	46	46	46	46	46	46	46	46	46	46	43	40	38
	90	44	44	44	44	44	44	44	44	44	44	43	40	38
Zones 2n, 2r, & 3e	0	72	67	62	58	54	51	48	43	40	37	35	32	31
	10	72	67	62	58	54	51	48	43	40	37	35	32	31
	20	72	67	62	58	54	51	48	43	40	37	35	32	31
	30	72	67	62	58	54	51	48	43	40	37	35	32	31
	40	63	63	62	58	54	51	48	43	40	37	35	32	31
	50	57	57	57	57	54	51	48	43	40	37	35	32	31
	60	53	53	53	53	53	51	48	43	40	37	35	32	31
	70	49	49	49	49	49	49	48	43	40	37	35	32	31
	80	46	46	46	46	46	46	46	43	40	37	35	32	31
	90	44	44	44	44	44	44	44	43	40	37	35	32	31
Zone 3r	0	63	59	55	51	48	45	43	39	36	34	31	30	28
	10	63	59	55	51	48	45	43	39	36	34	31	30	28
	20	63	59	55	51	48	45	43	39	36	34	31	30	28
	30	63	59	55	51	48	45	43	39	36	34	31	30	28
	40	63	59	55	51	48	45	43	39	36	34	31	30	28
	50	57	57	55	51	48	45	43	39	36	34	31	30	28
	60	53	53	53	51	48	45	43	39	36	34	31	30	28
	70	49	49	49	49	48	45	43	39	36	34	31	30	28
	80	46	46	46	46	46	45	43	39	36	34	31	30	28
	90	44	44	44	44	44	44	43	39	36	34	31	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 31a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	103	103	103	102	96	90	85	81	77
	10	100	100	100	100	100	100	100	100	96	90	85	81	77
	20	85	85	85	85	85	85	85	85	85	84	83	81	77
	30	72	72	72	72	72	72	72	72	72	72	72	72	71
	40	64	64	64	64	64	64	64	64	64	64	64	64	64
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	103	103	103	103	101	97	93	87	81	76	69	64	59
	10	100	100	100	100	100	97	93	87	81	76	69	64	59
	20	85	85	85	85	85	85	85	85	81	76	69	64	59
	30	72	72	72	72	72	72	72	72	72	72	69	64	59
	40	64	64	64	64	64	64	64	64	64	64	64	64	59
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 3r	0	103	103	103	100	96	92	88	82	77	69	63	57	53
	10	100	100	100	100	96	92	88	82	77	69	63	57	53
	20	85	85	85	85	85	85	85	82	77	69	63	57	53
	30	72	72	72	72	72	72	72	72	72	69	63	57	53
	40	64	64	64	64	64	64	64	64	64	64	63	57	53
	50	58	58	58	58	58	58	58	58	58	58	58	57	53
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 31b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	99	95	91	85	80	76	70	65	60
	10	100	100	100	100	99	95	91	85	80	76	70	65	60
	20	85	85	85	85	85	85	85	85	80	76	70	65	60
	30	72	72	72	72	72	72	72	72	72	72	70	65	60
	40	64	64	64	64	64	64	64	64	64	64	64	64	60
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	101	96	92	88	84	81	78	70	63	57	52	48	44
	10	100	96	92	88	84	81	78	70	63	57	52	48	44
	20	85	85	85	85	84	81	78	70	63	57	52	48	44
	30	72	72	72	72	72	72	72	70	63	57	52	48	44
	40	64	64	64	64	64	64	64	64	63	57	52	48	44
	50	58	58	58	58	58	58	58	58	58	57	52	48	44
	60	53	53	53	53	53	53	53	53	53	53	52	48	44
	70	50	50	50	50	50	50	50	50	50	50	50	48	44
	80	47	47	47	47	47	47	47	47	47	47	47	47	44
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 3r	0	96	91	87	83	79	76	71	63	57	51	47	43	40
	10	96	91	87	83	79	76	71	63	57	51	47	43	40
	20	85	85	85	83	79	76	71	63	57	51	47	43	40
	30	72	72	72	72	72	72	71	63	57	51	47	43	40
	40	64	64	64	64	64	64	64	63	57	51	47	43	40
	50	58	58	58	58	58	58	58	58	57	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	50	50	50	50	50	50	50	50	50	50	47	43	40
	80	47	47	47	47	47	47	47	47	47	47	47	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 32a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	102	98	94	88	82	78	73	67	63
	10	100	100	100	100	100	98	94	88	82	78	73	67	63
	20	85	85	85	85	85	85	85	83	82	78	73	67	63
	30	72	72	72	72	72	72	72	72	72	71	70	67	63
	40	64	64	64	64	64	64	64	64	64	64	64	63	62
	50	58	58	58	58	58	58	58	58	58	58	58	58	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	103	99	94	90	87	83	80	74	66	60	55	50	47
	10	100	99	94	90	87	83	80	74	66	60	55	50	47
	20	85	85	85	85	85	83	80	74	66	60	55	50	47
	30	72	72	72	72	72	72	72	72	66	60	55	50	47
	40	64	64	64	64	64	64	64	64	64	60	55	50	47
	50	58	58	58	58	58	58	58	58	58	58	55	50	47
	60	53	53	53	53	53	53	53	53	53	53	53	50	47
	70	50	50	50	50	50	50	50	50	50	50	50	50	47
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 3r	0	99	94	89	85	82	79	75	66	60	54	49	45	42
	10	99	94	89	85	82	79	75	66	60	54	49	45	42
	20	85	85	85	85	82	79	75	66	60	54	49	45	42
	30	72	72	72	72	72	72	72	66	60	54	49	45	42
	40	64	64	64	64	64	64	64	64	60	54	49	45	42
	50	58	58	58	58	58	58	58	58	58	54	49	45	42
	60	53	53	53	53	53	53	53	53	53	53	49	45	42
	70	50	50	50	50	50	50	50	50	50	50	49	45	42
	80	47	47	47	47	47	47	47	47	47	47	47	45	42
	90	44	44	44	44	44	44	44	44	44	44	44	44	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 32b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	102	97	93	89	85	82	79	73	67	61	56	52	49
	10	100	97	93	89	85	82	79	73	67	61	56	52	49
	20	85	85	85	85	85	82	79	73	67	61	56	52	49
	30	72	72	72	72	72	72	72	72	67	61	56	52	49
	40	64	64	64	64	64	64	64	64	64	61	56	52	49
	50	58	58	58	58	58	58	58	58	58	58	56	52	49
	60	53	53	53	53	53	53	53	53	53	53	53	52	49
	70	50	50	50	50	50	50	50	50	50	50	50	50	49
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	86	82	79	75	70	65	62	55	50	45	42	39	37
	10	86	82	79	75	70	65	62	55	50	45	42	39	37
	20	85	82	79	75	70	65	62	55	50	45	42	39	37
	30	72	72	72	72	70	65	62	55	50	45	42	39	37
	40	64	64	64	64	64	64	62	55	50	45	42	39	37
	50	58	58	58	58	58	58	58	55	50	45	42	39	37
	60	53	53	53	53	53	53	53	53	50	45	42	39	37
	70	50	50	50	50	50	50	50	50	50	45	42	39	37
	80	47	47	47	47	47	47	47	47	47	45	42	39	37
90	44	44	44	44	44	44	44	44	44	44	42	39	37	
Zone 3r	0	82	78	73	68	63	59	55	49	45	41	38	35	33
	10	82	78	73	68	63	59	55	49	45	41	38	35	33
	20	82	78	73	68	63	59	55	49	45	41	38	35	33
	30	72	72	72	68	63	59	55	49	45	41	38	35	33
	40	64	64	64	64	63	59	55	49	45	41	38	35	33
	50	58	58	58	58	58	58	55	49	45	41	38	35	33
	60	53	53	53	53	53	53	53	49	45	41	38	35	33
	70	50	50	50	50	50	50	50	49	45	41	38	35	33
	80	47	47	47	47	47	47	47	47	45	41	38	35	33
	90	44	44	44	44	44	44	44	44	44	41	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 33a		Mean Roof Height: 15 < h ≤ 30 ft Roof Angle: 20 < θ ≤ 27 degrees Exposure Category: D								Panel Orientation: Portrait North/South Support X _E = 1 Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	99	95	91	88	82	77	71	65	61	57
	10	100	100	100	99	95	91	88	82	77	71	65	61	57
	20	85	85	85	85	85	84	83	82	77	71	65	61	57
	30	72	72	72	72	72	72	72	72	71	70	65	61	57
	40	64	64	64	64	64	64	64	64	64	64	63	61	57
	50	58	58	58	58	58	58	58	58	58	58	58	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	96	92	87	84	80	77	73	65	59	53	49	45	42
	10	96	92	87	84	80	77	73	65	59	53	49	45	42
	20	85	85	85	84	80	77	73	65	59	53	49	45	42
	30	72	72	72	72	72	72	72	65	59	53	49	45	42
	40	64	64	64	64	64	64	64	64	59	53	49	45	42
	50	58	58	58	58	58	58	58	58	58	53	49	45	42
	60	53	53	53	53	53	53	53	53	53	53	49	45	42
	70	50	50	50	50	50	50	50	50	50	50	49	45	42
	80	47	47	47	47	47	47	47	47	47	47	47	45	42
	90	44	44	44	44	44	44	44	44	44	44	44	44	42
Zone 3r	0	91	87	83	79	76	70	66	59	53	48	44	40	38
	10	91	87	83	79	76	70	66	59	53	48	44	40	38
	20	85	85	83	79	76	70	66	59	53	48	44	40	38
	30	72	72	72	72	72	70	66	59	53	48	44	40	38
	40	64	64	64	64	64	64	64	59	53	48	44	40	38
	50	58	58	58	58	58	58	58	58	53	48	44	40	38
	60	53	53	53	53	53	53	53	53	53	48	44	40	38
	70	50	50	50	50	50	50	50	50	50	48	44	40	38
	80	47	47	47	47	47	47	47	47	47	47	44	40	38
	90	44	44	44	44	44	44	44	44	44	44	44	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 33b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	94	90	86	82	79	77	73	66	60	55	51	47	44
	10	94	90	86	82	79	77	73	66	60	55	51	47	44
	20	85	85	85	82	79	77	73	66	60	55	51	47	44
	30	72	72	72	72	72	72	72	66	60	55	51	47	44
	40	64	64	64	64	64	64	64	64	60	55	51	47	44
	50	58	58	58	58	58	58	58	58	58	55	51	47	44
	60	53	53	53	53	53	53	53	53	53	53	51	47	44
	70	50	50	50	50	50	50	50	50	50	50	50	47	44
	80	47	47	47	47	47	47	47	47	47	47	47	47	44
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	80	77	71	66	62	58	55	49	44	41	38	36	34
	10	80	77	71	66	62	58	55	49	44	41	38	36	34
	20	80	77	71	66	62	58	55	49	44	41	38	36	34
	30	72	72	71	66	62	58	55	49	44	41	38	36	34
	40	64	64	64	64	62	58	55	49	44	41	38	36	34
	50	58	58	58	58	58	58	55	49	44	41	38	36	34
	60	53	53	53	53	53	53	53	49	44	41	38	36	34
	70	50	50	50	50	50	50	50	49	44	41	38	36	34
	80	47	47	47	47	47	47	47	47	44	41	38	36	34
	90	44	44	44	44	44	44	44	44	44	41	38	36	34
Zone 3r	0	75	69	64	60	56	52	49	44	40	37	34	32	30
	10	75	69	64	60	56	52	49	44	40	37	34	32	30
	20	75	69	64	60	56	52	49	44	40	37	34	32	30
	30	72	69	64	60	56	52	49	44	40	37	34	32	30
	40	64	64	64	60	56	52	49	44	40	37	34	32	30
	50	58	58	58	58	56	52	49	44	40	37	34	32	30
	60	53	53	53	53	53	52	49	44	40	37	34	32	30
	70	50	50	50	50	50	50	49	44	40	37	34	32	30
	80	47	47	47	47	47	47	47	44	40	37	34	32	30
	90	44	44	44	44	44	44	44	44	40	37	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 34a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	103	103	103	103	102	95	89	84	80	76
	10	101	101	101	101	101	101	100	97	95	89	84	80	76
	20	88	88	88	88	87	86	86	84	82	80	78	76	74
	30	76	76	76	76	76	76	76	75	73	72	71	69	68
	40	67	67	67	67	67	67	67	67	67	66	65	64	62
	50	61	61	61	61	61	61	61	61	61	61	60	59	58
	60	57	57	57	57	57	57	57	57	57	57	57	56	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	52
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zones 2n & 3r	0	103	103	103	103	103	103	101	94	88	83	78	74	68
	10	101	101	101	101	101	101	100	94	88	83	78	74	68
	20	88	88	88	88	87	86	86	84	82	80	78	74	68
	30	76	76	76	76	76	76	76	75	73	72	71	69	68
	40	67	67	67	67	67	67	67	67	67	66	65	64	62
	50	61	61	61	61	61	61	61	61	61	61	60	59	58
	60	57	57	57	57	57	57	57	57	57	57	57	56	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	52
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3e	0	103	103	103	103	99	95	92	86	80	76	69	64	59
	10	101	101	101	101	99	95	92	86	80	76	69	64	59
	20	88	88	88	88	87	86	86	84	80	76	69	64	59
	30	76	76	76	76	76	76	76	75	73	72	69	64	59
	40	67	67	67	67	67	67	67	67	67	66	65	64	59
	50	61	61	61	61	61	61	61	61	61	61	60	59	58
	60	57	57	57	57	57	57	57	57	57	57	57	56	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	52
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 34b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	103	99	95	91	85	79	74	67	61	56
	10	101	101	101	101	99	95	91	85	79	74	67	61	56
	20	88	88	88	88	87	86	86	84	79	74	67	61	56
	30	76	76	76	76	76	76	76	75	73	72	67	61	56
	40	67	67	67	67	67	67	67	67	67	66	65	61	56
	50	61	61	61	61	61	61	61	61	61	61	60	59	56
	60	57	57	57	57	57	57	57	57	57	57	57	56	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	52
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zones 2n & 3r	0	103	103	99	95	91	88	84	79	73	66	61	56	52
	10	101	101	99	95	91	88	84	79	73	66	61	56	52
	20	88	88	88	88	87	86	84	79	73	66	61	56	52
	30	76	76	76	76	76	76	76	75	73	66	61	56	52
	40	67	67	67	67	67	67	67	67	67	66	61	56	52
	50	61	61	61	61	61	61	61	61	61	61	60	56	52
	60	57	57	57	57	57	57	57	57	57	57	57	56	52
	70	53	53	53	53	53	53	53	53	53	53	53	53	52
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3e	0	99	94	90	86	83	80	77	70	63	57	52	48	45
	10	99	94	90	86	83	80	77	70	63	57	52	48	45
	20	88	88	88	86	83	80	77	70	63	57	52	48	45
	30	76	76	76	76	76	76	76	70	63	57	52	48	45
	40	67	67	67	67	67	67	67	67	63	57	52	48	45
	50	61	61	61	61	61	61	61	61	61	57	52	48	45
	60	57	57	57	57	57	57	57	57	57	57	52	48	45
	70	53	53	53	53	53	53	53	53	53	53	52	48	45
	80	50	50	50	50	50	50	50	50	50	50	50	48	45
	90	47	47	47	47	47	47	47	47	47	47	47	47	45

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 35a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	103	102	98	94	87	82	77	71	65	59
	10	101	101	100	99	97	96	94	87	82	77	71	65	59
	20	88	87	86	85	84	83	82	79	77	75	71	65	59
	30	76	76	76	75	75	74	73	71	70	68	66	64	59
	40	67	67	67	67	67	67	67	66	64	63	61	60	58
	50	61	61	61	61	61	61	61	61	60	59	57	56	55
	60	57	57	57	57	57	57	57	57	56	55	54	53	52
	70	53	53	53	53	53	53	53	53	53	52	52	51	50
	80	50	50	50	50	50	50	50	50	50	50	49	48	48
	90	47	47	47	47	47	47	47	47	47	47	47	46	46
Zones 2n & 3r	0	103	103	102	98	94	90	87	81	76	70	64	58	54
	10	101	101	100	98	94	90	87	81	76	70	64	58	54
	20	88	87	86	85	84	83	82	79	76	70	64	58	54
	30	76	76	76	75	75	74	73	71	70	68	64	58	54
	40	67	67	67	67	67	67	67	66	64	63	61	58	54
	50	61	61	61	61	61	61	61	61	60	59	57	56	54
	60	57	57	57	57	57	57	57	57	56	55	54	53	52
	70	53	53	53	53	53	53	53	53	53	52	52	51	50
	80	50	50	50	50	50	50	50	50	50	50	49	48	48
	90	47	47	47	47	47	47	47	47	47	47	47	46	46
Zone 3e	0	102	97	93	89	85	82	79	74	66	60	55	50	47
	10	101	97	93	89	85	82	79	74	66	60	55	50	47
	20	88	87	86	85	84	82	79	74	66	60	55	50	47
	30	76	76	76	75	75	74	73	71	66	60	55	50	47
	40	67	67	67	67	67	67	67	66	64	60	55	50	47
	50	61	61	61	61	61	61	61	61	60	59	55	50	47
	60	57	57	57	57	57	57	57	57	56	55	54	50	47
	70	53	53	53	53	53	53	53	53	53	52	52	50	47
	80	50	50	50	50	50	50	50	50	50	50	49	48	47
	90	47	47	47	47	47	47	47	47	47	47	47	46	46

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 35b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	102	97	92	88	84	81	78	71	64	58	52	48	44
	10	101	97	92	88	84	81	78	71	64	58	52	48	44
	20	88	87	86	85	84	81	78	71	64	58	52	48	44
	30	76	76	76	75	75	74	73	71	64	58	52	48	44
	40	67	67	67	67	67	67	67	66	64	58	52	48	44
	50	61	61	61	61	61	61	61	61	60	58	52	48	44
	60	57	57	57	57	57	57	57	57	56	55	52	48	44
	70	53	53	53	53	53	53	53	53	53	52	52	48	44
	80	50	50	50	50	50	50	50	50	50	50	49	48	44
	90	47	47	47	47	47	47	47	47	47	47	47	46	44
Zones 2n & 3r	0	94	89	85	82	79	76	72	64	58	53	48	44	41
	10	94	89	85	82	79	76	72	64	58	53	48	44	41
	20	88	87	85	82	79	76	72	64	58	53	48	44	41
	30	76	76	76	75	75	74	72	64	58	53	48	44	41
	40	67	67	67	67	67	67	67	64	58	53	48	44	41
	50	61	61	61	61	61	61	61	61	58	53	48	44	41
	60	57	57	57	57	57	57	57	57	56	53	48	44	41
	70	53	53	53	53	53	53	53	53	53	52	48	44	41
	80	50	50	50	50	50	50	50	50	50	50	48	44	41
	90	47	47	47	47	47	47	47	47	47	47	47	44	41
Zone 3e	0	85	81	78	75	70	65	62	55	50	45	42	39	36
	10	85	81	78	75	70	65	62	55	50	45	42	39	36
	20	85	81	78	75	70	65	62	55	50	45	42	39	36
	30	76	76	76	75	70	65	62	55	50	45	42	39	36
	40	67	67	67	67	67	65	62	55	50	45	42	39	36
	50	61	61	61	61	61	61	61	55	50	45	42	39	36
	60	57	57	57	57	57	57	57	55	50	45	42	39	36
	70	53	53	53	53	53	53	53	53	50	45	42	39	36
	80	50	50	50	50	50	50	50	50	50	45	42	39	36
	90	47	47	47	47	47	47	47	47	47	45	42	39	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 36a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	98	94	90	87	81	76	69	62	57	52
	10	101	99	98	96	94	90	87	81	76	69	62	57	52
	20	86	85	84	83	82	80	79	77	74	69	62	57	52
	30	76	76	75	74	73	72	71	69	68	66	62	57	52
	40	67	67	67	67	67	66	65	64	62	61	59	57	52
	50	61	61	61	61	61	61	61	60	58	57	56	54	52
	60	57	57	57	57	57	57	57	56	55	54	53	52	50
	70	53	53	53	53	53	53	53	53	52	51	50	49	48
	80	50	50	50	50	50	50	50	50	50	49	48	47	46
	90	47	47	47	47	47	47	47	47	47	47	46	45	44
Zones 2n & 3r	0	103	99	95	91	87	84	81	76	68	62	57	52	48
	10	101	99	95	91	87	84	81	76	68	62	57	52	48
	20	86	85	84	83	82	80	79	76	68	62	57	52	48
	30	76	76	75	74	73	72	71	69	68	62	57	52	48
	40	67	67	67	67	67	66	65	64	62	61	57	52	48
	50	61	61	61	61	61	61	61	60	58	57	56	52	48
	60	57	57	57	57	57	57	57	56	55	54	53	52	48
	70	53	53	53	53	53	53	53	53	52	51	50	49	48
	80	50	50	50	50	50	50	50	50	50	49	48	47	46
	90	47	47	47	47	47	47	47	47	47	47	46	45	44
Zone 3e	0	95	90	86	83	79	77	73	65	59	53	49	45	42
	10	95	90	86	83	79	77	73	65	59	53	49	45	42
	20	86	85	84	83	79	77	73	65	59	53	49	45	42
	30	76	76	75	74	73	72	71	65	59	53	49	45	42
	40	67	67	67	67	67	66	65	64	59	53	49	45	42
	50	61	61	61	61	61	61	61	60	58	53	49	45	42
	60	57	57	57	57	57	57	57	56	55	53	49	45	42
	70	53	53	53	53	53	53	53	53	52	51	49	45	42
	80	50	50	50	50	50	50	50	50	50	49	48	45	42
	90	47	47	47	47	47	47	47	47	47	47	46	45	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 36b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	94	89	85	82	78	75	71	63	56	51	46	43	40
	10	94	89	85	82	78	75	71	63	56	51	46	43	40
	20	86	85	84	82	78	75	71	63	56	51	46	43	40
	30	76	76	75	74	73	72	71	63	56	51	46	43	40
	40	67	67	67	67	67	66	65	63	56	51	46	43	40
	50	61	61	61	61	61	61	61	60	56	51	46	43	40
	60	57	57	57	57	57	57	57	56	55	51	46	43	40
	70	53	53	53	53	53	53	53	53	52	51	46	43	40
	80	50	50	50	50	50	50	50	50	50	49	46	43	40
	90	47	47	47	47	47	47	47	47	47	47	46	43	40
Zones 2n & 3r	0	87	83	79	76	72	68	64	57	52	47	43	40	38
	10	87	83	79	76	72	68	64	57	52	47	43	40	38
	20	86	83	79	76	72	68	64	57	52	47	43	40	38
	30	76	76	75	74	72	68	64	57	52	47	43	40	38
	40	67	67	67	67	67	66	64	57	52	47	43	40	38
	50	61	61	61	61	61	61	61	57	52	47	43	40	38
	60	57	57	57	57	57	57	57	56	52	47	43	40	38
	70	53	53	53	53	53	53	53	53	52	47	43	40	38
	80	50	50	50	50	50	50	50	50	50	47	43	40	38
	90	47	47	47	47	47	47	47	47	47	47	43	40	38
Zone 3e	0	79	76	71	66	62	58	55	49	44	41	38	35	33
	10	79	76	71	66	62	58	55	49	44	41	38	35	33
	20	79	76	71	66	62	58	55	49	44	41	38	35	33
	30	76	76	71	66	62	58	55	49	44	41	38	35	33
	40	67	67	67	66	62	58	55	49	44	41	38	35	33
	50	61	61	61	61	61	58	55	49	44	41	38	35	33
	60	57	57	57	57	57	57	55	49	44	41	38	35	33
	70	53	53	53	53	53	53	53	49	44	41	38	35	33
	80	50	50	50	50	50	50	50	49	44	41	38	35	33
	90	47	47	47	47	47	47	47	47	44	41	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 37a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	95	88	83	79	74	69
	10	92	92	92	92	92	92	92	92	88	83	79	74	69
	20	72	72	72	72	72	72	72	72	72	72	71	70	69
	30	72	72	72	72	72	72	72	72	72	72	71	70	69
	40	63	63	63	63	63	63	63	63	63	63	63	63	62
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	103	103	103	103	102	98	94	87	82	76	70	64	59
	10	92	92	92	92	92	92	92	87	82	76	70	64	59
	20	72	72	72	72	72	72	72	72	72	72	70	64	59
	30	72	72	72	72	72	72	72	72	72	72	70	64	59
	40	63	63	63	63	63	63	63	63	63	63	63	63	59
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	103	103	102	98	94	90	84	79	72	66	61	56
	10	92	92	92	92	92	92	90	84	79	72	66	61	56
	20	72	72	72	72	72	72	72	72	72	72	66	61	56
	30	72	72	72	72	72	72	72	72	72	72	66	61	56
	40	63	63	63	63	63	63	63	63	63	63	63	61	56
	50	57	57	57	57	57	57	57	57	57	57	57	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 37b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	101	96	92	88	85	79	73	67	62	57	53
	10	92	92	92	92	92	88	85	79	73	67	62	57	53
	20	72	72	72	72	72	72	72	72	72	67	62	57	53
	30	72	72	72	72	72	72	72	72	72	67	62	57	53
	40	63	63	63	63	63	63	63	63	63	63	62	57	53
	50	57	57	57	57	57	57	57	57	57	57	57	57	53
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 2r	0	101	96	92	88	85	81	78	70	63	58	53	49	45
	10	92	92	92	88	85	81	78	70	63	58	53	49	45
	20	72	72	72	72	72	72	72	70	63	58	53	49	45
	30	72	72	72	72	72	72	72	70	63	58	53	49	45
	40	63	63	63	63	63	63	63	63	63	58	53	49	45
	50	57	57	57	57	57	57	57	57	57	57	53	49	45
	60	53	53	53	53	53	53	53	53	53	53	53	49	45
	70	49	49	49	49	49	49	49	49	49	49	49	49	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2e & 3	0	98	93	89	85	82	79	74	66	60	55	50	46	43
	10	92	92	89	85	82	79	74	66	60	55	50	46	43
	20	72	72	72	72	72	72	72	66	60	55	50	46	43
	30	72	72	72	72	72	72	72	66	60	55	50	46	43
	40	63	63	63	63	63	63	63	63	60	55	50	46	43
	50	57	57	57	57	57	57	57	57	57	55	50	46	43
	60	53	53	53	53	53	53	53	53	53	53	50	46	43
	70	49	49	49	49	49	49	49	49	49	49	49	46	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
	90	44	44	44	44	44	44	44	44	44	44	44	44	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 38a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	99	95	91	87	81	76	70	64	60	56
	10	92	92	92	92	92	91	87	81	76	70	64	60	56
	20	72	72	72	72	72	72	72	71	70	69	64	60	56
	30	72	72	72	72	72	72	72	71	70	69	64	60	56
	40	63	63	63	63	63	63	63	63	63	63	62	60	56
	50	57	57	57	57	57	57	57	57	57	57	57	56	55
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	103	100	95	91	87	84	81	74	66	60	55	51	47
	10	92	92	92	91	87	84	81	74	66	60	55	51	47
	20	72	72	72	72	72	72	72	71	66	60	55	51	47
	30	72	72	72	72	72	72	72	71	66	60	55	51	47
	40	63	63	63	63	63	63	63	63	63	60	55	51	47
	50	57	57	57	57	57	57	57	57	57	57	55	51	47
	60	53	53	53	53	53	53	53	53	53	53	53	51	47
	70	49	49	49	49	49	49	49	49	49	49	49	49	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	101	96	92	88	84	81	78	70	63	57	53	49	45
	10	92	92	92	88	84	81	78	70	63	57	53	49	45
	20	72	72	72	72	72	72	72	70	63	57	53	49	45
	30	72	72	72	72	72	72	72	70	63	57	53	49	45
	40	63	63	63	63	63	63	63	63	63	57	53	49	45
	50	57	57	57	57	57	57	57	57	57	57	53	49	45
	60	53	53	53	53	53	53	53	53	53	53	53	49	45
	70	49	49	49	49	49	49	49	49	49	49	49	49	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 38b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	95	90	86	82	79	76	72	65	59	54	50	47	44
	10	92	90	86	82	79	76	72	65	59	54	50	47	44
	20	72	72	72	72	72	72	72	65	59	54	50	47	44
	30	72	72	72	72	72	72	72	65	59	54	50	47	44
	40	63	63	63	63	63	63	63	63	59	54	50	47	44
	50	57	57	57	57	57	57	57	57	57	54	50	47	44
	60	53	53	53	53	53	53	53	53	53	53	50	47	44
	70	49	49	49	49	49	49	49	49	49	49	49	47	44
	80	46	46	46	46	46	46	46	46	46	46	46	46	44
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	87	83	79	75	70	66	62	56	51	46	43	40	38
	10	87	83	79	75	70	66	62	56	51	46	43	40	38
	20	72	72	72	72	70	66	62	56	51	46	43	40	38
	30	72	72	72	72	70	66	62	56	51	46	43	40	38
	40	63	63	63	63	63	63	62	56	51	46	43	40	38
	50	57	57	57	57	57	57	57	56	51	46	43	40	38
	60	53	53	53	53	53	53	53	53	51	46	43	40	38
	70	49	49	49	49	49	49	49	49	49	46	43	40	38
	80	46	46	46	46	46	46	46	46	46	46	43	40	38
	90	44	44	44	44	44	44	44	44	44	44	43	40	38
Zones 2e & 3	0	84	80	76	71	66	62	59	53	48	44	41	38	36
	10	84	80	76	71	66	62	59	53	48	44	41	38	36
	20	72	72	72	71	66	62	59	53	48	44	41	38	36
	30	72	72	72	71	66	62	59	53	48	44	41	38	36
	40	63	63	63	63	63	62	59	53	48	44	41	38	36
	50	57	57	57	57	57	57	57	53	48	44	41	38	36
	60	53	53	53	53	53	53	53	53	48	44	41	38	36
	70	49	49	49	49	49	49	49	49	48	44	41	38	36
	80	46	46	46	46	46	46	46	46	46	44	41	38	36
	90	44	44	44	44	44	44	44	44	44	44	41	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 39a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	101	96	91	88	84	81	75	68	63	58	54	50
	10	92	92	92	91	88	84	81	75	68	63	58	54	50
	20	72	72	72	72	72	72	71	70	68	63	58	54	50
	30	72	72	72	72	72	72	71	70	68	63	58	54	50
	40	63	63	63	63	63	63	63	63	62	61	58	54	50
	50	57	57	57	57	57	57	57	57	57	57	56	54	50
	60	53	53	53	53	53	53	53	53	53	53	52	51	50
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	97	92	88	84	81	78	73	66	59	54	50	46	43
	10	92	92	88	84	81	78	73	66	59	54	50	46	43
	20	72	72	72	72	72	72	71	66	59	54	50	46	43
	30	72	72	72	72	72	72	71	66	59	54	50	46	43
	40	63	63	63	63	63	63	63	63	59	54	50	46	43
	50	57	57	57	57	57	57	57	57	57	54	50	46	43
	60	53	53	53	53	53	53	53	53	53	53	50	46	43
	70	49	49	49	49	49	49	49	49	49	49	49	46	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
	90	44	44	44	44	44	44	44	44	44	44	44	44	43
Zones 2e & 3	0	93	89	85	81	78	74	69	62	56	51	47	44	41
	10	92	89	85	81	78	74	69	62	56	51	47	44	41
	20	72	72	72	72	72	72	69	62	56	51	47	44	41
	30	72	72	72	72	72	72	69	62	56	51	47	44	41
	40	63	63	63	63	63	63	63	62	56	51	47	44	41
	50	57	57	57	57	57	57	57	57	56	51	47	44	41
	60	53	53	53	53	53	53	53	53	53	51	47	44	41
	70	49	49	49	49	49	49	49	49	49	49	47	44	41
	80	46	46	46	46	46	46	46	46	46	46	46	44	41
	90	44	44	44	44	44	44	44	44	44	44	44	44	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 39b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	87	83	80	76	72	68	64	58	53	49	46	42	40
	10	87	83	80	76	72	68	64	58	53	49	46	42	40
	20	72	72	72	72	72	68	64	58	53	49	46	42	40
	30	72	72	72	72	72	68	64	58	53	49	46	42	40
	40	63	63	63	63	63	63	63	58	53	49	46	42	40
	50	57	57	57	57	57	57	57	57	53	49	46	42	40
	60	53	53	53	53	53	53	53	53	53	49	46	42	40
	70	49	49	49	49	49	49	49	49	49	49	46	42	40
	80	46	46	46	46	46	46	46	46	46	46	46	42	40
90	44	44	44	44	44	44	44	44	44	44	44	42	40	
Zone 2r	0	81	77	71	67	62	59	56	50	45	42	39	36	34
	10	81	77	71	67	62	59	56	50	45	42	39	36	34
	20	72	72	71	67	62	59	56	50	45	42	39	36	34
	30	72	72	71	67	62	59	56	50	45	42	39	36	34
	40	63	63	63	63	62	59	56	50	45	42	39	36	34
	50	57	57	57	57	57	57	56	50	45	42	39	36	34
	60	53	53	53	53	53	53	53	50	45	42	39	36	34
	70	49	49	49	49	49	49	49	49	45	42	39	36	34
	80	46	46	46	46	46	46	46	46	45	42	39	36	34
90	44	44	44	44	44	44	44	44	44	42	39	36	34	
Zones 2e & 3	0	78	72	67	63	59	56	53	47	43	40	37	35	33
	10	78	72	67	63	59	56	53	47	43	40	37	35	33
	20	72	72	67	63	59	56	53	47	43	40	37	35	33
	30	72	72	67	63	59	56	53	47	43	40	37	35	33
	40	63	63	63	63	59	56	53	47	43	40	37	35	33
	50	57	57	57	57	57	56	53	47	43	40	37	35	33
	60	53	53	53	53	53	53	53	47	43	40	37	35	33
	70	49	49	49	49	49	49	49	47	43	40	37	35	33
	80	46	46	46	46	46	46	46	46	43	40	37	35	33
	90	44	44	44	44	44	44	44	44	43	40	37	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 40a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	102	96	91	86	82
	10	92	92	92	92	92	92	92	92	90	88	86	82	80
	20	72	72	72	72	72	72	72	72	72	71	70	68	67
	30	72	72	72	72	72	72	72	72	72	71	70	68	67
	40	63	63	63	63	63	63	63	63	63	63	63	63	62
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	103	103	103	103	102	98	94	87	82	76	70	64	59
	10	92	92	92	92	92	92	92	87	82	76	70	64	59
	20	72	72	72	72	72	72	72	72	72	71	70	64	59
	30	72	72	72	72	72	72	72	72	72	71	70	64	59
	40	63	63	63	63	63	63	63	63	63	63	63	63	59
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	103	103	103	103	103	103	98	92	87	82	78	72
	10	92	92	92	92	92	92	92	92	90	87	82	78	72
	20	72	72	72	72	72	72	72	72	72	71	70	68	67
	30	72	72	72	72	72	72	72	72	72	71	70	68	67
	40	63	63	63	63	63	63	63	63	63	63	63	63	62
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 40b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support X _E = 1.5					
		Exposure Category: B							Roof Type : Hip h/B = ≤ 0.5					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	102	98	91	85	80	76	70	65
	10	92	92	92	92	92	92	92	91	85	80	76	70	65
	20	72	72	72	72	72	72	72	72	72	71	70	68	65
	30	72	72	72	72	72	72	72	72	72	71	70	68	65
	40	63	63	63	63	63	63	63	63	63	63	63	63	62
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	101	96	92	88	85	81	78	70	63	58	53	49	45
	10	92	92	92	88	85	81	78	70	63	58	53	49	45
	20	72	72	72	72	72	72	72	70	63	58	53	49	45
	30	72	72	72	72	72	72	72	70	63	58	53	49	45
	40	63	63	63	63	63	63	63	63	63	58	53	49	45
	50	57	57	57	57	57	57	57	57	57	57	53	49	45
	60	53	53	53	53	53	53	53	53	53	53	53	49	45
	70	49	49	49	49	49	49	49	49	49	49	49	49	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	103	103	99	95	92	88	82	77	70	64	59	55
	10	92	92	92	92	92	92	88	82	77	70	64	59	55
	20	72	72	72	72	72	72	72	72	72	70	64	59	55
	30	72	72	72	72	72	72	72	72	72	70	64	59	55
	40	63	63	63	63	63	63	63	63	63	63	63	59	55
	50	57	57	57	57	57	57	57	57	57	57	57	57	55
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 41a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	101	94	88	83	79	73	68
	10	92	92	92	92	92	91	90	88	82	80	78	73	68
	20	72	72	72	72	72	72	72	70	69	67	66	65	63
	30	72	72	72	72	72	72	72	70	69	67	66	65	63
	40	63	63	63	63	63	63	63	63	63	62	61	60	58
	50	57	57	57	57	57	57	57	57	57	57	57	56	55
	60	53	53	53	53	53	53	53	53	53	53	53	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	103	100	95	91	87	84	81	74	66	60	55	51	47
	10	92	92	92	91	87	84	81	74	66	60	55	51	47
	20	72	72	72	72	72	72	72	70	66	60	55	51	47
	30	72	72	72	72	72	72	72	70	66	60	55	51	47
	40	63	63	63	63	63	63	63	63	63	60	55	51	47
	50	57	57	57	57	57	57	57	57	57	57	55	51	47
	60	53	53	53	53	53	53	53	53	53	53	53	51	47
	70	49	49	49	49	49	49	49	49	49	49	49	49	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	103	103	103	98	94	91	85	79	73	67	62	57
	10	92	92	92	92	92	91	90	85	79	73	67	62	57
	20	72	72	72	72	72	72	72	70	69	67	66	62	57
	30	72	72	72	72	72	72	72	70	69	67	66	62	57
	40	63	63	63	63	63	63	63	63	63	62	61	60	57
	50	57	57	57	57	57	57	57	57	57	57	57	56	55
	60	53	53	53	53	53	53	53	53	53	53	53	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 41b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	99	95	91	87	84	79	72	66	61	57	53
	10	92	92	92	92	91	87	84	79	72	66	61	57	53
	20	72	72	72	72	72	72	72	70	69	66	61	57	53
	30	72	72	72	72	72	72	72	70	69	66	61	57	53
	40	63	63	63	63	63	63	63	63	63	62	61	57	53
	50	57	57	57	57	57	57	57	57	57	57	57	56	53
	60	53	53	53	53	53	53	53	53	53	53	53	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	87	83	79	75	70	66	62	56	51	46	43	40	38
	10	87	83	79	75	70	66	62	56	51	46	43	40	38
	20	72	72	72	72	70	66	62	56	51	46	43	40	38
	30	72	72	72	72	70	66	62	56	51	46	43	40	38
	40	63	63	63	63	63	63	62	56	51	46	43	40	38
	50	57	57	57	57	57	57	57	56	51	46	43	40	38
	60	53	53	53	53	53	53	53	53	51	46	43	40	38
	70	49	49	49	49	49	49	49	49	49	46	43	40	38
	80	46	46	46	46	46	46	46	46	46	46	43	40	38
	90	44	44	44	44	44	44	44	44	44	44	43	40	38
Zones 2e & 3	0	98	93	89	85	82	79	75	67	61	56	51	47	44
	10	92	92	89	85	82	79	75	67	61	56	51	47	44
	20	72	72	72	72	72	72	72	67	61	56	51	47	44
	30	72	72	72	72	72	72	72	67	61	56	51	47	44
	40	63	63	63	63	63	63	63	63	61	56	51	47	44
	50	57	57	57	57	57	57	57	57	57	56	51	47	44
	60	53	53	53	53	53	53	53	53	53	53	51	47	44
	70	49	49	49	49	49	49	49	49	49	49	49	47	44
	80	46	46	46	46	46	46	46	46	46	46	46	46	44
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 42a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	101	97	93	87	82	77	71	66	61
	10	92	92	92	91	90	89	87	82	80	77	71	66	61
	20	72	72	72	72	72	71	70	69	67	66	64	63	61
	30	72	72	72	72	72	71	70	69	67	66	64	63	61
	40	63	63	63	63	63	63	63	63	62	60	59	58	57
	50	57	57	57	57	57	57	57	57	57	56	55	54	53
	60	53	53	53	53	53	53	53	53	53	53	52	51	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	97	92	88	84	81	78	73	66	59	54	50	46	43
	10	92	92	88	84	81	78	73	66	59	54	50	46	43
	20	72	72	72	72	72	71	70	66	59	54	50	46	43
	30	72	72	72	72	72	71	70	66	59	54	50	46	43
	40	63	63	63	63	63	63	63	63	59	54	50	46	43
	50	57	57	57	57	57	57	57	57	57	54	50	46	43
	60	53	53	53	53	53	53	53	53	53	53	50	46	43
	70	49	49	49	49	49	49	49	49	49	49	49	46	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
	90	44	44	44	44	44	44	44	44	44	44	44	44	43
Zones 2e & 3	0	103	103	99	95	91	88	84	79	72	65	60	55	51
	10	92	92	92	91	90	88	84	79	72	65	60	55	51
	20	72	72	72	72	72	71	70	69	67	65	60	55	51
	30	72	72	72	72	72	71	70	69	67	65	60	55	51
	40	63	63	63	63	63	63	63	63	62	60	59	55	51
	50	57	57	57	57	57	57	57	57	57	56	55	54	51
	60	53	53	53	53	53	53	53	53	53	53	52	51	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 42b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	101	96	92	88	84	81	79	71	65	60	55	51	48
	10	92	92	92	88	84	81	79	71	65	60	55	51	48
	20	72	72	72	72	72	71	70	69	65	60	55	51	48
	30	72	72	72	72	72	71	70	69	65	60	55	51	48
	40	63	63	63	63	63	63	63	63	62	60	55	51	48
	50	57	57	57	57	57	57	57	57	57	56	55	51	48
	60	53	53	53	53	53	53	53	53	53	53	52	51	48
	70	49	49	49	49	49	49	49	49	49	49	49	48	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	81	77	71	67	62	59	56	50	45	42	39	36	34
	10	81	77	71	67	62	59	56	50	45	42	39	36	34
	20	72	72	71	67	62	59	56	50	45	42	39	36	34
	30	72	72	71	67	62	59	56	50	45	42	39	36	34
	40	63	63	63	63	62	59	56	50	45	42	39	36	34
	50	57	57	57	57	57	57	56	50	45	42	39	36	34
	60	53	53	53	53	53	53	53	50	45	42	39	36	34
	70	49	49	49	49	49	49	49	49	45	42	39	36	34
	80	46	46	46	46	46	46	46	46	45	42	39	36	34
	90	44	44	44	44	44	44	44	44	44	42	39	36	34
Zones 2e & 3	0	91	87	83	80	75	71	67	60	55	50	46	42	40
	10	91	87	83	80	75	71	67	60	55	50	46	42	40
	20	72	72	72	72	72	71	67	60	55	50	46	42	40
	30	72	72	72	72	72	71	67	60	55	50	46	42	40
	40	63	63	63	63	63	63	63	60	55	50	46	42	40
	50	57	57	57	57	57	57	57	57	55	50	46	42	40
	60	53	53	53	53	53	53	53	53	53	50	46	42	40
	70	49	49	49	49	49	49	49	49	49	49	46	42	40
	80	46	46	46	46	46	46	46	46	46	46	46	42	40
	90	44	44	44	44	44	44	44	44	44	44	44	42	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 43a		Mean Roof Height: 15 < h ≤ 30 ft	Panel Orientation: Portrait								North/South Support X _E = 1			
		Roof Angle: 20 < θ ≤ 27 degrees	Roof Type : Hip											
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	103	99	93	88	84
	10	100	100	100	100	100	100	100	100	99	97	93	88	84
	20	85	85	85	85	85	85	85	84	83	82	80	79	77
	30	72	72	72	72	72	72	72	72	72	72	71	70	69
	40	64	64	64	64	64	64	64	64	64	64	64	64	63
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	103	103	103	103	103	103	102	95	89	84	79	74	68
	10	100	100	100	100	100	100	100	95	89	84	79	74	68
	20	85	85	85	85	85	85	85	84	83	82	79	74	68
	30	72	72	72	72	72	72	72	72	72	72	71	70	68
	40	64	64	64	64	64	64	64	64	64	64	64	64	63
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 43b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	101	94	88	82	78	72	66
	10	100	100	100	100	100	100	100	94	88	82	78	72	66
	20	85	85	85	85	85	85	85	84	83	82	78	72	66
	30	72	72	72	72	72	72	72	72	72	72	71	70	66
	40	64	64	64	64	64	64	64	64	64	64	64	64	63
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	103	103	100	96	92	88	85	79	73	66	60	56	51
	10	100	100	100	96	92	88	85	79	73	66	60	56	51
	20	85	85	85	85	85	85	85	79	73	66	60	56	51
	30	72	72	72	72	72	72	72	72	72	66	60	56	51
	40	64	64	64	64	64	64	64	64	64	64	60	56	51
	50	58	58	58	58	58	58	58	58	58	58	58	56	51
	60	53	53	53	53	53	53	53	53	53	53	53	53	51
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 44a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1					
		Exposure Category: C								Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	103	103	103	103	103	103	103	97	90	85	80	76	70	
	10	100	100	100	100	100	100	100	98	96	90	85	80	76	70
	20	85	85	85	85	84	84	83	81	79	77	76	74	70	
	30	72	72	72	72	72	72	72	72	70	69	68	66	65	
	40	64	64	64	64	64	64	64	64	64	63	62	61	60	
	50	58	58	58	58	58	58	58	58	58	58	57	56	56	
	60	53	53	53	53	53	53	53	53	53	53	53	53	52	
	70	50	50	50	50	50	50	50	50	50	50	50	50	49	
	80	47	47	47	47	47	47	47	47	47	47	47	47	47	
	90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2e, 2r, & 3	0	103	103	103	99	95	91	88	82	77	70	63	58	54	
	10	100	100	100	99	95	91	88	82	77	70	63	58	54	
	20	85	85	85	85	84	84	83	81	77	70	63	58	54	
	30	72	72	72	72	72	72	72	72	70	69	63	58	54	
	40	64	64	64	64	64	64	64	64	64	63	62	58	54	
	50	58	58	58	58	58	58	58	58	58	58	57	56	54	
	60	53	53	53	53	53	53	53	53	53	53	53	53	52	
	70	50	50	50	50	50	50	50	50	50	50	50	50	49	
	80	47	47	47	47	47	47	47	47	47	47	47	47	47	
	90	44	44	44	44	44	44	44	44	44	44	44	44	44	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 44b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	102	98	94	90	86	80	75	68	62	57	52
	10	100	100	100	98	94	90	86	80	75	68	62	57	52
	20	85	85	85	85	84	84	83	80	75	68	62	57	52
	30	72	72	72	72	72	72	72	72	70	68	62	57	52
	40	64	64	64	64	64	64	64	64	64	63	62	57	52
	50	58	58	58	58	58	58	58	58	58	58	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	50	50	50	50	50	50	50	50	50	50	50	50	49
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	95	90	86	82	79	76	72	64	58	52	48	44	41
	10	95	90	86	82	79	76	72	64	58	52	48	44	41
	20	85	85	85	82	79	76	72	64	58	52	48	44	41
	30	72	72	72	72	72	72	72	64	58	52	48	44	41
	40	64	64	64	64	64	64	64	64	58	52	48	44	41
	50	58	58	58	58	58	58	58	58	58	52	48	44	41
	60	53	53	53	53	53	53	53	53	53	52	48	44	41
	70	50	50	50	50	50	50	50	50	50	50	48	44	41
	80	47	47	47	47	47	47	47	47	47	47	47	44	41
	90	44	44	44	44	44	44	44	44	44	44	44	44	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 45a		Mean Roof Height: 15 < h ≤ 30 ft									Panel Orientation: Portrait			
		Roof Angle: 20 < θ ≤ 27 degrees									North/South Support X _E = 1			
		Exposure Category: D									Roof Type : Hip			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	102	94	88	83	78	73	67
	10	100	100	100	100	100	99	98	94	88	83	78	73	67
	20	85	85	85	85	84	83	82	80	79	77	75	73	67
	30	72	72	72	72	72	72	72	71	70	69	67	66	64
	40	64	64	64	64	64	64	64	64	64	63	61	60	59
	50	58	58	58	58	58	58	58	58	58	58	57	56	55
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	50	50	50	50	50	50	50	50	50	50	50	50	49
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	103	103	101	97	93	89	86	80	74	67	61	56	52
	10	100	100	100	97	93	89	86	80	74	67	61	56	52
	20	85	85	85	85	84	83	82	80	74	67	61	56	52
	30	72	72	72	72	72	72	72	71	70	67	61	56	52
	40	64	64	64	64	64	64	64	64	64	63	61	56	52
	50	58	58	58	58	58	58	58	58	58	58	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	50	50	50	50	50	50	50	50	50	50	50	50	49
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 45b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5					
		Exposure Category: D							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	100	95	91	88	85	79	72	65	60	55	51
	10	100	100	100	95	91	88	85	79	72	65	60	55	51
	20	85	85	85	85	84	83	82	79	72	65	60	55	51
	30	72	72	72	72	72	72	72	71	70	65	60	55	51
	40	64	64	64	64	64	64	64	64	64	63	60	55	51
	50	58	58	58	58	58	58	58	58	58	58	57	55	51
	60	53	53	53	53	53	53	53	53	53	53	53	53	51
	70	50	50	50	50	50	50	50	50	50	50	50	50	49
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	93	88	84	81	78	73	69	62	56	51	47	43	40
	10	93	88	84	81	78	73	69	62	56	51	47	43	40
	20	85	85	84	81	78	73	69	62	56	51	47	43	40
	30	72	72	72	72	72	72	69	62	56	51	47	43	40
	40	64	64	64	64	64	64	64	62	56	51	47	43	40
	50	58	58	58	58	58	58	58	58	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	50	50	50	50	50	50	50	50	50	50	47	43	40
	80	47	47	47	47	47	47	47	47	47	47	47	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 46a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	100	94	89	84	80
	10	101	101	101	101	101	101	101	101	100	94	89	84	80
	20	88	88	88	88	88	88	88	87	86	85	83	81	80
	30	76	76	76	76	76	76	76	76	76	75	74	73	72
	40	67	67	67	67	67	67	67	67	67	67	67	67	66
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	103	103	103	103	99	92	87	82	77
	10	101	101	101	101	101	101	101	101	99	92	87	82	77
	20	88	88	88	88	88	88	88	87	86	85	83	81	77
	30	76	76	76	76	76	76	76	76	76	75	74	73	72
	40	67	67	67	67	67	67	67	67	67	67	67	67	66
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	103	103	103	103	103	102	98	91	85	80	76	70	64
	10	101	101	101	101	101	101	98	91	85	80	76	70	64
	20	88	88	88	88	88	88	88	87	85	80	76	70	64
	30	76	76	76	76	76	76	76	76	76	75	74	70	64
	40	67	67	67	67	67	67	67	67	67	67	67	67	64
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	103	103	103	103	103	102	94	87	81	76	70	63
	10	101	101	101	101	101	101	101	94	87	81	76	70	63
	20	88	88	88	88	88	88	88	87	86	81	76	70	63
	30	76	76	76	76	76	76	76	76	76	75	74	70	63
	40	67	67	67	67	67	67	67	67	67	67	67	67	63
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 46b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1.5					
		Exposure Category: B							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	99	96	89	84	79	75	68	63
	10	101	101	101	101	101	99	96	89	84	79	75	68	63
	20	88	88	88	88	88	88	88	87	84	79	75	68	63
	30	76	76	76	76	76	76	76	76	76	75	74	68	63
	40	67	67	67	67	67	67	67	67	67	67	67	67	63
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	103	98	94	87	81	76	69	62	57
	10	101	101	101	101	101	98	94	87	81	76	69	62	57
	20	88	88	88	88	88	88	88	87	81	76	69	62	57
	30	76	76	76	76	76	76	76	76	76	75	69	62	57
	40	67	67	67	67	67	67	67	67	67	67	67	62	57
	50	61	61	61	61	61	61	61	61	61	61	61	61	57
	60	57	57	57	57	57	57	57	57	57	57	57	57	57
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	103	101	96	92	88	85	81	76	69	62	56	51	47
	10	101	101	96	92	88	85	81	76	69	62	56	51	47
	20	88	88	88	88	88	85	81	76	69	62	56	51	47
	30	76	76	76	76	76	76	76	76	69	62	56	51	47
	40	67	67	67	67	67	67	67	67	67	62	56	51	47
	50	61	61	61	61	61	61	61	61	61	61	56	51	47
	60	57	57	57	57	57	57	57	57	57	57	56	51	47
	70	53	53	53	53	53	53	53	53	53	53	53	51	47
	80	50	50	50	50	50	50	50	50	50	50	50	50	47
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	103	100	95	90	86	83	77	69	61	55	50	45
	10	101	101	100	95	90	86	83	77	69	61	55	50	45
	20	88	88	88	88	88	86	83	77	69	61	55	50	45
	30	76	76	76	76	76	76	76	76	69	61	55	50	45
	40	67	67	67	67	67	67	67	67	67	61	55	50	45
	50	61	61	61	61	61	61	61	61	61	61	55	50	45
	60	57	57	57	57	57	57	57	57	57	57	55	50	45
	70	53	53	53	53	53	53	53	53	53	53	53	50	45
	80	50	50	50	50	50	50	50	50	50	50	50	50	45
	90	47	47	47	47	47	47	47	47	47	47	47	47	45

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 47a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	99	92	86	81	77	72	66
	10	101	101	101	101	101	101	99	92	86	81	77	72	66
	20	88	88	88	88	87	87	86	84	82	80	77	72	66
	30	76	76	76	76	76	76	76	75	73	72	71	69	66
	40	67	67	67	67	67	67	67	67	67	66	65	64	63
	50	61	61	61	61	61	61	61	61	61	61	60	59	58
	60	57	57	57	57	57	57	57	57	57	57	57	56	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	52
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	103	102	97	90	84	78	74	66	60
	10	101	101	101	101	101	101	97	90	84	78	74	66	60
	20	88	88	88	88	87	87	86	84	82	78	74	66	60
	30	76	76	76	76	76	76	76	75	73	72	71	66	60
	40	67	67	67	67	67	67	67	67	67	66	65	64	60
	50	61	61	61	61	61	61	61	61	61	61	60	59	58
	60	57	57	57	57	57	57	57	57	57	57	57	56	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	52
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	103	103	100	95	91	87	84	78	73	65	59	54	50
	10	101	101	100	95	91	87	84	78	73	65	59	54	50
	20	88	88	88	88	87	87	84	78	73	65	59	54	50
	30	76	76	76	76	76	76	76	75	73	65	59	54	50
	40	67	67	67	67	67	67	67	67	67	65	59	54	50
	50	61	61	61	61	61	61	61	61	61	61	59	54	50
	60	57	57	57	57	57	57	57	57	57	57	57	54	50
	70	53	53	53	53	53	53	53	53	53	53	53	53	50
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	103	103	98	93	89	86	79	73	65	58	52	48
	10	101	101	101	98	93	89	86	79	73	65	58	52	48
	20	88	88	88	88	87	87	86	79	73	65	58	52	48
	30	76	76	76	76	76	76	76	75	73	65	58	52	48
	40	67	67	67	67	67	67	67	67	67	65	58	52	48
	50	61	61	61	61	61	61	61	61	61	61	58	52	48
	60	57	57	57	57	57	57	57	57	57	57	57	52	48
	70	53	53	53	53	53	53	53	53	53	53	53	52	48
	80	50	50	50	50	50	50	50	50	50	50	50	50	48
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 47b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	102	97	93	89	86	83	77	71	64	59	54	50
	10	101	101	97	93	89	86	83	77	71	64	59	54	50
	20	88	88	88	88	87	86	83	77	71	64	59	54	50
	30	76	76	76	76	76	76	76	75	71	64	59	54	50
	40	67	67	67	67	67	67	67	67	67	64	59	54	50
	50	61	61	61	61	61	61	61	61	61	61	59	54	50
	60	57	57	57	57	57	57	57	57	57	57	57	54	50
	70	53	53	53	53	53	53	53	53	53	53	53	53	50
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	101	95	91	87	83	80	74	65	58	53	48	44
	10	101	101	95	91	87	83	80	74	65	58	53	48	44
	20	88	88	88	88	87	83	80	74	65	58	53	48	44
	30	76	76	76	76	76	76	76	74	65	58	53	48	44
	40	67	67	67	67	67	67	67	67	65	58	53	48	44
	50	61	61	61	61	61	61	61	61	61	58	53	48	44
	60	57	57	57	57	57	57	57	57	57	57	53	48	44
	70	53	53	53	53	53	53	53	53	53	53	53	48	44
	80	50	50	50	50	50	50	50	50	50	50	50	48	44
	90	47	47	47	47	47	47	47	47	47	47	47	47	44
Zone 2r	0	91	86	83	79	76	72	67	60	53	48	44	41	38
	10	91	86	83	79	76	72	67	60	53	48	44	41	38
	20	88	86	83	79	76	72	67	60	53	48	44	41	38
	30	76	76	76	76	76	72	67	60	53	48	44	41	38
	40	67	67	67	67	67	67	67	60	53	48	44	41	38
	50	61	61	61	61	61	61	61	60	53	48	44	41	38
	60	57	57	57	57	57	57	57	57	53	48	44	41	38
	70	53	53	53	53	53	53	53	53	53	48	44	41	38
	80	50	50	50	50	50	50	50	50	50	48	44	41	38
	90	47	47	47	47	47	47	47	47	47	47	44	41	38
Zone 3	0	93	88	84	80	76	72	67	58	52	46	42	39	36
	10	93	88	84	80	76	72	67	58	52	46	42	39	36
	20	88	88	84	80	76	72	67	58	52	46	42	39	36
	30	76	76	76	76	76	72	67	58	52	46	42	39	36
	40	67	67	67	67	67	67	67	58	52	46	42	39	36
	50	61	61	61	61	61	61	61	58	52	46	42	39	36
	60	57	57	57	57	57	57	57	57	52	46	42	39	36
	70	53	53	53	53	53	53	53	53	52	46	42	39	36
	80	50	50	50	50	50	50	50	50	50	46	42	39	36
	90	47	47	47	47	47	47	47	47	47	46	42	39	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 48a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	99	95	92	85	80	76	69	64	59
	10	101	101	101	101	99	95	92	85	80	76	69	64	59
	20	88	88	88	87	86	85	84	82	80	76	69	64	59
	30	76	76	76	76	76	75	75	73	72	70	69	64	59
	40	67	67	67	67	67	67	67	67	66	65	63	62	59
	50	61	61	61	61	61	61	61	61	61	60	59	58	57
	60	57	57	57	57	57	57	57	57	57	56	56	55	54
	70	53	53	53	53	53	53	53	53	53	53	53	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	98	93	90	83	77	71	64	58	53
	10	101	101	101	101	98	93	90	83	77	71	64	58	53
	20	88	88	88	87	86	85	84	82	77	71	64	58	53
	30	76	76	76	76	76	75	75	73	72	70	64	58	53
	40	67	67	67	67	67	67	67	67	66	65	63	58	53
	50	61	61	61	61	61	61	61	61	61	60	59	58	53
	60	57	57	57	57	57	57	57	57	57	56	56	55	53
	70	53	53	53	53	53	53	53	53	53	53	53	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	102	96	92	88	84	81	78	71	64	57	52	48	44
	10	101	96	92	88	84	81	78	71	64	57	52	48	44
	20	88	88	88	87	84	81	78	71	64	57	52	48	44
	30	76	76	76	76	76	75	75	71	64	57	52	48	44
	40	67	67	67	67	67	67	67	67	64	57	52	48	44
	50	61	61	61	61	61	61	61	61	61	57	52	48	44
	60	57	57	57	57	57	57	57	57	57	56	52	48	44
	70	53	53	53	53	53	53	53	53	53	53	52	48	44
	80	50	50	50	50	50	50	50	50	50	50	50	48	44
	90	47	47	47	47	47	47	47	47	47	47	47	47	44
Zone 3	0	103	100	95	90	86	82	79	72	63	56	50	46	42
	10	101	100	95	90	86	82	79	72	63	56	50	46	42
	20	88	88	88	87	86	82	79	72	63	56	50	46	42
	30	76	76	76	76	76	75	75	72	63	56	50	46	42
	40	67	67	67	67	67	67	67	67	63	56	50	46	42
	50	61	61	61	61	61	61	61	61	61	56	50	46	42
	60	57	57	57	57	57	57	57	57	57	56	50	46	42
	70	53	53	53	53	53	53	53	53	53	53	50	46	42
	80	50	50	50	50	50	50	50	50	50	50	50	46	42
	90	47	47	47	47	47	47	47	47	47	47	47	46	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 48b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	99	94	90	86	83	80	77	70	63	57	52	48	44
	10	99	94	90	86	83	80	77	70	63	57	52	48	44
	20	88	88	88	86	83	80	77	70	63	57	52	48	44
	30	76	76	76	76	76	75	75	70	63	57	52	48	44
	40	67	67	67	67	67	67	67	67	63	57	52	48	44
	50	61	61	61	61	61	61	61	61	61	57	52	48	44
	60	57	57	57	57	57	57	57	57	57	56	52	48	44
	70	53	53	53	53	53	53	53	53	53	53	52	48	44
	80	50	50	50	50	50	50	50	50	50	50	50	48	44
	90	47	47	47	47	47	47	47	47	47	47	47	47	44
Zone 2e	0	98	92	88	84	80	77	74	64	57	51	46	42	39
	10	98	92	88	84	80	77	74	64	57	51	46	42	39
	20	88	88	88	84	80	77	74	64	57	51	46	42	39
	30	76	76	76	76	76	75	74	64	57	51	46	42	39
	40	67	67	67	67	67	67	67	64	57	51	46	42	39
	50	61	61	61	61	61	61	61	61	57	51	46	42	39
	60	57	57	57	57	57	57	57	57	57	51	46	42	39
	70	53	53	53	53	53	53	53	53	53	51	46	42	39
	80	50	50	50	50	50	50	50	50	50	50	46	42	39
	90	47	47	47	47	47	47	47	47	47	47	46	42	39
Zone 2r	0	84	80	77	73	68	63	59	53	47	43	40	37	34
	10	84	80	77	73	68	63	59	53	47	43	40	37	34
	20	84	80	77	73	68	63	59	53	47	43	40	37	34
	30	76	76	76	73	68	63	59	53	47	43	40	37	34
	40	67	67	67	67	67	63	59	53	47	43	40	37	34
	50	61	61	61	61	61	61	59	53	47	43	40	37	34
	60	57	57	57	57	57	57	57	53	47	43	40	37	34
	70	53	53	53	53	53	53	53	53	47	43	40	37	34
	80	50	50	50	50	50	50	50	50	47	43	40	37	34
	90	47	47	47	47	47	47	47	47	47	43	40	37	34
Zone 3	0	86	81	77	73	67	62	58	51	45	41	38	35	32
	10	86	81	77	73	67	62	58	51	45	41	38	35	32
	20	86	81	77	73	67	62	58	51	45	41	38	35	32
	30	76	76	76	73	67	62	58	51	45	41	38	35	32
	40	67	67	67	67	67	62	58	51	45	41	38	35	32
	50	61	61	61	61	61	61	58	51	45	41	38	35	32
	60	57	57	57	57	57	57	57	51	45	41	38	35	32
	70	53	53	53	53	53	53	53	51	45	41	38	35	32
	80	50	50	50	50	50	50	50	50	45	41	38	35	32
	90	47	47	47	47	47	47	47	47	45	41	38	35	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 49a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	103	103	103	97	92	88
	10	98	98	98	98	98	98	98	98	97	96	95	92	88
	20	78	78	78	78	78	78	78	78	78	78	78	78	78
	30	76	76	76	76	76	76	76	76	76	76	76	76	76
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	103	103	103	103	103	99	92	86	81	75	69	64
	10	98	98	98	98	98	98	98	92	86	81	75	69	64
	20	78	78	78	78	78	78	78	78	78	78	75	69	64
	30	76	76	76	76	76	76	76	76	76	76	75	69	64
	40	68	68	68	68	68	68	68	68	68	68	68	68	64
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	103	103	101	97	93	89	86	80	73	67	62	57	53
	10	98	98	98	97	93	89	86	80	73	67	62	57	53
	20	78	78	78	78	78	78	78	78	73	67	62	57	53
	30	76	76	76	76	76	76	76	76	73	67	62	57	53
	40	68	68	68	68	68	68	68	68	68	67	62	57	53
	50	61	61	61	61	61	61	61	61	61	61	61	57	53
	60	56	56	56	56	56	56	56	56	56	56	56	56	53
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	98	93	89	85	82	78	74	66	60	55	50	46	43
	10	98	93	89	85	82	78	74	66	60	55	50	46	43
	20	78	78	78	78	78	78	74	66	60	55	50	46	43
	30	76	76	76	76	76	76	74	66	60	55	50	46	43
	40	68	68	68	68	68	68	68	66	60	55	50	46	43
	50	61	61	61	61	61	61	61	61	60	55	50	46	43
	60	56	56	56	56	56	56	56	56	56	55	50	46	43
	70	52	52	52	52	52	52	52	52	52	52	50	46	43
	80	49	49	49	49	49	49	49	49	49	49	49	46	43
	90	47	47	47	47	47	47	47	47	47	47	47	46	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 49b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	98	92	87	82	78	72
	10	98	98	98	98	98	98	98	98	92	87	82	78	72
	20	78	78	78	78	78	78	78	78	78	78	78	78	72
	30	76	76	76	76	76	76	76	76	76	76	76	76	72
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	102	97	93	89	86	83	76	69	63	58	53	50
	10	98	98	97	93	89	86	83	76	69	63	58	53	50
	20	78	78	78	78	78	78	78	76	69	63	58	53	50
	30	76	76	76	76	76	76	76	76	69	63	58	53	50
	40	68	68	68	68	68	68	68	68	68	63	58	53	50
	50	61	61	61	61	61	61	61	61	61	61	58	53	50
	60	56	56	56	56	56	56	56	56	56	56	56	53	50
	70	52	52	52	52	52	52	52	52	52	52	52	52	50
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	93	88	85	81	77	73	69	62	56	52	48	44	41
	10	93	88	85	81	77	73	69	62	56	52	48	44	41
	20	78	78	78	78	77	73	69	62	56	52	48	44	41
	30	76	76	76	76	76	73	69	62	56	52	48	44	41
	40	68	68	68	68	68	68	68	62	56	52	48	44	41
	50	61	61	61	61	61	61	61	61	56	52	48	44	41
	60	56	56	56	56	56	56	56	56	56	52	48	44	41
	70	52	52	52	52	52	52	52	52	52	52	48	44	41
	80	49	49	49	49	49	49	49	49	49	49	48	44	41
	90	47	47	47	47	47	47	47	47	47	47	47	44	41
Zone 3	0	82	77	72	67	63	59	56	50	46	42	39	37	35
	10	82	77	72	67	63	59	56	50	46	42	39	37	35
	20	78	77	72	67	63	59	56	50	46	42	39	37	35
	30	76	76	72	67	63	59	56	50	46	42	39	37	35
	40	68	68	68	67	63	59	56	50	46	42	39	37	35
	50	61	61	61	61	61	59	56	50	46	42	39	37	35
	60	56	56	56	56	56	56	56	50	46	42	39	37	35
	70	52	52	52	52	52	52	52	50	46	42	39	37	35
	80	49	49	49	49	49	49	49	49	46	42	39	37	35
	90	47	47	47	47	47	47	47	47	46	42	39	37	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 50a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	103	97	91	86	82	78
	10	98	98	98	98	98	98	98	96	95	91	86	82	78
	20	78	78	78	78	78	78	78	78	78	78	78	78	76
	30	76	76	76	76	76	76	76	76	76	76	76	76	75
	40	68	68	68	68	68	68	68	68	68	68	68	68	68
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	103	103	98	94	90	87	81	74	68	62	58	54
	10	98	98	98	98	94	90	87	81	74	68	62	58	54
	20	78	78	78	78	78	78	78	78	74	68	62	58	54
	30	76	76	76	76	76	76	76	76	74	68	62	58	54
	40	68	68	68	68	68	68	68	68	68	68	62	58	54
	50	61	61	61	61	61	61	61	61	61	61	61	58	54
	60	56	56	56	56	56	56	56	56	56	56	56	56	54
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	98	93	89	85	82	79	75	67	61	56	51	48	44
	10	98	93	89	85	82	79	75	67	61	56	51	48	44
	20	78	78	78	78	78	78	75	67	61	56	51	48	44
	30	76	76	76	76	76	76	75	67	61	56	51	48	44
	40	68	68	68	68	68	68	68	67	61	56	51	48	44
	50	61	61	61	61	61	61	61	61	61	56	51	48	44
	60	56	56	56	56	56	56	56	56	56	56	51	48	44
	70	52	52	52	52	52	52	52	52	52	52	51	48	44
	80	49	49	49	49	49	49	49	49	49	49	49	48	44
	90	47	47	47	47	47	47	47	47	47	47	47	47	44
Zone 3	0	86	82	78	73	68	64	61	55	50	45	42	39	37
	10	86	82	78	73	68	64	61	55	50	45	42	39	37
	20	78	78	78	73	68	64	61	55	50	45	42	39	37
	30	76	76	76	73	68	64	61	55	50	45	42	39	37
	40	68	68	68	68	68	64	61	55	50	45	42	39	37
	50	61	61	61	61	61	61	61	55	50	45	42	39	37
	60	56	56	56	56	56	56	56	55	50	45	42	39	37
	70	52	52	52	52	52	52	52	52	50	45	42	39	37
	80	49	49	49	49	49	49	49	49	49	45	42	39	37
	90	47	47	47	47	47	47	47	47	47	45	42	39	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 50b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	100	96	93	87	82	76	70	65	61
	10	98	98	98	98	98	96	93	87	82	76	70	65	61
	20	78	78	78	78	78	78	78	78	78	76	70	65	61
	30	76	76	76	76	76	76	76	76	76	76	70	65	61
	40	68	68	68	68	68	68	68	68	68	68	68	65	61
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	94	89	85	82	78	74	70	63	57	52	48	45	42
	10	94	89	85	82	78	74	70	63	57	52	48	45	42
	20	78	78	78	78	78	74	70	63	57	52	48	45	42
	30	76	76	76	76	76	74	70	63	57	52	48	45	42
	40	68	68	68	68	68	68	68	63	57	52	48	45	42
	50	61	61	61	61	61	61	61	61	57	52	48	45	42
	60	56	56	56	56	56	56	56	56	56	52	48	45	42
	70	52	52	52	52	52	52	52	52	52	52	48	45	42
	80	49	49	49	49	49	49	49	49	49	49	48	45	42
	90	47	47	47	47	47	47	47	47	47	47	47	45	42
Zone 2	0	82	78	73	68	64	60	57	52	47	43	40	38	36
	10	82	78	73	68	64	60	57	52	47	43	40	38	36
	20	78	78	73	68	64	60	57	52	47	43	40	38	36
	30	76	76	73	68	64	60	57	52	47	43	40	38	36
	40	68	68	68	68	64	60	57	52	47	43	40	38	36
	50	61	61	61	61	61	60	57	52	47	43	40	38	36
	60	56	56	56	56	56	56	56	52	47	43	40	38	36
	70	52	52	52	52	52	52	52	52	47	43	40	38	36
	80	49	49	49	49	49	49	49	49	47	43	40	38	36
	90	47	47	47	47	47	47	47	47	47	43	40	38	36
Zone 3	0	68	63	59	55	52	49	47	42	39	36	34	32	30
	10	68	63	59	55	52	49	47	42	39	36	34	32	30
	20	68	63	59	55	52	49	47	42	39	36	34	32	30
	30	68	63	59	55	52	49	47	42	39	36	34	32	30
	40	68	63	59	55	52	49	47	42	39	36	34	32	30
	50	61	61	59	55	52	49	47	42	39	36	34	32	30
	60	56	56	56	55	52	49	47	42	39	36	34	32	30
	70	52	52	52	52	52	49	47	42	39	36	34	32	30
	80	49	49	49	49	49	49	47	42	39	36	34	32	30
	90	47	47	47	47	47	47	47	42	39	36	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 51a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	103	103	103	103	103	97	91	86	81	76	71
	10	98	98	98	98	98	97	97	95	91	86	81	76	71
	20	78	78	78	78	78	78	78	78	78	78	77	76	71
	30	76	76	76	76	76	76	76	76	76	76	76	75	71
	40	68	68	68	68	68	68	68	68	68	68	68	68	67
	50	61	61	61	61	61	61	61	61	61	61	61	61	61
	60	56	56	56	56	56	56	56	56	56	56	56	56	56
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	103	100	96	92	88	85	82	75	67	62	57	52	49
	10	98	98	96	92	88	85	82	75	67	62	57	52	49
	20	78	78	78	78	78	78	78	75	67	62	57	52	49
	30	76	76	76	76	76	76	76	75	67	62	57	52	49
	40	68	68	68	68	68	68	68	68	67	62	57	52	49
	50	61	61	61	61	61	61	61	61	61	61	57	52	49
	60	56	56	56	56	56	56	56	56	56	56	56	52	49
	70	52	52	52	52	52	52	52	52	52	52	52	52	49
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2	0	92	87	84	80	76	72	68	61	55	51	47	43	41
	10	92	87	84	80	76	72	68	61	55	51	47	43	41
	20	78	78	78	78	76	72	68	61	55	51	47	43	41
	30	76	76	76	76	76	72	68	61	55	51	47	43	41
	40	68	68	68	68	68	68	68	61	55	51	47	43	41
	50	61	61	61	61	61	61	61	61	55	51	47	43	41
	60	56	56	56	56	56	56	56	56	55	51	47	43	41
	70	52	52	52	52	52	52	52	52	52	51	47	43	41
	80	49	49	49	49	49	49	49	49	49	49	47	43	41
	90	47	47	47	47	47	47	47	47	47	47	47	43	41
Zone 3	0	81	75	70	66	62	58	55	50	45	41	39	36	34
	10	81	75	70	66	62	58	55	50	45	41	39	36	34
	20	78	75	70	66	62	58	55	50	45	41	39	36	34
	30	76	75	70	66	62	58	55	50	45	41	39	36	34
	40	68	68	68	66	62	58	55	50	45	41	39	36	34
	50	61	61	61	61	61	58	55	50	45	41	39	36	34
	60	56	56	56	56	56	56	55	50	45	41	39	36	34
	70	52	52	52	52	52	52	52	50	45	41	39	36	34
	80	49	49	49	49	49	49	49	49	45	41	39	36	34
	90	47	47	47	47	47	47	47	47	45	41	39	36	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 51b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	103	103	102	98	94	90	87	82	75	69	64	59	55
	10	98	98	98	98	94	90	87	82	75	69	64	59	55
	20	78	78	78	78	78	78	78	78	75	69	64	59	55
	30	76	76	76	76	76	76	76	76	75	69	64	59	55
	40	68	68	68	68	68	68	68	68	68	68	64	59	55
	50	61	61	61	61	61	61	61	61	61	61	61	59	55
	60	56	56	56	56	56	56	56	56	56	56	56	56	55
	70	52	52	52	52	52	52	52	52	52	52	52	52	52
	80	49	49	49	49	49	49	49	49	49	49	49	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 1	0	88	84	80	76	71	67	63	57	52	48	44	41	39
	10	88	84	80	76	71	67	63	57	52	48	44	41	39
	20	78	78	78	76	71	67	63	57	52	48	44	41	39
	30	76	76	76	76	71	67	63	57	52	48	44	41	39
	40	68	68	68	68	68	67	63	57	52	48	44	41	39
	50	61	61	61	61	61	61	61	57	52	48	44	41	39
	60	56	56	56	56	56	56	56	56	52	48	44	41	39
	70	52	52	52	52	52	52	52	52	52	48	44	41	39
	80	49	49	49	49	49	49	49	49	49	48	44	41	39
	90	47	47	47	47	47	47	47	47	47	47	44	41	39
Zone 2	0	76	70	66	62	58	55	52	47	43	40	37	35	33
	10	76	70	66	62	58	55	52	47	43	40	37	35	33
	20	76	70	66	62	58	55	52	47	43	40	37	35	33
	30	76	70	66	62	58	55	52	47	43	40	37	35	33
	40	68	68	66	62	58	55	52	47	43	40	37	35	33
	50	61	61	61	61	58	55	52	47	43	40	37	35	33
	60	56	56	56	56	56	55	52	47	43	40	37	35	33
	70	52	52	52	52	52	52	52	47	43	40	37	35	33
	80	49	49	49	49	49	49	49	47	43	40	37	35	33
	90	47	47	47	47	47	47	47	47	43	40	37	35	33
Zone 3	0	62	57	54	50	47	45	42	39	36	34	31	29	28
	10	62	57	54	50	47	45	42	39	36	34	31	29	28
	20	62	57	54	50	47	45	42	39	36	34	31	29	28
	30	62	57	54	50	47	45	42	39	36	34	31	29	28
	40	62	57	54	50	47	45	42	39	36	34	31	29	28
	50	61	57	54	50	47	45	42	39	36	34	31	29	28
	60	56	56	54	50	47	45	42	39	36	34	31	29	28
	70	52	52	52	50	47	45	42	39	36	34	31	29	28
	80	49	49	49	49	47	45	42	39	36	34	31	29	28
	90	47	47	47	47	47	45	42	39	36	34	31	29	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 52a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	98	93	89	83	78	71	66	61	57
	10	92	92	92	92	92	92	89	83	78	71	66	61	57
	20	72	72	72	72	72	72	72	72	72	71	66	61	57
	30	72	72	72	72	72	72	72	72	72	71	66	61	57
	40	63	63	63	63	63	63	63	63	63	63	63	61	57
	50	57	57	57	57	57	57	57	57	57	57	57	57	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	103	98	94	89	86	82	79	71	64	58	53	49	45
	10	92	92	92	89	86	82	79	71	64	58	53	49	45
	20	72	72	72	72	72	72	72	71	64	58	53	49	45
	30	72	72	72	72	72	72	72	71	64	58	53	49	45
	40	63	63	63	63	63	63	63	63	63	58	53	49	45
	50	57	57	57	57	57	57	57	57	57	57	53	49	45
	60	53	53	53	53	53	53	53	53	53	53	53	49	45
	70	49	49	49	49	49	49	49	49	49	49	49	49	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 3r	0	95	91	86	83	79	75	70	63	56	51	47	43	40
	10	92	91	86	83	79	75	70	63	56	51	47	43	40
	20	72	72	72	72	72	72	70	63	56	51	47	43	40
	30	72	72	72	72	72	72	70	63	56	51	47	43	40
	40	63	63	63	63	63	63	63	63	56	51	47	43	40
	50	57	57	57	57	57	57	57	57	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	49	49	49	49	49	49	49	49	49	49	47	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 52b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	92	87	83	80	77	73	66	60	56	51	48	45
	10	92	92	87	83	80	77	73	66	60	56	51	48	45
	20	72	72	72	72	72	72	72	66	60	56	51	48	45
	30	72	72	72	72	72	72	72	66	60	56	51	48	45
	40	63	63	63	63	63	63	63	63	60	56	51	48	45
	50	57	57	57	57	57	57	57	57	57	56	51	48	45
	60	53	53	53	53	53	53	53	53	53	53	51	48	45
	70	49	49	49	49	49	49	49	49	49	49	49	48	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	86	81	78	72	68	63	60	53	48	44	41	38	36
	10	86	81	78	72	68	63	60	53	48	44	41	38	36
	20	72	72	72	72	68	63	60	53	48	44	41	38	36
	30	72	72	72	72	68	63	60	53	48	44	41	38	36
	40	63	63	63	63	63	63	60	53	48	44	41	38	36
	50	57	57	57	57	57	57	57	53	48	44	41	38	36
	60	53	53	53	53	53	53	53	53	48	44	41	38	36
	70	49	49	49	49	49	49	49	49	48	44	41	38	36
	80	46	46	46	46	46	46	46	46	46	44	41	38	36
90	44	44	44	44	44	44	44	44	44	44	41	38	36	
Zone 3r	0	79	74	68	64	59	56	53	47	43	40	37	35	33
	10	79	74	68	64	59	56	53	47	43	40	37	35	33
	20	72	72	68	64	59	56	53	47	43	40	37	35	33
	30	72	72	68	64	59	56	53	47	43	40	37	35	33
	40	63	63	63	63	59	56	53	47	43	40	37	35	33
	50	57	57	57	57	57	56	53	47	43	40	37	35	33
	60	53	53	53	53	53	53	53	47	43	40	37	35	33
	70	49	49	49	49	49	49	49	47	43	40	37	35	33
	80	46	46	46	46	46	46	46	46	43	40	37	35	33
	90	44	44	44	44	44	44	44	44	43	40	37	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 53a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	99	93	89	84	81	79	71	65	60	55	51	48
	10	92	92	92	89	84	81	79	71	65	60	55	51	48
	20	72	72	72	72	72	72	72	71	65	60	55	51	48
	30	72	72	72	72	72	72	72	71	65	60	55	51	48
	40	63	63	63	63	63	63	63	63	63	60	55	51	48
	50	57	57	57	57	57	57	57	57	57	57	55	51	48
	60	53	53	53	53	53	53	53	53	53	53	53	51	48
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	90	86	82	79	74	69	65	58	52	48	44	41	38
	10	90	86	82	79	74	69	65	58	52	48	44	41	38
	20	72	72	72	72	72	69	65	58	52	48	44	41	38
	30	72	72	72	72	72	69	65	58	52	48	44	41	38
	40	63	63	63	63	63	63	63	58	52	48	44	41	38
	50	57	57	57	57	57	57	57	57	52	48	44	41	38
	60	53	53	53	53	53	53	53	53	52	48	44	41	38
	70	49	49	49	49	49	49	49	49	49	48	44	41	38
	80	46	46	46	46	46	46	46	46	46	46	44	41	38
	90	44	44	44	44	44	44	44	44	44	44	44	41	38
Zone 3r	0	84	80	75	69	65	61	57	51	46	42	39	37	35
	10	84	80	75	69	65	61	57	51	46	42	39	37	35
	20	72	72	72	69	65	61	57	51	46	42	39	37	35
	30	72	72	72	69	65	61	57	51	46	42	39	37	35
	40	63	63	63	63	63	61	57	51	46	42	39	37	35
	50	57	57	57	57	57	57	57	51	46	42	39	37	35
	60	53	53	53	53	53	53	53	51	46	42	39	37	35
	70	49	49	49	49	49	49	49	49	46	42	39	37	35
	80	46	46	46	46	46	46	46	46	46	42	39	37	35
	90	44	44	44	44	44	44	44	44	44	42	39	37	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 53b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	84	81	77	72	68	65	61	56	51	47	43	41	38
	10	84	81	77	72	68	65	61	56	51	47	43	41	38
	20	72	72	72	72	68	65	61	56	51	47	43	41	38
	30	72	72	72	72	68	65	61	56	51	47	43	41	38
	40	63	63	63	63	63	63	61	56	51	47	43	41	38
	50	57	57	57	57	57	57	57	56	51	47	43	41	38
	60	53	53	53	53	53	53	53	53	51	47	43	41	38
	70	49	49	49	49	49	49	49	49	49	47	43	41	38
	80	46	46	46	46	46	46	46	46	46	46	43	41	38
	90	44	44	44	44	44	44	44	44	44	44	43	41	38
Zones 2n, 2r, & 3e	0	74	68	63	59	55	52	49	44	40	37	35	33	31
	10	74	68	63	59	55	52	49	44	40	37	35	33	31
	20	72	68	63	59	55	52	49	44	40	37	35	33	31
	30	72	68	63	59	55	52	49	44	40	37	35	33	31
	40	63	63	63	59	55	52	49	44	40	37	35	33	31
	50	57	57	57	57	55	52	49	44	40	37	35	33	31
	60	53	53	53	53	53	52	49	44	40	37	35	33	31
	70	49	49	49	49	49	49	49	44	40	37	35	33	31
	80	46	46	46	46	46	46	46	44	40	37	35	33	31
	90	44	44	44	44	44	44	44	44	40	37	35	33	31
Zone 3r	0	65	60	56	52	49	46	43	40	37	34	32	30	28
	10	65	60	56	52	49	46	43	40	37	34	32	30	28
	20	65	60	56	52	49	46	43	40	37	34	32	30	28
	30	65	60	56	52	49	46	43	40	37	34	32	30	28
	40	63	60	56	52	49	46	43	40	37	34	32	30	28
	50	57	57	56	52	49	46	43	40	37	34	32	30	28
	60	53	53	53	52	49	46	43	40	37	34	32	30	28
	70	49	49	49	49	49	46	43	40	37	34	32	30	28
	80	46	46	46	46	46	46	43	40	37	34	32	30	28
	90	44	44	44	44	44	44	43	40	37	34	32	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 54a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	96	91	86	83	79	76	72	65	59	55	51	47	44
	10	92	91	86	83	79	76	72	65	59	55	51	47	44
	20	72	72	72	72	72	72	72	65	59	55	51	47	44
	30	72	72	72	72	72	72	72	65	59	55	51	47	44
	40	63	63	63	63	63	63	63	63	59	55	51	47	44
	50	57	57	57	57	57	57	57	57	57	55	51	47	44
	60	53	53	53	53	53	53	53	53	53	53	51	47	44
	70	49	49	49	49	49	49	49	49	49	49	49	47	44
	80	46	46	46	46	46	46	46	46	46	46	46	46	44
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	85	81	76	71	66	62	59	52	47	43	40	38	35
	10	85	81	76	71	66	62	59	52	47	43	40	38	35
	20	72	72	72	71	66	62	59	52	47	43	40	38	35
	30	72	72	72	71	66	62	59	52	47	43	40	38	35
	40	63	63	63	63	63	62	59	52	47	43	40	38	35
	50	57	57	57	57	57	57	57	52	47	43	40	38	35
	60	53	53	53	53	53	53	53	52	47	43	40	38	35
	70	49	49	49	49	49	49	49	49	47	43	40	38	35
	80	46	46	46	46	46	46	46	46	46	43	40	38	35
	90	44	44	44	44	44	44	44	44	44	43	40	38	35
Zone 3r	0	78	72	67	62	58	55	52	46	42	39	36	34	32
	10	78	72	67	62	58	55	52	46	42	39	36	34	32
	20	72	72	67	62	58	55	52	46	42	39	36	34	32
	30	72	72	67	62	58	55	52	46	42	39	36	34	32
	40	63	63	63	62	58	55	52	46	42	39	36	34	32
	50	57	57	57	57	57	55	52	46	42	39	36	34	32
	60	53	53	53	53	53	53	52	46	42	39	36	34	32
	70	49	49	49	49	49	49	49	46	42	39	36	34	32
	80	46	46	46	46	46	46	46	46	42	39	36	34	32
	90	44	44	44	44	44	44	44	44	42	39	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 54b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	79	75	70	66	62	59	56	51	47	43	40	38	35
	10	79	75	70	66	62	59	56	51	47	43	40	38	35
	20	72	72	70	66	62	59	56	51	47	43	40	38	35
	30	72	72	70	66	62	59	56	51	47	43	40	38	35
	40	63	63	63	63	62	59	56	51	47	43	40	38	35
	50	57	57	57	57	57	57	56	51	47	43	40	38	35
	60	53	53	53	53	53	53	53	51	47	43	40	38	35
	70	49	49	49	49	49	49	49	49	47	43	40	38	35
	80	46	46	46	46	46	46	46	46	46	43	40	38	35
	90	44	44	44	44	44	44	44	44	44	43	40	38	35
Zones 2n, 2r, & 3e	0	66	61	57	53	50	47	44	40	37	35	32	31	29
	10	66	61	57	53	50	47	44	40	37	35	32	31	29
	20	66	61	57	53	50	47	44	40	37	35	32	31	29
	30	66	61	57	53	50	47	44	40	37	35	32	31	29
	40	63	61	57	53	50	47	44	40	37	35	32	31	29
	50	57	57	57	53	50	47	44	40	37	35	32	31	29
	60	53	53	53	53	50	47	44	40	37	35	32	31	29
	70	49	49	49	49	49	47	44	40	37	35	32	31	29
	80	46	46	46	46	46	46	44	40	37	35	32	31	29
	90	44	44	44	44	44	44	44	40	37	35	32	31	29
Zone 3r	0	58	54	50	47	44	42	40	37	34	32	30	28	26
	10	58	54	50	47	44	42	40	37	34	32	30	28	26
	20	58	54	50	47	44	42	40	37	34	32	30	28	26
	30	58	54	50	47	44	42	40	37	34	32	30	28	26
	40	58	54	50	47	44	42	40	37	34	32	30	28	26
	50	57	54	50	47	44	42	40	37	34	32	30	28	26
	60	53	53	50	47	44	42	40	37	34	32	30	28	26
	70	49	49	49	47	44	42	40	37	34	32	30	28	26
	80	46	46	46	46	44	42	40	37	34	32	30	28	26
	90	44	44	44	44	44	42	40	37	34	32	30	28	26

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 55a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support Y _E = 1					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	103	103	103	101	94	88	83	78	74	69
	10	100	100	100	100	100	100	100	94	88	83	78	74	69
	20	85	85	85	85	85	85	85	85	83	82	78	74	69
	30	72	72	72	72	72	72	72	72	72	72	71	70	69
	40	64	64	64	64	64	64	64	64	64	64	64	64	63
	50	58	58	58	58	58	58	58	58	58	58	58	58	58
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	103	103	101	96	92	89	85	80	73	66	60	55	51
	10	100	100	100	96	92	89	85	80	73	66	60	55	51
	20	85	85	85	85	85	85	85	80	73	66	60	55	51
	30	72	72	72	72	72	72	72	72	72	66	60	55	51
	40	64	64	64	64	64	64	64	64	64	64	60	55	51
	50	58	58	58	58	58	58	58	58	58	58	58	55	51
	60	53	53	53	53	53	53	53	53	53	53	53	53	51
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 3r	0	103	101	96	91	87	84	81	74	66	60	54	50	46
	10	100	100	96	91	87	84	81	74	66	60	54	50	46
	20	85	85	85	85	85	84	81	74	66	60	54	50	46
	30	72	72	72	72	72	72	72	72	66	60	54	50	46
	40	64	64	64	64	64	64	64	64	64	60	54	50	46
	50	58	58	58	58	58	58	58	58	58	58	54	50	46
	60	53	53	53	53	53	53	53	53	53	53	53	50	46
	70	50	50	50	50	50	50	50	50	50	50	50	50	46
	80	47	47	47	47	47	47	47	47	47	47	47	47	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 55b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	99	95	91	87	84	79	73	67	62	57	53
	10	100	100	99	95	91	87	84	79	73	67	62	57	53
	20	85	85	85	85	85	85	84	79	73	67	62	57	53
	30	72	72	72	72	72	72	72	72	72	67	62	57	53
	40	64	64	64	64	64	64	64	64	64	64	62	57	53
	50	58	58	58	58	58	58	58	58	58	58	58	57	53
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	92	88	84	80	77	73	68	61	55	50	46	42	40
	10	92	88	84	80	77	73	68	61	55	50	46	42	40
	20	85	85	84	80	77	73	68	61	55	50	46	42	40
	30	72	72	72	72	72	72	68	61	55	50	46	42	40
	40	64	64	64	64	64	64	64	61	55	50	46	42	40
	50	58	58	58	58	58	58	58	58	55	50	46	42	40
	60	53	53	53	53	53	53	53	53	53	50	46	42	40
	70	50	50	50	50	50	50	50	50	50	50	46	42	40
	80	47	47	47	47	47	47	47	47	47	47	46	42	40
90	44	44	44	44	44	44	44	44	44	44	44	42	40	
Zone 3r	0	87	83	79	75	70	66	62	55	49	45	41	38	36
	10	87	83	79	75	70	66	62	55	49	45	41	38	36
	20	85	83	79	75	70	66	62	55	49	45	41	38	36
	30	72	72	72	72	70	66	62	55	49	45	41	38	36
	40	64	64	64	64	64	64	62	55	49	45	41	38	36
	50	58	58	58	58	58	58	58	55	49	45	41	38	36
	60	53	53	53	53	53	53	53	53	49	45	41	38	36
	70	50	50	50	50	50	50	50	50	49	45	41	38	36
	80	47	47	47	47	47	47	47	47	47	45	41	38	36
	90	44	44	44	44	44	44	44	44	44	44	41	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 56a		Mean Roof Height: 30 < h ≤ 60 ft Roof Angle: 20 < θ ≤ 27 degrees Exposure Category: C								Panel Orientation: Portrait North/South Support X _E = 1 Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	103	103	100	96	92	89	83	78	72	66	62	57
	10	100	100	100	100	96	92	89	83	78	72	66	62	57
	20	85	85	85	85	85	84	84	82	78	72	66	62	57
	30	72	72	72	72	72	72	72	72	71	70	66	62	57
	40	64	64	64	64	64	64	64	64	64	64	63	62	57
	50	58	58	58	58	58	58	58	58	58	58	58	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	98	93	88	85	81	78	75	66	60	54	50	46	42
	10	98	93	88	85	81	78	75	66	60	54	50	46	42
	20	85	85	85	85	81	78	75	66	60	54	50	46	42
	30	72	72	72	72	72	72	72	66	60	54	50	46	42
	40	64	64	64	64	64	64	64	64	60	54	50	46	42
	50	58	58	58	58	58	58	58	58	58	54	50	46	42
	60	53	53	53	53	53	53	53	53	53	53	50	46	42
	70	50	50	50	50	50	50	50	50	50	50	50	46	42
	80	47	47	47	47	47	47	47	47	47	47	47	46	42
	90	44	44	44	44	44	44	44	44	44	44	44	44	42
Zone 3r	0	92	88	84	80	77	72	67	60	54	49	44	41	38
	10	92	88	84	80	77	72	67	60	54	49	44	41	38
	20	85	85	84	80	77	72	67	60	54	49	44	41	38
	30	72	72	72	72	72	72	67	60	54	49	44	41	38
	40	64	64	64	64	64	64	64	60	54	49	44	41	38
	50	58	58	58	58	58	58	58	58	54	49	44	41	38
	60	53	53	53	53	53	53	53	53	53	49	44	41	38
	70	50	50	50	50	50	50	50	50	50	49	44	41	38
	80	47	47	47	47	47	47	47	47	47	47	44	41	38
	90	44	44	44	44	44	44	44	44	44	44	44	41	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 56b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	96	91	87	83	80	78	74	67	61	56	52	48	45
	10	96	91	87	83	80	78	74	67	61	56	52	48	45
	20	85	85	85	83	80	78	74	67	61	56	52	48	45
	30	72	72	72	72	72	72	72	67	61	56	52	48	45
	40	64	64	64	64	64	64	64	64	61	56	52	48	45
	50	58	58	58	58	58	58	58	58	58	56	52	48	45
	60	53	53	53	53	53	53	53	53	53	53	52	48	45
	70	50	50	50	50	50	50	50	50	50	50	50	48	45
	80	47	47	47	47	47	47	47	47	47	47	47	47	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2n, 2r, & 3e	0	81	77	72	67	63	59	56	50	45	41	39	36	34
	10	81	77	72	67	63	59	56	50	45	41	39	36	34
	20	81	77	72	67	63	59	56	50	45	41	39	36	34
	30	72	72	72	67	63	59	56	50	45	41	39	36	34
	40	64	64	64	64	63	59	56	50	45	41	39	36	34
	50	58	58	58	58	58	58	56	50	45	41	39	36	34
	60	53	53	53	53	53	53	53	50	45	41	39	36	34
	70	50	50	50	50	50	50	50	50	45	41	39	36	34
	80	47	47	47	47	47	47	47	47	45	41	39	36	34
	90	44	44	44	44	44	44	44	44	44	41	39	36	34
Zone 3r	0	77	71	65	61	57	53	50	45	41	37	35	32	30
	10	77	71	65	61	57	53	50	45	41	37	35	32	30
	20	77	71	65	61	57	53	50	45	41	37	35	32	30
	30	72	71	65	61	57	53	50	45	41	37	35	32	30
	40	64	64	64	61	57	53	50	45	41	37	35	32	30
	50	58	58	58	58	57	53	50	45	41	37	35	32	30
	60	53	53	53	53	53	53	50	45	41	37	35	32	30
	70	50	50	50	50	50	50	50	45	41	37	35	32	30
	80	47	47	47	47	47	47	47	45	41	37	35	32	30
	90	44	44	44	44	44	44	44	44	41	37	35	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 57a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	103	102	98	93	90	86	83	78	72	66	61	56	52
	10	100	100	98	93	90	86	83	78	72	66	61	56	52
	20	85	85	85	85	84	83	82	78	72	66	61	56	52
	30	72	72	72	72	72	72	72	71	70	66	61	56	52
	40	64	64	64	64	64	64	64	64	64	63	61	56	52
	50	58	58	58	58	58	58	58	58	58	58	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	50	50	50	50	50	50	50	50	50	50	50	50	49
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2n, 2r, & 3e	0	91	87	83	79	76	71	67	60	54	49	45	41	39
	10	91	87	83	79	76	71	67	60	54	49	45	41	39
	20	85	85	83	79	76	71	67	60	54	49	45	41	39
	30	72	72	72	72	72	71	67	60	54	49	45	41	39
	40	64	64	64	64	64	64	64	60	54	49	45	41	39
	50	58	58	58	58	58	58	58	58	54	49	45	41	39
	60	53	53	53	53	53	53	53	53	53	49	45	41	39
	70	50	50	50	50	50	50	50	50	50	49	45	41	39
	80	47	47	47	47	47	47	47	47	47	47	45	41	39
90	44	44	44	44	44	44	44	44	44	44	44	41	39	
Zone 3r	0	86	82	78	74	69	64	60	54	48	44	40	38	35
	10	86	82	78	74	69	64	60	54	48	44	40	38	35
	20	85	82	78	74	69	64	60	54	48	44	40	38	35
	30	72	72	72	72	69	64	60	54	48	44	40	38	35
	40	64	64	64	64	64	64	60	54	48	44	40	38	35
	50	58	58	58	58	58	58	58	54	48	44	40	38	35
	60	53	53	53	53	53	53	53	53	48	44	40	38	35
	70	50	50	50	50	50	50	50	50	48	44	40	38	35
	80	47	47	47	47	47	47	47	47	47	44	40	38	35
	90	44	44	44	44	44	44	44	44	44	44	40	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 57b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support Y _E = 1.5					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	89	85	82	79	75	71	67	61	56	51	47	44	41
	10	89	85	82	79	75	71	67	61	56	51	47	44	41
	20	85	85	82	79	75	71	67	61	56	51	47	44	41
	30	72	72	72	72	72	71	67	61	56	51	47	44	41
	40	64	64	64	64	64	64	64	61	56	51	47	44	41
	50	58	58	58	58	58	58	58	58	56	51	47	44	41
	60	53	53	53	53	53	53	53	53	53	51	47	44	41
	70	50	50	50	50	50	50	50	50	50	50	47	44	41
	80	47	47	47	47	47	47	47	47	47	47	47	44	41
90	44	44	44	44	44	44	44	44	44	44	44	44	41	
Zones 2n, 2r, & 3e	0	76	70	65	61	57	53	50	45	41	38	36	34	32
	10	76	70	65	61	57	53	50	45	41	38	36	34	32
	20	76	70	65	61	57	53	50	45	41	38	36	34	32
	30	72	70	65	61	57	53	50	45	41	38	36	34	32
	40	64	64	64	61	57	53	50	45	41	38	36	34	32
	50	58	58	58	58	57	53	50	45	41	38	36	34	32
	60	53	53	53	53	53	53	50	45	41	38	36	34	32
	70	50	50	50	50	50	50	50	45	41	38	36	34	32
	80	47	47	47	47	47	47	47	45	41	38	36	34	32
90	44	44	44	44	44	44	44	44	41	38	36	34	32	
Zone 3r	0	69	63	59	55	51	48	45	41	37	34	32	30	28
	10	69	63	59	55	51	48	45	41	37	34	32	30	28
	20	69	63	59	55	51	48	45	41	37	34	32	30	28
	30	69	63	59	55	51	48	45	41	37	34	32	30	28
	40	64	63	59	55	51	48	45	41	37	34	32	30	28
	50	58	58	58	55	51	48	45	41	37	34	32	30	28
	60	53	53	53	53	51	48	45	41	37	34	32	30	28
	70	50	50	50	50	50	48	45	41	37	34	32	30	28
	80	47	47	47	47	47	47	45	41	37	34	32	30	28
	90	44	44	44	44	44	44	44	41	37	34	32	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 58a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	103	103	103	100	93	87	82	77	72	66
	10	101	101	101	101	100	98	97	93	87	82	77	72	66
	20	88	88	87	86	85	84	83	81	79	77	75	72	66
	30	76	76	76	76	76	75	74	73	71	70	68	67	65
	40	67	67	67	67	67	67	67	67	65	64	63	62	60
	50	61	61	61	61	61	61	61	61	61	60	59	58	57
	60	57	57	57	57	57	57	57	57	57	56	55	54	53
	70	53	53	53	53	53	53	53	53	53	53	52	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zones 2n & 3r	0	103	103	103	103	100	96	92	86	81	76	70	65	60
	10	101	101	101	101	100	96	92	86	81	76	70	65	60
	20	88	88	87	86	85	84	83	81	79	76	70	65	60
	30	76	76	76	76	76	75	74	73	71	70	68	65	60
	40	67	67	67	67	67	67	67	67	65	64	63	62	60
	50	61	61	61	61	61	61	61	61	61	60	59	58	57
	60	57	57	57	57	57	57	57	57	57	56	55	54	53
	70	53	53	53	53	53	53	53	53	53	53	52	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3e	0	103	103	99	95	91	87	84	79	73	66	60	56	51
	10	101	101	99	95	91	87	84	79	73	66	60	56	51
	20	88	88	87	86	85	84	83	79	73	66	60	56	51
	30	76	76	76	76	76	75	74	73	71	66	60	56	51
	40	67	67	67	67	67	67	67	67	65	64	60	56	51
	50	61	61	61	61	61	61	61	61	61	60	59	56	51
	60	57	57	57	57	57	57	57	57	57	56	55	54	51
	70	53	53	53	53	53	53	53	53	53	53	52	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 58b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	99	94	90	87	83	78	71	64	58	53	49
	10	101	101	99	94	90	87	83	78	71	64	58	53	49
	20	88	88	87	86	85	84	83	78	71	64	58	53	49
	30	76	76	76	76	76	75	74	73	71	64	58	53	49
	40	67	67	67	67	67	67	67	67	65	64	58	53	49
	50	61	61	61	61	61	61	61	61	61	60	58	53	49
	60	57	57	57	57	57	57	57	57	57	56	55	53	49
	70	53	53	53	53	53	53	53	53	53	53	52	52	49
	80	50	50	50	50	50	50	50	50	50	50	50	49	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zones 2n & 3r	0	100	95	91	87	84	81	78	71	64	58	53	49	45
	10	100	95	91	87	84	81	78	71	64	58	53	49	45
	20	88	88	87	86	84	81	78	71	64	58	53	49	45
	30	76	76	76	76	76	75	74	71	64	58	53	49	45
	40	67	67	67	67	67	67	67	67	64	58	53	49	45
	50	61	61	61	61	61	61	61	61	61	58	53	49	45
	60	57	57	57	57	57	57	57	57	57	56	53	49	45
	70	53	53	53	53	53	53	53	53	53	53	52	49	45
	80	50	50	50	50	50	50	50	50	50	50	50	49	45
	90	47	47	47	47	47	47	47	47	47	47	47	47	45
Zone 3e	0	91	87	83	79	76	73	68	61	55	50	46	42	40
	10	91	87	83	79	76	73	68	61	55	50	46	42	40
	20	88	87	83	79	76	73	68	61	55	50	46	42	40
	30	76	76	76	76	76	73	68	61	55	50	46	42	40
	40	67	67	67	67	67	67	67	61	55	50	46	42	40
	50	61	61	61	61	61	61	61	61	55	50	46	42	40
	60	57	57	57	57	57	57	57	57	55	50	46	42	40
	70	53	53	53	53	53	53	53	53	53	50	46	42	40
	80	50	50	50	50	50	50	50	50	50	50	46	42	40
	90	47	47	47	47	47	47	47	47	47	47	46	42	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 59a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	103	103	100	95	91	88	82	77	70	64	58	53
	10	101	100	98	96	95	91	88	82	77	70	64	58	53
	20	86	85	84	83	82	81	80	77	75	70	64	58	53
	30	76	76	75	74	73	73	72	70	68	66	64	58	53
	40	67	67	67	67	67	66	66	64	63	61	60	58	53
	50	61	61	61	61	61	61	61	60	59	57	56	55	53
	60	57	57	57	57	57	57	57	56	55	54	53	52	51
	70	53	53	53	53	53	53	53	53	52	51	50	49	48
	80	50	50	50	50	50	50	50	50	50	49	48	47	46
90	47	47	47	47	47	47	47	47	47	47	46	45	45	
Zones 2n & 3r	0	103	100	96	92	88	85	82	76	70	63	58	53	49
	10	101	100	96	92	88	85	82	76	70	63	58	53	49
	20	86	85	84	83	82	81	80	76	70	63	58	53	49
	30	76	76	75	74	73	73	72	70	68	63	58	53	49
	40	67	67	67	67	67	66	66	64	63	61	58	53	49
	50	61	61	61	61	61	61	61	60	59	57	56	53	49
	60	57	57	57	57	57	57	57	56	55	54	53	52	49
	70	53	53	53	53	53	53	53	53	52	51	50	49	48
	80	50	50	50	50	50	50	50	50	50	49	48	47	46
90	47	47	47	47	47	47	47	47	47	47	46	45	45	
Zone 3e	0	96	91	87	84	80	77	75	66	60	54	50	46	42
	10	96	91	87	84	80	77	75	66	60	54	50	46	42
	20	86	85	84	83	80	77	75	66	60	54	50	46	42
	30	76	76	75	74	73	73	72	66	60	54	50	46	42
	40	67	67	67	67	67	66	66	64	60	54	50	46	42
	50	61	61	61	61	61	61	61	60	59	54	50	46	42
	60	57	57	57	57	57	57	57	56	55	54	50	46	42
	70	53	53	53	53	53	53	53	53	52	51	50	46	42
	80	50	50	50	50	50	50	50	50	50	49	48	46	42
	90	47	47	47	47	47	47	47	47	47	47	46	45	42

Max Rail Spans for Quick Mount PV QRail Standard System

Table 59b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1.5					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	95	90	86	83	79	76	72	64	57	52	47	44	41
	10	95	90	86	83	79	76	72	64	57	52	47	44	41
	20	86	85	84	83	79	76	72	64	57	52	47	44	41
	30	76	76	75	74	73	73	72	64	57	52	47	44	41
	40	67	67	67	67	67	66	66	64	57	52	47	44	41
	50	61	61	61	61	61	61	61	60	57	52	47	44	41
	60	57	57	57	57	57	57	57	56	55	52	47	44	41
	70	53	53	53	53	53	53	53	53	52	51	47	44	41
	80	50	50	50	50	50	50	50	50	50	49	47	44	41
	90	47	47	47	47	47	47	47	47	47	47	46	44	41
Zones 2n & 3r	0	88	84	80	77	74	69	65	58	52	48	44	41	38
	10	88	84	80	77	74	69	65	58	52	48	44	41	38
	20	86	84	80	77	74	69	65	58	52	48	44	41	38
	30	76	76	75	74	73	69	65	58	52	48	44	41	38
	40	67	67	67	67	67	66	65	58	52	48	44	41	38
	50	61	61	61	61	61	61	61	58	52	48	44	41	38
	60	57	57	57	57	57	57	57	56	52	48	44	41	38
	70	53	53	53	53	53	53	53	53	52	48	44	41	38
	80	50	50	50	50	50	50	50	50	50	48	44	41	38
	90	47	47	47	47	47	47	47	47	47	47	44	41	38
Zone 3e	0	80	77	72	67	63	59	56	50	45	41	38	36	34
	10	80	77	72	67	63	59	56	50	45	41	38	36	34
	20	80	77	72	67	63	59	56	50	45	41	38	36	34
	30	76	76	72	67	63	59	56	50	45	41	38	36	34
	40	67	67	67	67	63	59	56	50	45	41	38	36	34
	50	61	61	61	61	61	59	56	50	45	41	38	36	34
	60	57	57	57	57	57	57	56	50	45	41	38	36	34
	70	53	53	53	53	53	53	53	50	45	41	38	36	34
	80	50	50	50	50	50	50	50	50	45	41	38	36	34
	90	47	47	47	47	47	47	47	47	45	41	38	36	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 60a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	103	102	97	93	89	85	82	77	70	63	57	52	48
	10	99	97	95	93	89	85	82	77	70	63	57	52	48
	20	85	84	83	81	80	79	77	75	70	63	57	52	48
	30	76	75	74	73	72	71	70	68	66	63	57	52	48
	40	67	67	67	67	66	65	64	63	61	59	57	52	48
	50	61	61	61	61	61	61	60	59	57	56	54	52	48
	60	57	57	57	57	57	57	56	55	54	53	52	50	48
	70	53	53	53	53	53	53	53	52	51	50	49	48	47
	80	50	50	50	50	50	50	50	50	49	48	47	46	45
	90	47	47	47	47	47	47	47	47	47	46	45	44	44
Zones 2n & 3r	0	99	94	90	86	83	80	77	70	63	57	52	48	45
	10	99	94	90	86	83	80	77	70	63	57	52	48	45
	20	85	84	83	81	80	79	77	70	63	57	52	48	45
	30	76	75	74	73	72	71	70	68	63	57	52	48	45
	40	67	67	67	67	66	65	64	63	61	57	52	48	45
	50	61	61	61	61	61	61	60	59	57	56	52	48	45
	60	57	57	57	57	57	57	56	55	54	53	52	48	45
	70	53	53	53	53	53	53	53	52	51	50	49	48	45
	80	50	50	50	50	50	50	50	50	49	48	47	46	45
	90	47	47	47	47	47	47	47	47	47	46	45	44	44
Zone 3e	0	90	86	82	79	76	71	67	60	54	49	45	42	39
	10	90	86	82	79	76	71	67	60	54	49	45	42	39
	20	85	84	82	79	76	71	67	60	54	49	45	42	39
	30	76	75	74	73	72	71	67	60	54	49	45	42	39
	40	67	67	67	67	66	65	64	60	54	49	45	42	39
	50	61	61	61	61	61	61	60	59	54	49	45	42	39
	60	57	57	57	57	57	57	56	55	54	49	45	42	39
	70	53	53	53	53	53	53	53	52	51	49	45	42	39
	80	50	50	50	50	50	50	50	50	49	48	45	42	39
	90	47	47	47	47	47	47	47	47	47	46	45	42	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 60b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1.5					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	89	85	81	77	74	69	65	57	52	47	43	40	38
	10	89	85	81	77	74	69	65	57	52	47	43	40	38
	20	85	84	81	77	74	69	65	57	52	47	43	40	38
	30	76	75	74	73	72	69	65	57	52	47	43	40	38
	40	67	67	67	67	66	65	64	57	52	47	43	40	38
	50	61	61	61	61	61	61	60	57	52	47	43	40	38
	60	57	57	57	57	57	57	56	55	52	47	43	40	38
	70	53	53	53	53	53	53	53	52	51	47	43	40	38
	80	50	50	50	50	50	50	50	50	49	47	43	40	38
	90	47	47	47	47	47	47	47	47	47	46	43	40	38
Zones 2n & 3r	0	83	79	75	71	66	62	59	52	47	43	40	38	36
	10	83	79	75	71	66	62	59	52	47	43	40	38	36
	20	83	79	75	71	66	62	59	52	47	43	40	38	36
	30	76	75	74	71	66	62	59	52	47	43	40	38	36
	40	67	67	67	67	66	62	59	52	47	43	40	38	36
	50	61	61	61	61	61	61	59	52	47	43	40	38	36
	60	57	57	57	57	57	57	56	52	47	43	40	38	36
	70	53	53	53	53	53	53	53	52	47	43	40	38	36
	80	50	50	50	50	50	50	50	50	47	43	40	38	36
	90	47	47	47	47	47	47	47	47	47	43	40	38	36
Zone 3e	0	75	70	65	61	57	53	50	45	41	38	35	33	31
	10	75	70	65	61	57	53	50	45	41	38	35	33	31
	20	75	70	65	61	57	53	50	45	41	38	35	33	31
	30	75	70	65	61	57	53	50	45	41	38	35	33	31
	40	67	67	65	61	57	53	50	45	41	38	35	33	31
	50	61	61	61	61	57	53	50	45	41	38	35	33	31
	60	57	57	57	57	57	53	50	45	41	38	35	33	31
	70	53	53	53	53	53	53	50	45	41	38	35	33	31
	80	50	50	50	50	50	50	50	45	41	38	35	33	31
	90	47	47	47	47	47	47	47	45	41	38	35	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 61a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	102	97	93	87	81	76	70	65	61
	10	92	92	92	92	92	92	91	87	81	76	70	65	61
	20	72	72	72	72	72	72	72	72	71	70	69	65	61
	30	72	72	72	72	72	72	72	72	71	70	69	65	61
	40	63	63	63	63	63	63	63	63	63	63	63	62	61
	50	57	57	57	57	57	57	57	57	57	57	57	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	103	103	102	97	93	89	86	80	73	67	61	56	52
	10	92	92	92	92	92	89	86	80	73	67	61	56	52
	20	72	72	72	72	72	72	72	72	71	67	61	56	52
	30	72	72	72	72	72	72	72	72	71	67	61	56	52
	40	63	63	63	63	63	63	63	63	63	63	61	56	52
	50	57	57	57	57	57	57	57	57	57	57	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e & 3	0	103	103	98	93	90	86	83	77	69	63	58	53	49
	10	92	92	92	92	90	86	83	77	69	63	58	53	49
	20	72	72	72	72	72	72	72	72	69	63	58	53	49
	30	72	72	72	72	72	72	72	72	69	63	58	53	49
	40	63	63	63	63	63	63	63	63	63	63	58	53	49
	50	57	57	57	57	57	57	57	57	57	57	57	53	49
	60	53	53	53	53	53	53	53	53	53	53	53	53	49
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 61b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	102	96	92	87	84	81	78	71	65	59	55	51	48
	10	92	92	92	87	84	81	78	71	65	59	55	51	48
	20	72	72	72	72	72	72	72	71	65	59	55	51	48
	30	72	72	72	72	72	72	72	71	65	59	55	51	48
	40	63	63	63	63	63	63	63	63	63	59	55	51	48
	50	57	57	57	57	57	57	57	57	57	57	55	51	48
	60	53	53	53	53	53	53	53	53	53	53	53	51	48
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	93	88	84	81	78	73	69	61	56	51	47	43	40
	10	92	88	84	81	78	73	69	61	56	51	47	43	40
	20	72	72	72	72	72	72	69	61	56	51	47	43	40
	30	72	72	72	72	72	72	69	61	56	51	47	43	40
	40	63	63	63	63	63	63	63	61	56	51	47	43	40
	50	57	57	57	57	57	57	57	57	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	49	49	49	49	49	49	49	49	49	49	47	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40
Zones 2e & 3	0	89	85	82	78	73	69	65	58	53	48	44	41	39
	10	89	85	82	78	73	69	65	58	53	48	44	41	39
	20	72	72	72	72	72	69	65	58	53	48	44	41	39
	30	72	72	72	72	72	69	65	58	53	48	44	41	39
	40	63	63	63	63	63	63	63	58	53	48	44	41	39
	50	57	57	57	57	57	57	57	57	53	48	44	41	39
	60	53	53	53	53	53	53	53	53	53	48	44	41	39
	70	49	49	49	49	49	49	49	49	49	48	44	41	39
	80	46	46	46	46	46	46	46	46	46	46	44	41	39
	90	44	44	44	44	44	44	44	44	44	44	44	41	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 62a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1					
		Exposure Category: C							Roof Type : Hip h/B = ≥ 0.8					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	102	97	93	89	85	82	76	70	64	59	55	51
	10	92	92	92	91	89	85	82	76	70	64	59	55	51
	20	72	72	72	72	72	72	72	70	69	64	59	55	51
	30	72	72	72	72	72	72	72	70	69	64	59	55	51
	40	63	63	63	63	63	63	63	63	63	61	59	55	51
	50	57	57	57	57	57	57	57	57	57	57	56	55	51
	60	53	53	53	53	53	53	53	53	53	53	53	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 2r	0	98	93	89	85	82	79	75	67	60	55	50	47	43
	10	92	92	89	85	82	79	75	67	60	55	50	47	43
	20	72	72	72	72	72	72	72	67	60	55	50	47	43
	30	72	72	72	72	72	72	72	67	60	55	50	47	43
	40	63	63	63	63	63	63	63	63	60	55	50	47	43
	50	57	57	57	57	57	57	57	57	57	55	50	47	43
	60	53	53	53	53	53	53	53	53	53	53	50	47	43
	70	49	49	49	49	49	49	49	49	49	49	49	47	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
90	44	44	44	44	44	44	44	44	44	44	44	44	43	
Zones 2e & 3	0	94	90	86	82	79	75	71	63	57	52	48	44	41
	10	92	90	86	82	79	75	71	63	57	52	48	44	41
	20	72	72	72	72	72	72	71	63	57	52	48	44	41
	30	72	72	72	72	72	72	71	63	57	52	48	44	41
	40	63	63	63	63	63	63	63	63	57	52	48	44	41
	50	57	57	57	57	57	57	57	57	57	52	48	44	41
	60	53	53	53	53	53	53	53	53	53	52	48	44	41
	70	49	49	49	49	49	49	49	49	49	49	48	44	41
	80	46	46	46	46	46	46	46	46	46	46	46	44	41
	90	44	44	44	44	44	44	44	44	44	44	44	44	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 62b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	88	84	81	77	73	69	65	59	54	50	46	43	40
	10	88	84	81	77	73	69	65	59	54	50	46	43	40
	20	72	72	72	72	72	69	65	59	54	50	46	43	40
	30	72	72	72	72	72	69	65	59	54	50	46	43	40
	40	63	63	63	63	63	63	63	59	54	50	46	43	40
	50	57	57	57	57	57	57	57	57	54	50	46	43	40
	60	53	53	53	53	53	53	53	53	53	50	46	43	40
	70	49	49	49	49	49	49	49	49	49	49	46	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40
Zone 2r	0	82	78	73	68	64	60	56	51	46	42	39	37	35
	10	82	78	73	68	64	60	56	51	46	42	39	37	35
	20	72	72	72	68	64	60	56	51	46	42	39	37	35
	30	72	72	72	68	64	60	56	51	46	42	39	37	35
	40	63	63	63	63	63	60	56	51	46	42	39	37	35
	50	57	57	57	57	57	57	56	51	46	42	39	37	35
	60	53	53	53	53	53	53	53	51	46	42	39	37	35
	70	49	49	49	49	49	49	49	49	46	42	39	37	35
	80	46	46	46	46	46	46	46	46	46	42	39	37	35
	90	44	44	44	44	44	44	44	44	44	42	39	37	35
Zones 2e & 3	0	79	74	69	64	60	57	54	48	44	40	38	35	33
	10	79	74	69	64	60	57	54	48	44	40	38	35	33
	20	72	72	69	64	60	57	54	48	44	40	38	35	33
	30	72	72	69	64	60	57	54	48	44	40	38	35	33
	40	63	63	63	63	60	57	54	48	44	40	38	35	33
	50	57	57	57	57	57	57	54	48	44	40	38	35	33
	60	53	53	53	53	53	53	53	48	44	40	38	35	33
	70	49	49	49	49	49	49	49	48	44	40	38	35	33
	80	46	46	46	46	46	46	46	46	44	40	38	35	33
	90	44	44	44	44	44	44	44	44	44	40	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 63a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	100	95	90	86	83	80	77	70	63	58	54	50	47
	10	92	92	90	86	83	80	77	70	63	58	54	50	47
	20	72	72	72	72	72	71	70	69	63	58	54	50	47
	30	72	72	72	72	72	71	70	69	63	58	54	50	47
	40	63	63	63	63	63	63	63	63	61	58	54	50	47
	50	57	57	57	57	57	57	57	57	57	56	54	50	47
	60	53	53	53	53	53	53	53	53	53	52	51	50	47
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
90	44	44	44	44	44	44	44	44	44	44	44	44	43	
Zone 2r	0	92	87	83	80	76	71	67	60	55	50	46	42	40
	10	92	87	83	80	76	71	67	60	55	50	46	42	40
	20	72	72	72	72	72	71	67	60	55	50	46	42	40
	30	72	72	72	72	72	71	67	60	55	50	46	42	40
	40	63	63	63	63	63	63	63	60	55	50	46	42	40
	50	57	57	57	57	57	57	57	57	55	50	46	42	40
	60	53	53	53	53	53	53	53	53	53	50	46	42	40
	70	49	49	49	49	49	49	49	49	49	49	46	42	40
	80	46	46	46	46	46	46	46	46	46	46	46	42	40
90	44	44	44	44	44	44	44	44	44	44	44	42	40	
Zones 2e & 3	0	88	84	81	77	72	68	64	57	52	47	44	41	38
	10	88	84	81	77	72	68	64	57	52	47	44	41	38
	20	72	72	72	72	72	68	64	57	52	47	44	41	38
	30	72	72	72	72	72	68	64	57	52	47	44	41	38
	40	63	63	63	63	63	63	63	57	52	47	44	41	38
	50	57	57	57	57	57	57	57	57	52	47	44	41	38
	60	53	53	53	53	53	53	53	53	52	47	44	41	38
	70	49	49	49	49	49	49	49	49	49	47	44	41	38
	80	46	46	46	46	46	46	46	46	46	46	44	41	38
	90	44	44	44	44	44	44	44	44	44	44	44	41	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 63b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	83	79	75	71	67	63	60	54	50	46	42	40	37
	10	83	79	75	71	67	63	60	54	50	46	42	40	37
	20	72	72	72	71	67	63	60	54	50	46	42	40	37
	30	72	72	72	71	67	63	60	54	50	46	42	40	37
	40	63	63	63	63	63	63	60	54	50	46	42	40	37
	50	57	57	57	57	57	57	57	54	50	46	42	40	37
	60	53	53	53	53	53	53	53	53	50	46	42	40	37
	70	49	49	49	49	49	49	49	49	49	46	42	40	37
	80	46	46	46	46	46	46	46	46	46	46	42	40	37
	90	44	44	44	44	44	44	44	44	44	44	42	40	37
Zone 2r	0	76	70	65	61	57	54	51	46	42	39	36	34	32
	10	76	70	65	61	57	54	51	46	42	39	36	34	32
	20	72	70	65	61	57	54	51	46	42	39	36	34	32
	30	72	70	65	61	57	54	51	46	42	39	36	34	32
	40	63	63	63	61	57	54	51	46	42	39	36	34	32
	50	57	57	57	57	57	54	51	46	42	39	36	34	32
	60	53	53	53	53	53	53	51	46	42	39	36	34	32
	70	49	49	49	49	49	49	49	46	42	39	36	34	32
	80	46	46	46	46	46	46	46	46	42	39	36	34	32
	90	44	44	44	44	44	44	44	44	42	39	36	34	32
Zones 2e & 3	0	72	66	62	58	54	51	49	44	40	37	35	33	31
	10	72	66	62	58	54	51	49	44	40	37	35	33	31
	20	72	66	62	58	54	51	49	44	40	37	35	33	31
	30	72	66	62	58	54	51	49	44	40	37	35	33	31
	40	63	63	62	58	54	51	49	44	40	37	35	33	31
	50	57	57	57	57	54	51	49	44	40	37	35	33	31
	60	53	53	53	53	53	51	49	44	40	37	35	33	31
	70	49	49	49	49	49	49	49	44	40	37	35	33	31
	80	46	46	46	46	46	46	46	44	40	37	35	33	31
	90	44	44	44	44	44	44	44	44	40	37	35	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 64a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	100	94	88	83	79	74
	10	92	92	92	92	92	92	91	89	87	85	80	78	74
	20	72	72	72	72	72	72	72	71	70	69	68	66	65
	30	72	72	72	72	72	72	72	71	70	69	68	66	65
	40	63	63	63	63	63	63	63	63	63	63	62	61	60
	50	57	57	57	57	57	57	57	57	57	57	57	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zone 2r	0	103	103	102	97	93	89	86	80	73	67	61	56	52
	10	92	92	92	92	92	89	86	80	73	67	61	56	52
	20	72	72	72	72	72	72	72	71	70	67	61	56	52
	30	72	72	72	72	72	72	72	71	70	67	61	56	52
	40	63	63	63	63	63	63	63	63	63	63	61	56	52
	50	57	57	57	57	57	57	57	57	57	57	57	56	52
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	44	44	44	44	44	44	44	44	44	44	44	44	44	
Zones 2e & 3	0	103	103	103	103	103	101	97	90	84	80	74	68	63
	10	92	92	92	92	92	92	91	89	84	80	74	68	63
	20	72	72	72	72	72	72	72	71	70	69	68	66	63
	30	72	72	72	72	72	72	72	71	70	69	68	66	63
	40	63	63	63	63	63	63	63	63	63	63	62	61	60
	50	57	57	57	57	57	57	57	57	57	57	57	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 64b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	101	97	93	90	84	79	73	67	62	58
	10	92	92	92	92	92	92	90	84	79	73	67	62	58
	20	72	72	72	72	72	72	72	71	70	69	67	62	58
	30	72	72	72	72	72	72	72	71	70	69	67	62	58
	40	63	63	63	63	63	63	63	63	63	63	62	61	58
	50	57	57	57	57	57	57	57	57	57	57	57	57	56
	60	53	53	53	53	53	53	53	53	53	53	53	53	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	93	88	84	81	78	73	69	61	56	51	47	43	40
	10	92	88	84	81	78	73	69	61	56	51	47	43	40
	20	72	72	72	72	72	72	69	61	56	51	47	43	40
	30	72	72	72	72	72	72	69	61	56	51	47	43	40
	40	63	63	63	63	63	63	63	61	56	51	47	43	40
	50	57	57	57	57	57	57	57	57	56	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	49	49	49	49	49	49	49	49	49	49	47	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40
Zones 2e & 3	0	103	100	95	91	87	84	81	74	67	61	56	52	48
	10	92	92	92	91	87	84	81	74	67	61	56	52	48
	20	72	72	72	72	72	72	72	71	67	61	56	52	48
	30	72	72	72	72	72	72	72	71	67	61	56	52	48
	40	63	63	63	63	63	63	63	63	63	61	56	52	48
	50	57	57	57	57	57	57	57	57	57	57	56	52	48
	60	53	53	53	53	53	53	53	53	53	53	53	52	48
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 65a		Mean Roof Height: 30 < h ≤ 60 ft				Panel Orientation: Portrait								
		Roof Angle: 7 < θ ≤ 20 degrees				North/South Support Y _E = 1								
		Exposure Category: C				Roof Type : Hip h/B = ≤ 0.5								
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	102	98	95	88	83	78	72	67	62
	10	92	92	92	91	90	89	88	85	80	78	72	67	62
	20	72	72	72	72	72	71	70	69	67	66	64	63	61
	30	72	72	72	72	72	71	70	69	67	66	64	63	61
	40	63	63	63	63	63	63	63	63	62	61	59	58	57
	50	57	57	57	57	57	57	57	57	57	56	55	54	53
	60	53	53	53	53	53	53	53	53	53	53	52	51	50
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	98	93	89	85	82	79	75	67	60	55	50	47	43
	10	92	92	89	85	82	79	75	67	60	55	50	47	43
	20	72	72	72	72	72	71	70	67	60	55	50	47	43
	30	72	72	72	72	72	71	70	67	60	55	50	47	43
	40	63	63	63	63	63	63	63	63	60	55	50	47	43
	50	57	57	57	57	57	57	57	57	57	55	50	47	43
	60	53	53	53	53	53	53	53	53	53	53	50	47	43
	70	49	49	49	49	49	49	49	49	49	49	49	47	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
	90	44	44	44	44	44	44	44	44	44	44	44	44	43
Zones 2e & 3	0	103	103	101	96	92	89	85	80	73	66	61	56	52
	10	92	92	92	91	90	89	85	80	73	66	61	56	52
	20	72	72	72	72	72	71	70	69	67	66	61	56	52
	30	72	72	72	72	72	71	70	69	67	66	61	56	52
	40	63	63	63	63	63	63	63	63	62	61	59	56	52
	50	57	57	57	57	57	57	57	57	57	56	55	54	52
	60	53	53	53	53	53	53	53	53	53	53	52	51	50
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 65b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	102	97	93	89	85	82	79	73	66	61	56	52	49
	10	92	92	92	89	85	82	79	73	66	61	56	52	49
	20	72	72	72	72	72	71	70	69	66	61	56	52	49
	30	72	72	72	72	72	71	70	69	66	61	56	52	49
	40	63	63	63	63	63	63	63	63	62	61	56	52	49
	50	57	57	57	57	57	57	57	57	57	56	55	52	49
	60	53	53	53	53	53	53	53	53	53	53	52	51	49
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zone 2r	0	82	78	73	68	64	60	56	51	46	42	39	37	35
	10	82	78	73	68	64	60	56	51	46	42	39	37	35
	20	72	72	72	68	64	60	56	51	46	42	39	37	35
	30	72	72	72	68	64	60	56	51	46	42	39	37	35
	40	63	63	63	63	63	60	56	51	46	42	39	37	35
	50	57	57	57	57	57	57	56	51	46	42	39	37	35
	60	53	53	53	53	53	53	53	51	46	42	39	37	35
	70	49	49	49	49	49	49	49	49	46	42	39	37	35
	80	46	46	46	46	46	46	46	46	46	42	39	37	35
	90	44	44	44	44	44	44	44	44	44	42	39	37	35
Zones 2e & 3	0	92	88	84	80	77	72	68	61	55	51	47	43	40
	10	92	88	84	80	77	72	68	61	55	51	47	43	40
	20	72	72	72	72	72	71	68	61	55	51	47	43	40
	30	72	72	72	72	72	71	68	61	55	51	47	43	40
	40	63	63	63	63	63	63	63	61	55	51	47	43	40
	50	57	57	57	57	57	57	57	57	55	51	47	43	40
	60	53	53	53	53	53	53	53	53	53	51	47	43	40
	70	49	49	49	49	49	49	49	49	49	49	47	43	40
	80	46	46	46	46	46	46	46	46	46	46	46	43	40
	90	44	44	44	44	44	44	44	44	44	44	44	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 66a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	100	96	92	88	83	78	71	66	61	57
	10	92	92	91	89	88	87	86	80	77	71	66	61	57
	20	72	72	72	71	71	70	69	67	66	64	63	61	57
	30	72	72	72	71	71	70	69	67	66	64	63	61	57
	40	63	63	63	63	63	63	63	62	61	59	58	57	55
	50	57	57	57	57	57	57	57	57	56	55	54	53	52
	60	53	53	53	53	53	53	53	53	53	52	51	50	49
	70	49	49	49	49	49	49	49	49	49	49	48	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	43
Zone 2r	0	92	87	83	80	76	71	67	60	55	50	46	42	40
	10	92	87	83	80	76	71	67	60	55	50	46	42	40
	20	72	72	72	71	71	70	67	60	55	50	46	42	40
	30	72	72	72	71	71	70	67	60	55	50	46	42	40
	40	63	63	63	63	63	63	63	60	55	50	46	42	40
	50	57	57	57	57	57	57	57	57	55	50	46	42	40
	60	53	53	53	53	53	53	53	53	53	50	46	42	40
	70	49	49	49	49	49	49	49	49	49	49	46	42	40
	80	46	46	46	46	46	46	46	46	46	46	46	42	40
	90	44	44	44	44	44	44	44	44	44	44	44	42	40
Zones 2e & 3	0	103	98	94	90	86	83	80	73	66	60	55	51	47
	10	92	92	91	89	86	83	80	73	66	60	55	51	47
	20	72	72	72	71	71	70	69	67	66	60	55	51	47
	30	72	72	72	71	71	70	69	67	66	60	55	51	47
	40	63	63	63	63	63	63	63	62	61	59	55	51	47
	50	57	57	57	57	57	57	57	57	56	55	54	51	47
	60	53	53	53	53	53	53	53	53	53	52	51	50	47
	70	49	49	49	49	49	49	49	49	49	49	48	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 66b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	96	91	87	83	80	77	73	66	60	56	51	48	45
	10	92	91	87	83	80	77	73	66	60	56	51	48	45
	20	72	72	72	71	71	70	69	66	60	56	51	48	45
	30	72	72	72	71	71	70	69	66	60	56	51	48	45
	40	63	63	63	63	63	63	63	62	60	56	51	48	45
	50	57	57	57	57	57	57	57	57	56	55	51	48	45
	60	53	53	53	53	53	53	53	53	53	52	51	48	45
	70	49	49	49	49	49	49	49	49	49	49	48	48	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	43
Zone 2r	0	76	70	65	61	57	54	51	46	42	39	36	34	32
	10	76	70	65	61	57	54	51	46	42	39	36	34	32
	20	72	70	65	61	57	54	51	46	42	39	36	34	32
	30	72	70	65	61	57	54	51	46	42	39	36	34	32
	40	63	63	63	61	57	54	51	46	42	39	36	34	32
	50	57	57	57	57	57	54	51	46	42	39	36	34	32
	60	53	53	53	53	53	53	51	46	42	39	36	34	32
	70	49	49	49	49	49	49	49	46	42	39	36	34	32
	80	46	46	46	46	46	46	46	46	42	39	36	34	32
	90	44	44	44	44	44	44	44	44	42	39	36	34	32
Zones 2e & 3	0	86	82	79	74	69	65	62	55	50	46	42	40	37
	10	86	82	79	74	69	65	62	55	50	46	42	40	37
	20	72	72	72	71	69	65	62	55	50	46	42	40	37
	30	72	72	72	71	69	65	62	55	50	46	42	40	37
	40	63	63	63	63	63	63	62	55	50	46	42	40	37
	50	57	57	57	57	57	57	57	55	50	46	42	40	37
	60	53	53	53	53	53	53	53	53	50	46	42	40	37
	70	49	49	49	49	49	49	49	49	49	46	42	40	37
	80	46	46	46	46	46	46	46	46	46	46	42	40	37
	90	44	44	44	44	44	44	44	44	44	44	42	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 67a		Mean Roof Height: 30 < h ≤ 60 ft	Panel Orientation: Portrait								North/South Support X _E = 1			
		Roof Angle: 20 < θ ≤ 27 degrees	Exposure Category: B								Roof Type : Hip			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	103	96	90	85	81	77
	10	100	100	100	100	100	100	100	98	96	90	85	81	77
	20	85	85	85	85	85	85	84	83	81	79	78	76	74
	30	72	72	72	72	72	72	72	72	72	70	69	68	67
	40	64	64	64	64	64	64	64	64	64	64	63	62	61
	50	58	58	58	58	58	58	58	58	58	58	58	58	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	103	103	103	103	101	97	93	87	82	77	70	64	59
	10	100	100	100	100	100	97	93	87	82	77	70	64	59
	20	85	85	85	85	85	85	84	83	81	77	70	64	59
	30	72	72	72	72	72	72	72	72	72	70	69	64	59
	40	64	64	64	64	64	64	64	64	64	64	63	62	59
	50	58	58	58	58	58	58	58	58	58	58	58	58	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 67b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	100	96	92	86	80	75	68	63	58
	10	100	100	100	100	100	96	92	86	80	75	68	63	58
	20	85	85	85	85	85	85	84	83	80	75	68	63	58
	30	72	72	72	72	72	72	72	72	72	70	68	63	58
	40	64	64	64	64	64	64	64	64	64	64	63	62	58
	50	58	58	58	58	58	58	58	58	58	58	58	58	57
	60	53	53	53	53	53	53	53	53	53	53	53	53	53
	70	50	50	50	50	50	50	50	50	50	50	50	50	50
	80	47	47	47	47	47	47	47	47	47	47	47	47	47
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	101	96	92	88	84	81	78	71	64	58	53	49	45
	10	100	96	92	88	84	81	78	71	64	58	53	49	45
	20	85	85	85	85	84	81	78	71	64	58	53	49	45
	30	72	72	72	72	72	72	72	71	64	58	53	49	45
	40	64	64	64	64	64	64	64	64	64	58	53	49	45
	50	58	58	58	58	58	58	58	58	58	58	53	49	45
	60	53	53	53	53	53	53	53	53	53	53	53	49	45
	70	50	50	50	50	50	50	50	50	50	50	50	49	45
	80	47	47	47	47	47	47	47	47	47	47	47	47	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 68a		Mean Roof Height: 30 < h ≤ 60 ft	Panel Orientation: Portrait								North/South Support X _E = 1			
		Roof Angle: 20 < θ ≤ 27 degrees	Exposure Category: C								Roof Type : Hip			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	102	98	91	85	80	75	68	63
	10	100	100	100	100	99	97	96	91	85	80	75	68	63
	20	85	85	85	84	83	82	81	79	77	75	73	68	63
	30	72	72	72	72	72	72	72	70	69	68	66	65	63
	40	64	64	64	64	64	64	64	64	63	62	61	59	58
	50	58	58	58	58	58	58	58	58	58	57	56	55	54
	60	53	53	53	53	53	53	53	53	53	53	53	52	51
	70	50	50	50	50	50	50	50	50	50	50	50	49	48
	80	47	47	47	47	47	47	47	47	47	47	47	47	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	103	102	97	93	89	85	82	77	69	63	57	53	49
	10	100	100	97	93	89	85	82	77	69	63	57	53	49
	20	85	85	85	84	83	82	81	77	69	63	57	53	49
	30	72	72	72	72	72	72	72	70	69	63	57	53	49
	40	64	64	64	64	64	64	64	64	63	62	57	53	49
	50	58	58	58	58	58	58	58	58	58	57	56	53	49
	60	53	53	53	53	53	53	53	53	53	53	53	52	49
	70	50	50	50	50	50	50	50	50	50	50	50	49	48
	80	47	47	47	47	47	47	47	47	47	47	47	47	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 68b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	100	96	91	88	84	81	75	67	61	56	51	48
	10	100	100	96	91	88	84	81	75	67	61	56	51	48
	20	85	85	85	84	83	82	81	75	67	61	56	51	48
	30	72	72	72	72	72	72	72	70	67	61	56	51	48
	40	64	64	64	64	64	64	64	64	63	61	56	51	48
	50	58	58	58	58	58	58	58	58	58	57	56	51	48
	60	53	53	53	53	53	53	53	53	53	53	53	51	48
	70	50	50	50	50	50	50	50	50	50	50	50	49	48
	80	47	47	47	47	47	47	47	47	47	47	47	47	46
	90	44	44	44	44	44	44	44	44	44	44	44	44	44
Zones 2e, 2r, & 3	0	89	85	81	78	73	69	65	58	52	48	44	41	38
	10	89	85	81	78	73	69	65	58	52	48	44	41	38
	20	85	85	81	78	73	69	65	58	52	48	44	41	38
	30	72	72	72	72	72	69	65	58	52	48	44	41	38
	40	64	64	64	64	64	64	64	58	52	48	44	41	38
	50	58	58	58	58	58	58	58	58	52	48	44	41	38
	60	53	53	53	53	53	53	53	53	52	48	44	41	38
	70	50	50	50	50	50	50	50	50	50	48	44	41	38
	80	47	47	47	47	47	47	47	47	47	47	44	41	38
	90	44	44	44	44	44	44	44	44	44	44	44	41	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 69a		Mean Roof Height: 30 < h ≤ 60 ft									Panel Orientation: Portrait			
		Roof Angle: 20 < θ ≤ 27 degrees									North/South Support	X _E = 1		
		Exposure Category: D									Roof Type :	Hip		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	99	95	91	85	79	74	67	61	57
	10	100	100	99	98	96	95	91	85	79	74	67	61	57
	20	85	84	83	83	82	81	80	77	75	73	67	61	57
	30	72	72	72	72	72	71	71	69	67	66	64	61	57
	40	64	64	64	64	64	64	64	63	62	60	59	58	56
	50	58	58	58	58	58	58	58	58	57	56	55	54	53
	60	53	53	53	53	53	53	53	53	53	53	52	51	50
	70	50	50	50	50	50	50	50	50	50	50	49	48	47
	80	47	47	47	47	47	47	47	47	47	47	47	46	45
	90	44	44	44	44	44	44	44	44	44	44	44	44	43
Zones 2e, 2r, & 3	0	100	95	91	87	83	80	77	69	62	57	52	48	44
	10	100	95	91	87	83	80	77	69	62	57	52	48	44
	20	85	84	83	83	82	80	77	69	62	57	52	48	44
	30	72	72	72	72	72	71	71	69	62	57	52	48	44
	40	64	64	64	64	64	64	64	63	62	57	52	48	44
	50	58	58	58	58	58	58	58	58	57	56	52	48	44
	60	53	53	53	53	53	53	53	53	53	53	52	48	44
	70	50	50	50	50	50	50	50	50	50	50	49	48	44
	80	47	47	47	47	47	47	47	47	47	47	47	46	44
	90	44	44	44	44	44	44	44	44	44	44	44	44	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 69b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5					
		Exposure Category: D							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	99	94	89	86	82	79	76	67	61	55	50	46	43
	10	99	94	89	86	82	79	76	67	61	55	50	46	43
	20	85	84	83	83	82	79	76	67	61	55	50	46	43
	30	72	72	72	72	72	71	71	67	61	55	50	46	43
	40	64	64	64	64	64	64	64	63	61	55	50	46	43
	50	58	58	58	58	58	58	58	58	57	55	50	46	43
	60	53	53	53	53	53	53	53	53	53	53	50	46	43
	70	50	50	50	50	50	50	50	50	50	50	49	46	43
	80	47	47	47	47	47	47	47	47	47	47	47	46	43
	90	44	44	44	44	44	44	44	44	44	44	44	44	43
Zones 2e, 2r, & 3	0	83	79	76	70	66	62	58	52	47	43	40	38	36
	10	83	79	76	70	66	62	58	52	47	43	40	38	36
	20	83	79	76	70	66	62	58	52	47	43	40	38	36
	30	72	72	72	70	66	62	58	52	47	43	40	38	36
	40	64	64	64	64	64	62	58	52	47	43	40	38	36
	50	58	58	58	58	58	58	58	52	47	43	40	38	36
	60	53	53	53	53	53	53	53	52	47	43	40	38	36
	70	50	50	50	50	50	50	50	50	47	43	40	38	36
	80	47	47	47	47	47	47	47	47	47	43	40	38	36
	90	44	44	44	44	44	44	44	44	44	43	40	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 70a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	103	103	103	98	92	86	82	77	73
	10	101	101	101	101	101	101	101	98	92	86	82	77	73
	20	88	88	88	88	88	88	87	86	84	82	80	77	73
	30	76	76	76	76	76	76	76	76	75	74	72	71	70
	40	67	67	67	67	67	67	67	67	67	67	66	65	64
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	57	57	57	57	57	57	57	57	57	57	57	57	56
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	103	103	103	97	90	84	79	75	68
	10	101	101	101	101	101	101	101	97	90	84	79	75	68
	20	88	88	88	88	88	88	87	86	84	82	79	75	68
	30	76	76	76	76	76	76	76	76	75	74	72	71	68
	40	67	67	67	67	67	67	67	67	67	67	66	65	64
	50	61	61	61	61	61	61	61	61	61	61	61	61	60
	60	57	57	57	57	57	57	57	57	57	57	57	57	56
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	103	103	103	102	97	93	90	83	78	73	66	60	55
	10	101	101	101	101	97	93	90	83	78	73	66	60	55
	20	88	88	88	88	88	88	87	83	78	73	66	60	55
	30	76	76	76	76	76	76	76	76	75	73	66	60	55
	40	67	67	67	67	67	67	67	67	67	67	66	60	55
	50	61	61	61	61	61	61	61	61	61	61	61	60	55
	60	57	57	57	57	57	57	57	57	57	57	57	57	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 3	0	103	103	103	103	101	96	92	85	79	73	65	59	54
	10	101	101	101	101	101	96	92	85	79	73	65	59	54
	20	88	88	88	88	88	88	87	85	79	73	65	59	54
	30	76	76	76	76	76	76	76	76	75	73	65	59	54
	40	67	67	67	67	67	67	67	67	67	67	65	59	54
	50	61	61	61	61	61	61	61	61	61	61	61	59	54
	60	57	57	57	57	57	57	57	57	57	57	57	57	54
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 70b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	99	95	91	88	82	77	71	65	59	55
	10	101	101	101	99	95	91	88	82	77	71	65	59	55
	20	88	88	88	88	88	88	87	82	77	71	65	59	55
	30	76	76	76	76	76	76	76	76	75	71	65	59	55
	40	67	67	67	67	67	67	67	67	67	67	65	59	55
	50	61	61	61	61	61	61	61	61	61	61	61	59	55
	60	57	57	57	57	57	57	57	57	57	57	57	57	55
	70	53	53	53	53	53	53	53	53	53	53	53	53	53
	80	50	50	50	50	50	50	50	50	50	50	50	50	50
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	98	93	89	86	79	74	65	59	53	49
	10	101	101	101	98	93	89	86	79	74	65	59	53	49
	20	88	88	88	88	88	88	86	79	74	65	59	53	49
	30	76	76	76	76	76	76	76	76	74	65	59	53	49
	40	67	67	67	67	67	67	67	67	67	65	59	53	49
	50	61	61	61	61	61	61	61	61	61	61	59	53	49
	60	57	57	57	57	57	57	57	57	57	57	57	53	49
	70	53	53	53	53	53	53	53	53	53	53	53	53	49
	80	50	50	50	50	50	50	50	50	50	50	50	50	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	97	92	88	84	81	78	75	66	59	54	49	45	41
	10	97	92	88	84	81	78	75	66	59	54	49	45	41
	20	88	88	88	84	81	78	75	66	59	54	49	45	41
	30	76	76	76	76	76	76	75	66	59	54	49	45	41
	40	67	67	67	67	67	67	67	66	59	54	49	45	41
	50	61	61	61	61	61	61	61	61	59	54	49	45	41
	60	57	57	57	57	57	57	57	57	57	54	49	45	41
	70	53	53	53	53	53	53	53	53	53	53	49	45	41
	80	50	50	50	50	50	50	50	50	50	50	49	45	41
	90	47	47	47	47	47	47	47	47	47	47	47	45	41
Zone 3	0	101	95	90	86	82	78	75	66	58	52	47	43	39
	10	101	95	90	86	82	78	75	66	58	52	47	43	39
	20	88	88	88	86	82	78	75	66	58	52	47	43	39
	30	76	76	76	76	76	76	75	66	58	52	47	43	39
	40	67	67	67	67	67	67	67	66	58	52	47	43	39
	50	61	61	61	61	61	61	61	61	58	52	47	43	39
	60	57	57	57	57	57	57	57	57	57	52	47	43	39
	70	53	53	53	53	53	53	53	53	53	52	47	43	39
	80	50	50	50	50	50	50	50	50	50	50	47	43	39
	90	47	47	47	47	47	47	47	47	47	47	47	43	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 71a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	103	103	100	96	93	86	81	76	71	65	60
	10	101	101	101	101	100	96	93	86	81	76	71	65	60
	20	88	88	88	87	86	85	84	82	80	76	71	65	60
	30	76	76	76	76	76	76	75	74	72	70	69	65	60
	40	67	67	67	67	67	67	67	67	66	65	63	62	60
	50	61	61	61	61	61	61	61	61	61	60	59	58	57
	60	57	57	57	57	57	57	57	57	57	57	56	55	54
	70	53	53	53	53	53	53	53	53	53	53	53	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	50	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2e	0	103	103	103	103	99	95	91	84	78	73	65	59	54
	10	101	101	101	101	99	95	91	84	78	73	65	59	54
	20	88	88	88	87	86	85	84	82	78	73	65	59	54
	30	76	76	76	76	76	76	75	74	72	70	65	59	54
	40	67	67	67	67	67	67	67	67	66	65	63	59	54
	50	61	61	61	61	61	61	61	61	61	60	59	58	54
	60	57	57	57	57	57	57	57	57	57	57	56	55	54
	70	53	53	53	53	53	53	53	53	53	53	53	52	51
	80	50	50	50	50	50	50	50	50	50	50	50	50	49
	90	47	47	47	47	47	47	47	47	47	47	47	47	47
Zone 2r	0	103	98	93	89	85	82	79	73	65	59	53	49	45
	10	101	98	93	89	85	82	79	73	65	59	53	49	45
	20	88	88	88	87	85	82	79	73	65	59	53	49	45
	30	76	76	76	76	76	76	75	73	65	59	53	49	45
	40	67	67	67	67	67	67	67	67	65	59	53	49	45
	50	61	61	61	61	61	61	61	61	61	59	53	49	45
	60	57	57	57	57	57	57	57	57	57	57	53	49	45
	70	53	53	53	53	53	53	53	53	53	53	53	49	45
	80	50	50	50	50	50	50	50	50	50	50	50	49	45
	90	47	47	47	47	47	47	47	47	47	47	47	47	45
Zone 3	0	103	101	96	91	87	83	80	74	64	57	51	47	43
	10	101	101	96	91	87	83	80	74	64	57	51	47	43
	20	88	88	88	87	86	83	80	74	64	57	51	47	43
	30	76	76	76	76	76	76	75	74	64	57	51	47	43
	40	67	67	67	67	67	67	67	67	64	57	51	47	43
	50	61	61	61	61	61	61	61	61	61	57	51	47	43
	60	57	57	57	57	57	57	57	57	57	57	51	47	43
	70	53	53	53	53	53	53	53	53	53	53	51	47	43
	80	50	50	50	50	50	50	50	50	50	50	50	47	43
	90	47	47	47	47	47	47	47	47	47	47	47	47	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 71b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	100	95	91	87	84	81	78	71	64	58	53	49	45
	10	100	95	91	87	84	81	78	71	64	58	53	49	45
	20	88	88	88	87	84	81	78	71	64	58	53	49	45
	30	76	76	76	76	76	76	75	71	64	58	53	49	45
	40	67	67	67	67	67	67	67	67	64	58	53	49	45
	50	61	61	61	61	61	61	61	61	61	58	53	49	45
	60	57	57	57	57	57	57	57	57	57	57	53	49	45
	70	53	53	53	53	53	53	53	53	53	53	53	49	45
	80	50	50	50	50	50	50	50	50	50	50	50	49	45
	90	47	47	47	47	47	47	47	47	47	47	47	47	45
Zone 2e	0	99	94	89	85	81	78	75	66	58	52	47	43	40
	10	99	94	89	85	81	78	75	66	58	52	47	43	40
	20	88	88	88	85	81	78	75	66	58	52	47	43	40
	30	76	76	76	76	76	76	75	66	58	52	47	43	40
	40	67	67	67	67	67	67	67	66	58	52	47	43	40
	50	61	61	61	61	61	61	61	61	58	52	47	43	40
	60	57	57	57	57	57	57	57	57	57	52	47	43	40
	70	53	53	53	53	53	53	53	53	53	52	47	43	40
	80	50	50	50	50	50	50	50	50	50	50	47	43	40
	90	47	47	47	47	47	47	47	47	47	47	47	43	40
Zone 2r	0	85	81	77	74	69	64	60	54	48	44	40	37	35
	10	85	81	77	74	69	64	60	54	48	44	40	37	35
	20	85	81	77	74	69	64	60	54	48	44	40	37	35
	30	76	76	76	74	69	64	60	54	48	44	40	37	35
	40	67	67	67	67	67	64	60	54	48	44	40	37	35
	50	61	61	61	61	61	61	60	54	48	44	40	37	35
	60	57	57	57	57	57	57	57	54	48	44	40	37	35
	70	53	53	53	53	53	53	53	53	48	44	40	37	35
	80	50	50	50	50	50	50	50	50	48	44	40	37	35
	90	47	47	47	47	47	47	47	47	47	44	40	37	35
Zone 3	0	87	82	78	75	69	64	59	52	46	42	38	35	33
	10	87	82	78	75	69	64	59	52	46	42	38	35	33
	20	87	82	78	75	69	64	59	52	46	42	38	35	33
	30	76	76	76	75	69	64	59	52	46	42	38	35	33
	40	67	67	67	67	67	64	59	52	46	42	38	35	33
	50	61	61	61	61	61	61	59	52	46	42	38	35	33
	60	57	57	57	57	57	57	57	52	46	42	38	35	33
	70	53	53	53	53	53	53	53	52	46	42	38	35	33
	80	50	50	50	50	50	50	50	50	46	42	38	35	33
	90	47	47	47	47	47	47	47	47	46	42	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 72a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	103	102	98	94	90	87	81	76	70	64	58	54
	10	101	101	101	98	94	90	87	81	76	70	64	58	54
	20	88	87	86	85	84	83	82	80	76	70	64	58	54
	30	76	76	76	76	75	74	74	72	70	69	64	58	54
	40	67	67	67	67	67	67	67	66	65	63	62	58	54
	50	61	61	61	61	61	61	61	61	60	59	58	57	54
	60	57	57	57	57	57	57	57	57	57	56	55	54	53
	70	53	53	53	53	53	53	53	53	53	53	52	51	50
	80	50	50	50	50	50	50	50	50	50	50	49	49	48
	90	47	47	47	47	47	47	47	47	47	47	47	47	46
Zone 2e	0	103	103	101	96	92	88	84	78	72	64	58	52	48
	10	101	101	101	96	92	88	84	78	72	64	58	52	48
	20	88	87	86	85	84	83	82	78	72	64	58	52	48
	30	76	76	76	76	75	74	74	72	70	64	58	52	48
	40	67	67	67	67	67	67	67	66	65	63	58	52	48
	50	61	61	61	61	61	61	61	61	60	59	58	52	48
	60	57	57	57	57	57	57	57	57	57	56	55	52	48
	70	53	53	53	53	53	53	53	53	53	53	52	51	48
	80	50	50	50	50	50	50	50	50	50	50	49	49	48
	90	47	47	47	47	47	47	47	47	47	47	47	47	46
Zone 2r	0	96	91	87	83	80	77	74	65	58	53	48	44	41
	10	96	91	87	83	80	77	74	65	58	53	48	44	41
	20	88	87	86	83	80	77	74	65	58	53	48	44	41
	30	76	76	76	76	75	74	74	65	58	53	48	44	41
	40	67	67	67	67	67	67	67	65	58	53	48	44	41
	50	61	61	61	61	61	61	61	61	58	53	48	44	41
	60	57	57	57	57	57	57	57	57	57	53	48	44	41
	70	53	53	53	53	53	53	53	53	53	53	48	44	41
	80	50	50	50	50	50	50	50	50	50	50	48	44	41
	90	47	47	47	47	47	47	47	47	47	47	47	44	41
Zone 3	0	99	94	89	85	81	77	74	64	57	51	46	42	39
	10	99	94	89	85	81	77	74	64	57	51	46	42	39
	20	88	87	86	85	81	77	74	64	57	51	46	42	39
	30	76	76	76	76	75	74	74	64	57	51	46	42	39
	40	67	67	67	67	67	67	67	64	57	51	46	42	39
	50	61	61	61	61	61	61	61	61	57	51	46	42	39
	60	57	57	57	57	57	57	57	57	57	51	46	42	39
	70	53	53	53	53	53	53	53	53	53	51	46	42	39
	80	50	50	50	50	50	50	50	50	50	50	46	42	39
	90	47	47	47	47	47	47	47	47	47	47	46	42	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 72b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	94	89	85	82	79	76	72	64	58	52	48	44	41
	10	94	89	85	82	79	76	72	64	58	52	48	44	41
	20	88	87	85	82	79	76	72	64	58	52	48	44	41
	30	76	76	76	76	75	74	72	64	58	52	48	44	41
	40	67	67	67	67	67	67	67	64	58	52	48	44	41
	50	61	61	61	61	61	61	61	61	58	52	48	44	41
	60	57	57	57	57	57	57	57	57	57	52	48	44	41
	70	53	53	53	53	53	53	53	53	53	52	48	44	41
	80	50	50	50	50	50	50	50	50	50	50	48	44	41
	90	47	47	47	47	47	47	47	47	47	47	47	44	41
Zone 2e	0	92	87	83	79	76	71	66	58	52	46	42	39	36
	10	92	87	83	79	76	71	66	58	52	46	42	39	36
	20	88	87	83	79	76	71	66	58	52	46	42	39	36
	30	76	76	76	76	75	71	66	58	52	46	42	39	36
	40	67	67	67	67	67	67	66	58	52	46	42	39	36
	50	61	61	61	61	61	61	61	58	52	46	42	39	36
	60	57	57	57	57	57	57	57	57	52	46	42	39	36
	70	53	53	53	53	53	53	53	53	52	46	42	39	36
	80	50	50	50	50	50	50	50	50	50	46	42	39	36
	90	47	47	47	47	47	47	47	47	47	46	42	39	36
Zone 2r	0	80	76	71	66	62	58	54	48	43	40	37	34	32
	10	80	76	71	66	62	58	54	48	43	40	37	34	32
	20	80	76	71	66	62	58	54	48	43	40	37	34	32
	30	76	76	71	66	62	58	54	48	43	40	37	34	32
	40	67	67	67	66	62	58	54	48	43	40	37	34	32
	50	61	61	61	61	61	58	54	48	43	40	37	34	32
	60	57	57	57	57	57	57	54	48	43	40	37	34	32
	70	53	53	53	53	53	53	53	48	43	40	37	34	32
	80	50	50	50	50	50	50	50	48	43	40	37	34	32
	90	47	47	47	47	47	47	47	47	43	40	37	34	32
Zone 3	0	81	77	72	66	60	56	52	46	41	38	35	32	30
	10	81	77	72	66	60	56	52	46	41	38	35	32	30
	20	81	77	72	66	60	56	52	46	41	38	35	32	30
	30	76	76	72	66	60	56	52	46	41	38	35	32	30
	40	67	67	67	66	60	56	52	46	41	38	35	32	30
	50	61	61	61	61	60	56	52	46	41	38	35	32	30
	60	57	57	57	57	57	56	52	46	41	38	35	32	30
	70	53	53	53	53	53	53	52	46	41	38	35	32	30
	80	50	50	50	50	50	50	50	46	41	38	35	32	30
	90	47	47	47	47	47	47	47	46	41	38	35	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 68"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 73a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	98	98	98	98	98
	10	91	91	91	91	91	91	91	91	91	91	91	91	91
	20	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	98	98	98	98	98	98	93	88	83	79
	10	91	91	91	91	91	91	91	91	91	91	88	83	79
	20	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	98	98	98	98	98	98	98	92	86	81	76	70	64
	10	91	91	91	91	91	91	91	91	86	81	76	70	64
	20	72	72	72	72	72	72	72	72	72	72	72	70	64
	30	70	70	70	70	70	70	70	70	70	70	70	70	64
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	98	98	95	91	87	81	74	67	62	57	53
	10	91	91	91	91	91	91	87	81	74	67	62	57	53
	20	72	72	72	72	72	72	72	72	72	67	62	57	53
	30	70	70	70	70	70	70	70	70	70	67	62	57	53
	40	62	62	62	62	62	62	62	62	62	62	62	57	53
	50	56	56	56	56	56	56	56	56	56	56	56	56	53
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 73b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $0 < \theta \leq 7$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	98	98	93	88	84
	10	91	91	91	91	91	91	91	91	91	91	91	88	84
	20	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	98	98	98	95	88	83	77	71	65	60
	10	91	91	91	91	91	91	91	88	83	77	71	65	60
	20	72	72	72	72	72	72	72	72	72	72	71	65	60
	30	70	70	70	70	70	70	70	70	70	70	70	65	60
	40	62	62	62	62	62	62	62	62	62	62	62	62	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	98	98	98	93	89	86	83	76	69	63	58	53	49
	10	91	91	91	91	89	86	83	76	69	63	58	53	49
	20	72	72	72	72	72	72	72	72	69	63	58	53	49
	30	70	70	70	70	70	70	70	70	69	63	58	53	49
	40	62	62	62	62	62	62	62	62	62	62	58	53	49
	50	56	56	56	56	56	56	56	56	56	56	56	53	49
	60	52	52	52	52	52	52	52	52	52	52	52	52	49
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	94	90	86	82	78	73	69	62	56	51	47	43	40
	10	91	90	86	82	78	73	69	62	56	51	47	43	40
	20	72	72	72	72	72	72	69	62	56	51	47	43	40
	30	70	70	70	70	70	70	69	62	56	51	47	43	40
	40	62	62	62	62	62	62	62	62	56	51	47	43	40
	50	56	56	56	56	56	56	56	56	56	51	47	43	40
	60	52	52	52	52	52	52	52	52	52	51	47	43	40
	70	48	48	48	48	48	48	48	48	48	48	47	43	40
	80	45	45	45	45	45	45	45	45	45	45	45	43	40
	90	43	43	43	43	43	43	43	43	43	43	43	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 74a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	98	98	93	89	84
	10	91	91	91	91	91	91	91	91	91	91	91	89	84
	20	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	98	98	98	95	89	83	77	71	65	61
	10	91	91	91	91	91	91	91	89	83	77	71	65	61
	20	72	72	72	72	72	72	72	72	72	72	71	65	61
	30	70	70	70	70	70	70	70	70	70	70	70	65	61
	40	62	62	62	62	62	62	62	62	62	62	62	62	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	98	98	98	94	90	86	83	76	69	63	58	53	50
	10	91	91	91	91	90	86	83	76	69	63	58	53	50
	20	72	72	72	72	72	72	72	72	69	63	58	53	50
	30	70	70	70	70	70	70	70	70	69	63	58	53	50
	40	62	62	62	62	62	62	62	62	62	62	58	53	50
	50	56	56	56	56	56	56	56	56	56	56	56	53	50
	60	52	52	52	52	52	52	52	52	52	52	52	52	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	95	90	86	82	79	74	69	62	56	51	47	44	40
	10	91	90	86	82	79	74	69	62	56	51	47	44	40
	20	72	72	72	72	72	72	69	62	56	51	47	44	40
	30	70	70	70	70	70	70	69	62	56	51	47	44	40
	40	62	62	62	62	62	62	62	62	56	51	47	44	40
	50	56	56	56	56	56	56	56	56	56	51	47	44	40
	60	52	52	52	52	52	52	52	52	52	51	47	44	40
	70	48	48	48	48	48	48	48	48	48	48	47	44	40
	80	45	45	45	45	45	45	45	45	45	45	45	44	40
	90	43	43	43	43	43	43	43	43	43	43	43	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 74b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $0 < \theta \leq 7$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	94	88	83	78	72	67
	10	91	91	91	91	91	91	91	91	88	83	78	72	67
	20	72	72	72	72	72	72	72	72	72	72	72	72	67
	30	70	70	70	70	70	70	70	70	70	70	70	70	67
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	94	89	86	83	80	71	65	59	54	50	47
	10	91	91	91	89	86	83	80	71	65	59	54	50	47
	20	72	72	72	72	72	72	72	71	65	59	54	50	47
	30	70	70	70	70	70	70	70	70	65	59	54	50	47
	40	62	62	62	62	62	62	62	62	62	59	54	50	47
	50	56	56	56	56	56	56	56	56	56	56	54	50	47
	60	52	52	52	52	52	52	52	52	52	52	52	50	47
	70	48	48	48	48	48	48	48	48	48	48	48	48	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	90	85	82	78	73	68	65	58	53	48	45	41	38
	10	90	85	82	78	73	68	65	58	53	48	45	41	38
	20	72	72	72	72	72	68	65	58	53	48	45	41	38
	30	70	70	70	70	70	68	65	58	53	48	45	41	38
	40	62	62	62	62	62	62	62	58	53	48	45	41	38
	50	56	56	56	56	56	56	56	56	53	48	45	41	38
	60	52	52	52	52	52	52	52	52	52	48	45	41	38
	70	48	48	48	48	48	48	48	48	48	48	45	41	38
	80	45	45	45	45	45	45	45	45	45	45	45	41	38
	90	43	43	43	43	43	43	43	43	43	43	43	41	38
Zone 3	0	78	73	68	63	59	56	53	47	43	39	36	34	32
	10	78	73	68	63	59	56	53	47	43	39	36	34	32
	20	72	72	68	63	59	56	53	47	43	39	36	34	32
	30	70	70	68	63	59	56	53	47	43	39	36	34	32
	40	62	62	62	62	59	56	53	47	43	39	36	34	32
	50	56	56	56	56	56	56	53	47	43	39	36	34	32
	60	52	52	52	52	52	52	52	47	43	39	36	34	32
	70	48	48	48	48	48	48	48	47	43	39	36	34	32
	80	45	45	45	45	45	45	45	45	43	39	36	34	32
	90	43	43	43	43	43	43	43	43	43	39	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 75a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $0 < \theta \leq 7$ degrees Exposure Category: D								Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	97	91	86	82	77
	10	91	91	91	91	91	91	91	91	91	90	86	82	77
	20	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	98	95	91	87	81	75	68	62	57	53
	10	91	91	91	91	91	91	87	81	75	68	62	57	53
	20	72	72	72	72	72	72	72	72	72	68	62	57	53
	30	70	70	70	70	70	70	70	70	70	68	62	57	53
	40	62	62	62	62	62	62	62	62	62	62	62	57	53
	50	56	56	56	56	56	56	56	56	56	56	56	56	53
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	98	94	90	86	82	79	75	67	61	55	51	47	44
	10	91	91	90	86	82	79	75	67	61	55	51	47	44
	20	72	72	72	72	72	72	72	67	61	55	51	47	44
	30	70	70	70	70	70	70	70	67	61	55	51	47	44
	40	62	62	62	62	62	62	62	62	61	55	51	47	44
	50	56	56	56	56	56	56	56	56	56	55	51	47	44
	60	52	52	52	52	52	52	52	52	52	52	51	47	44
	70	48	48	48	48	48	48	48	48	48	48	48	47	44
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	87	82	79	73	69	64	61	55	50	45	42	38	36
	10	87	82	79	73	69	64	61	55	50	45	42	38	36
	20	72	72	72	72	69	64	61	55	50	45	42	38	36
	30	70	70	70	70	69	64	61	55	50	45	42	38	36
	40	62	62	62	62	62	62	61	55	50	45	42	38	36
	50	56	56	56	56	56	56	56	55	50	45	42	38	36
	60	52	52	52	52	52	52	52	52	50	45	42	38	36
	70	48	48	48	48	48	48	48	48	48	45	42	38	36
	80	45	45	45	45	45	45	45	45	45	45	42	38	36
	90	43	43	43	43	43	43	43	43	43	43	42	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 75b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle:		$0 < \theta \leq 7$ degrees					North/South Support $X_E = 1.5$					
		Exposure Category:		D					Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	96	92	86	81	75	69	64	60
	10	91	91	91	91	91	91	91	86	81	75	69	64	60
	20	72	72	72	72	72	72	72	72	72	72	69	64	60
	30	70	70	70	70	70	70	70	70	70	70	69	64	60
	40	62	62	62	62	62	62	62	62	62	62	62	62	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	94	90	86	82	79	74	70	63	57	52	48	44	41
	10	91	90	86	82	79	74	70	63	57	52	48	44	41
	20	72	72	72	72	72	72	70	63	57	52	48	44	41
	30	70	70	70	70	70	70	70	63	57	52	48	44	41
	40	62	62	62	62	62	62	62	62	57	52	48	44	41
	50	56	56	56	56	56	56	56	56	56	52	48	44	41
	60	52	52	52	52	52	52	52	52	52	52	48	44	41
	70	48	48	48	48	48	48	48	48	48	48	48	44	41
	80	45	45	45	45	45	45	45	45	45	45	45	44	41
	90	43	43	43	43	43	43	43	43	43	43	43	43	41
Zone 2	0	82	78	73	68	64	60	57	51	47	43	40	37	34
	10	82	78	73	68	64	60	57	51	47	43	40	37	34
	20	72	72	72	68	64	60	57	51	47	43	40	37	34
	30	70	70	70	68	64	60	57	51	47	43	40	37	34
	40	62	62	62	62	62	60	57	51	47	43	40	37	34
	50	56	56	56	56	56	56	56	51	47	43	40	37	34
	60	52	52	52	52	52	52	52	51	47	43	40	37	34
	70	48	48	48	48	48	48	48	48	47	43	40	37	34
	80	45	45	45	45	45	45	45	45	45	43	40	37	34
	90	43	43	43	43	43	43	43	43	43	43	40	37	34
Zone 3	0	68	63	59	55	52	49	46	42	38	35	33	31	29
	10	68	63	59	55	52	49	46	42	38	35	33	31	29
	20	68	63	59	55	52	49	46	42	38	35	33	31	29
	30	68	63	59	55	52	49	46	42	38	35	33	31	29
	40	62	62	59	55	52	49	46	42	38	35	33	31	29
	50	56	56	56	55	52	49	46	42	38	35	33	31	29
	60	52	52	52	52	52	49	46	42	38	35	33	31	29
	70	48	48	48	48	48	48	46	42	38	35	33	31	29
	80	45	45	45	45	45	45	45	42	38	35	33	31	29
	90	43	43	43	43	43	43	43	42	38	35	33	31	29

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 76a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Portrait					North/South Support $X_E = 1$		
		Exposure Category: B				Roof Type : Gable											
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)															
		90	95	100	105	110	115	120	130	140	150	160	170	180			
Zones 1 & 2e	0	98	98	98	98	98	98	98	98	93	86	81	74	68			
	10	85	85	85	85	85	85	85	85	85	85	81	74	68			
	20	66	66	66	66	66	66	66	66	66	66	66	66	66			
	30	66	66	66	66	66	66	66	66	66	66	66	66	66			
	40	58	58	58	58	58	58	58	58	58	58	58	58	58			
	50	53	53	53	53	53	53	53	53	53	53	53	53	53			
	60	49	49	49	49	49	49	49	49	49	49	49	49	49			
	70	45	45	45	45	45	45	45	45	45	45	45	45	45			
	80	43	43	43	43	43	43	43	43	43	43	43	43	43			
	90	40	40	40	40	40	40	40	40	40	40	40	40	40			
Zones 2n, 2r, & 3e	0	98	98	98	98	98	97	93	86	80	74	67	61	56			
	10	85	85	85	85	85	85	85	85	80	74	67	61	56			
	20	66	66	66	66	66	66	66	66	66	66	66	61	56			
	30	66	66	66	66	66	66	66	66	66	66	66	61	56			
	40	58	58	58	58	58	58	58	58	58	58	58	58	56			
	50	53	53	53	53	53	53	53	53	53	53	53	53	53			
	60	49	49	49	49	49	49	49	49	49	49	49	49	49			
	70	45	45	45	45	45	45	45	45	45	45	45	45	45			
	80	43	43	43	43	43	43	43	43	43	43	43	43	43			
	90	40	40	40	40	40	40	40	40	40	40	40	40	40			
Zone 3r	0	98	98	98	97	93	89	85	79	72	64	59	54	50			
	10	85	85	85	85	85	85	85	79	72	64	59	54	50			
	20	66	66	66	66	66	66	66	66	66	64	59	54	50			
	30	66	66	66	66	66	66	66	66	66	64	59	54	50			
	40	58	58	58	58	58	58	58	58	58	58	58	54	50			
	50	53	53	53	53	53	53	53	53	53	53	53	53	50			
	60	49	49	49	49	49	49	49	49	49	49	49	49	49			
	70	45	45	45	45	45	45	45	45	45	45	45	45	45			
	80	43	43	43	43	43	43	43	43	43	43	43	43	43			
	90	40	40	40	40	40	40	40	40	40	40	40	40	40			

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 76b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: B							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	98	98	98	98	97	92	88	81	73	66	61	57	53	
	10	85	85	85	85	85	85	85	81	73	66	61	57	53	
	20	66	66	66	66	66	66	66	66	66	66	61	57	53	
	30	66	66	66	66	66	66	66	66	66	66	61	57	53	
	40	58	58	58	58	58	58	58	58	58	58	58	57	53	
	50	53	53	53	53	53	53	53	53	53	53	53	53	53	
	60	49	49	49	49	49	49	49	49	49	49	49	49	49	
	70	45	45	45	45	45	45	45	45	45	45	45	45	45	
	80	43	43	43	43	43	43	43	43	43	43	43	43	43	
90	40	40	40	40	40	40	40	40	40	40	40	40	40		
Zones 2n, 2r, & 3e	0	98	96	91	87	83	80	76	67	60	55	50	46	42	
	10	85	85	85	85	83	80	76	67	60	55	50	46	42	
	20	66	66	66	66	66	66	66	66	60	55	50	46	42	
	30	66	66	66	66	66	66	66	66	60	55	50	46	42	
	40	58	58	58	58	58	58	58	58	58	55	50	46	42	
	50	53	53	53	53	53	53	53	53	53	53	50	46	42	
	60	49	49	49	49	49	49	49	49	49	49	49	46	42	
	70	45	45	45	45	45	45	45	45	45	45	45	45	42	
	80	43	43	43	43	43	43	43	43	43	43	43	43	42	
90	40	40	40	40	40	40	40	40	40	40	40	40	40		
Zone 3r	0	93	88	84	80	76	71	67	59	53	48	44	41	38	
	10	85	85	84	80	76	71	67	59	53	48	44	41	38	
	20	66	66	66	66	66	66	66	59	53	48	44	41	38	
	30	66	66	66	66	66	66	66	59	53	48	44	41	38	
	40	58	58	58	58	58	58	58	58	53	48	44	41	38	
	50	53	53	53	53	53	53	53	53	53	48	44	41	38	
	60	49	49	49	49	49	49	49	49	49	48	44	41	38	
	70	45	45	45	45	45	45	45	45	45	45	44	41	38	
	80	43	43	43	43	43	43	43	43	43	43	43	41	38	
	90	40	40	40	40	40	40	40	40	40	40	40	40	38	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 77a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	98	93	88	81	73	67	61	57	53
	10	85	85	85	85	85	85	85	81	73	67	61	57	53
	20	66	66	66	66	66	66	66	66	66	66	61	57	53
	30	66	66	66	66	66	66	66	66	66	66	61	57	53
	40	58	58	58	58	58	58	58	58	58	58	58	57	53
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	98	96	91	87	83	80	76	68	61	55	50	46	43
	10	85	85	85	85	83	80	76	68	61	55	50	46	43
	20	66	66	66	66	66	66	66	66	61	55	50	46	43
	30	66	66	66	66	66	66	66	66	61	55	50	46	43
	40	58	58	58	58	58	58	58	58	58	55	50	46	43
	50	53	53	53	53	53	53	53	53	53	53	50	46	43
	60	49	49	49	49	49	49	49	49	49	49	49	46	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 3r	0	93	88	84	80	76	71	67	59	53	48	44	41	38
	10	85	85	84	80	76	71	67	59	53	48	44	41	38
	20	66	66	66	66	66	66	66	59	53	48	44	41	38
	30	66	66	66	66	66	66	66	59	53	48	44	41	38
	40	58	58	58	58	58	58	58	58	53	48	44	41	38
	50	53	53	53	53	53	53	53	53	53	48	44	41	38
	60	49	49	49	49	49	49	49	49	49	48	44	41	38
	70	45	45	45	45	45	45	45	45	45	45	44	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 77b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	91	86	82	78	72	68	62	56	52	48	45	42
	10	85	85	85	82	78	72	68	62	56	52	48	45	42
	20	66	66	66	66	66	66	66	62	56	52	48	45	42
	30	66	66	66	66	66	66	66	62	56	52	48	45	42
	40	58	58	58	58	58	58	58	58	56	52	48	45	42
	50	53	53	53	53	53	53	53	53	53	52	48	45	42
	60	49	49	49	49	49	49	49	49	49	49	48	45	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	83	79	74	69	64	60	56	50	46	41	38	35	33
	10	83	79	74	69	64	60	56	50	46	41	38	35	33
	20	66	66	66	66	64	60	56	50	46	41	38	35	33
	30	66	66	66	66	64	60	56	50	46	41	38	35	33
	40	58	58	58	58	58	58	56	50	46	41	38	35	33
	50	53	53	53	53	53	53	53	50	46	41	38	35	33
	60	49	49	49	49	49	49	49	49	46	41	38	35	33
	70	45	45	45	45	45	45	45	45	45	41	38	35	33
	80	43	43	43	43	43	43	43	43	43	41	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33
Zone 3r	0	76	70	65	60	56	53	50	45	40	37	34	32	30
	10	76	70	65	60	56	53	50	45	40	37	34	32	30
	20	66	66	65	60	56	53	50	45	40	37	34	32	30
	30	66	66	65	60	56	53	50	45	40	37	34	32	30
	40	58	58	58	58	56	53	50	45	40	37	34	32	30
	50	53	53	53	53	53	53	50	45	40	37	34	32	30
	60	49	49	49	49	49	49	49	45	40	37	34	32	30
	70	45	45	45	45	45	45	45	45	40	37	34	32	30
	80	43	43	43	43	43	43	43	43	40	37	34	32	30
	90	40	40	40	40	40	40	40	40	40	37	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 78a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	97	92	88	83	80	71	64	59	55	51	47
	10	85	85	85	85	85	83	80	71	64	59	55	51	47
	20	66	66	66	66	66	66	66	66	64	59	55	51	47
	30	66	66	66	66	66	66	66	66	64	59	55	51	47
	40	58	58	58	58	58	58	58	58	58	58	55	51	47
	50	53	53	53	53	53	53	53	53	53	53	53	51	47
	60	49	49	49	49	49	49	49	49	49	49	49	49	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	92	87	83	80	75	70	66	59	53	48	44	40	37
	10	85	85	83	80	75	70	66	59	53	48	44	40	37
	20	66	66	66	66	66	66	66	59	53	48	44	40	37
	30	66	66	66	66	66	66	66	59	53	48	44	40	37
	40	58	58	58	58	58	58	58	58	53	48	44	40	37
	50	53	53	53	53	53	53	53	53	53	48	44	40	37
	60	49	49	49	49	49	49	49	49	49	48	44	40	37
	70	45	45	45	45	45	45	45	45	45	45	44	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37
Zone 3r	0	85	81	76	71	66	62	58	52	47	42	39	36	34
	10	85	81	76	71	66	62	58	52	47	42	39	36	34
	20	66	66	66	66	66	62	58	52	47	42	39	36	34
	30	66	66	66	66	66	62	58	52	47	42	39	36	34
	40	58	58	58	58	58	58	58	52	47	42	39	36	34
	50	53	53	53	53	53	53	53	52	47	42	39	36	34
	60	49	49	49	49	49	49	49	49	47	42	39	36	34
	70	45	45	45	45	45	45	45	45	45	42	39	36	34
	80	43	43	43	43	43	43	43	43	43	42	39	36	34
	90	40	40	40	40	40	40	40	40	40	40	39	36	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 78b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	87	82	78	72	68	64	61	55	50	46	43	40	37
	10	85	82	78	72	68	64	61	55	50	46	43	40	37
	20	66	66	66	66	66	64	61	55	50	46	43	40	37
	30	66	66	66	66	66	64	61	55	50	46	43	40	37
	40	58	58	58	58	58	58	58	55	50	46	43	40	37
	50	53	53	53	53	53	53	53	53	50	46	43	40	37
	60	49	49	49	49	49	49	49	49	49	46	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37
Zones 2n, 2r, & 3e	0	75	69	64	60	56	52	49	44	40	36	34	32	30
	10	75	69	64	60	56	52	49	44	40	36	34	32	30
	20	66	66	64	60	56	52	49	44	40	36	34	32	30
	30	66	66	64	60	56	52	49	44	40	36	34	32	30
	40	58	58	58	58	56	52	49	44	40	36	34	32	30
	50	53	53	53	53	53	52	49	44	40	36	34	32	30
	60	49	49	49	49	49	49	49	44	40	36	34	32	30
	70	45	45	45	45	45	45	45	44	40	36	34	32	30
	80	43	43	43	43	43	43	43	43	40	36	34	32	30
	90	40	40	40	40	40	40	40	40	40	36	34	32	30
Zone 3r	0	66	61	56	52	49	46	44	39	35	33	31	29	27
	10	66	61	56	52	49	46	44	39	35	33	31	29	27
	20	66	61	56	52	49	46	44	39	35	33	31	29	27
	30	66	61	56	52	49	46	44	39	35	33	31	29	27
	40	58	58	56	52	49	46	44	39	35	33	31	29	27
	50	53	53	53	52	49	46	44	39	35	33	31	29	27
	60	49	49	49	49	49	46	44	39	35	33	31	29	27
	70	45	45	45	45	45	45	44	39	35	33	31	29	27
	80	43	43	43	43	43	43	43	39	35	33	31	29	27
	90	40	40	40	40	40	40	40	39	35	33	31	29	27

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 79a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	98	98	98	98	98	96	90	85	81
	10	93	93	93	93	93	93	93	93	93	93	90	85	81
	20	78	78	78	78	78	78	78	78	78	78	78	77	76
	30	67	67	67	67	67	67	67	67	67	67	67	67	67
	40	59	59	59	59	59	59	59	59	59	59	59	59	59
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	98	98	98	98	98	98	98	93	86	81	77	70	64
	10	93	93	93	93	93	93	93	93	86	81	77	70	64
	20	78	78	78	78	78	78	78	78	78	78	77	70	64
	30	67	67	67	67	67	67	67	67	67	67	67	67	64
	40	59	59	59	59	59	59	59	59	59	59	59	59	59
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zone 3r	0	98	98	98	98	98	98	95	88	82	77	70	64	58
	10	93	93	93	93	93	93	93	88	82	77	70	64	58
	20	78	78	78	78	78	78	78	78	78	77	70	64	58
	30	67	67	67	67	67	67	67	67	67	67	67	64	58
	40	59	59	59	59	59	59	59	59	59	59	59	59	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 79b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	98	98	97	90	85	80	75	69	64
	10	93	93	93	93	93	93	93	90	85	80	75	69	64
	20	78	78	78	78	78	78	78	78	78	78	75	69	64
	30	67	67	67	67	67	67	67	67	67	67	67	67	64
	40	59	59	59	59	59	59	59	59	59	59	59	59	59
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	98	98	98	94	89	86	83	77	69	62	57	52	48
	10	93	93	93	93	89	86	83	77	69	62	57	52	48
	20	78	78	78	78	78	78	78	77	69	62	57	52	48
	30	67	67	67	67	67	67	67	67	67	62	57	52	48
	40	59	59	59	59	59	59	59	59	59	59	57	52	48
	50	53	53	53	53	53	53	53	53	53	53	53	52	48
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zone 3r	0	98	98	93	89	85	81	78	70	63	56	51	47	43
	10	93	93	93	89	85	81	78	70	63	56	51	47	43
	20	78	78	78	78	78	78	78	70	63	56	51	47	43
	30	67	67	67	67	67	67	67	67	63	56	51	47	43
	40	59	59	59	59	59	59	59	59	59	56	51	47	43
	50	53	53	53	53	53	53	53	53	53	53	51	47	43
	60	49	49	49	49	49	49	49	49	49	49	49	47	43
	70	46	46	46	46	46	46	46	46	46	46	46	46	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 80a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	98	98	98	91	85	80	75	69	64
	10	93	93	93	93	93	93	93	91	85	80	75	69	64
	20	78	78	78	78	78	78	78	78	77	76	75	69	64
	30	67	67	67	67	67	67	67	67	67	67	66	65	64
	40	59	59	59	59	59	59	59	59	59	59	59	59	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	98	98	98	94	90	86	83	77	70	63	57	52	48
	10	93	93	93	93	90	86	83	77	70	63	57	52	48
	20	78	78	78	78	78	78	78	77	70	63	57	52	48
	30	67	67	67	67	67	67	67	67	67	63	57	52	48
	40	59	59	59	59	59	59	59	59	59	59	57	52	48
	50	53	53	53	53	53	53	53	53	53	53	53	52	48
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zone 3r	0	98	98	93	89	85	82	79	71	63	57	52	47	44
	10	93	93	93	89	85	82	79	71	63	57	52	47	44
	20	78	78	78	78	78	78	78	71	63	57	52	47	44
	30	67	67	67	67	67	67	67	67	63	57	52	47	44
	40	59	59	59	59	59	59	59	59	59	57	52	47	44
	50	53	53	53	53	53	53	53	53	53	53	52	47	44
	60	49	49	49	49	49	49	49	49	49	49	49	47	44
	70	46	46	46	46	46	46	46	46	46	46	46	46	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 80b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	96	92	88	84	81	76	68	62	57	53	50
	10	93	93	93	92	88	84	81	76	68	62	57	53	50
	20	78	78	78	78	78	78	78	76	68	62	57	53	50
	30	67	67	67	67	67	67	67	67	67	62	57	53	50
	40	59	59	59	59	59	59	59	59	59	59	57	53	50
	50	53	53	53	53	53	53	53	53	53	53	53	53	50
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	90	85	81	78	74	69	65	58	52	47	43	40	37
	10	90	85	81	78	74	69	65	58	52	47	43	40	37
	20	78	78	78	78	74	69	65	58	52	47	43	40	37
	30	67	67	67	67	67	67	65	58	52	47	43	40	37
	40	59	59	59	59	59	59	59	58	52	47	43	40	37
	50	53	53	53	53	53	53	53	53	52	47	43	40	37
	60	49	49	49	49	49	49	49	49	49	47	43	40	37
	70	46	46	46	46	46	46	46	46	46	46	43	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
	90	41	41	41	41	41	41	41	41	41	41	41	40	37
Zone 3r	0	85	81	77	72	67	62	58	52	47	42	39	36	33
	10	85	81	77	72	67	62	58	52	47	42	39	36	33
	20	78	78	77	72	67	62	58	52	47	42	39	36	33
	30	67	67	67	67	67	62	58	52	47	42	39	36	33
	40	59	59	59	59	59	59	58	52	47	42	39	36	33
	50	53	53	53	53	53	53	53	52	47	42	39	36	33
	60	49	49	49	49	49	49	49	49	47	42	39	36	33
	70	46	46	46	46	46	46	46	46	46	42	39	36	33
	80	43	43	43	43	43	43	43	43	43	42	39	36	33
	90	41	41	41	41	41	41	41	41	41	41	39	36	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 81a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	97	93	89	83	78	72	66	61	57
	10	93	93	93	93	93	93	89	83	78	72	66	61	57
	20	78	78	78	78	78	78	78	77	75	72	66	61	57
	30	67	67	67	67	67	67	67	67	67	66	64	61	57
	40	59	59	59	59	59	59	59	59	59	59	59	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	98	94	90	86	82	79	76	67	60	55	50	46	42
	10	93	93	90	86	82	79	76	67	60	55	50	46	42
	20	78	78	78	78	78	78	76	67	60	55	50	46	42
	30	67	67	67	67	67	67	67	67	60	55	50	46	42
	40	59	59	59	59	59	59	59	59	59	55	50	46	42
	50	53	53	53	53	53	53	53	53	53	53	50	46	42
	60	49	49	49	49	49	49	49	49	49	49	49	46	42
	70	46	46	46	46	46	46	46	46	46	46	46	46	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zone 3r	0	94	89	85	81	78	74	69	61	54	49	45	41	38
	10	93	89	85	81	78	74	69	61	54	49	45	41	38
	20	78	78	78	78	78	74	69	61	54	49	45	41	38
	30	67	67	67	67	67	67	67	61	54	49	45	41	38
	40	59	59	59	59	59	59	59	59	54	49	45	41	38
	50	53	53	53	53	53	53	53	53	53	49	45	41	38
	60	49	49	49	49	49	49	49	49	49	49	45	41	38
	70	46	46	46	46	46	46	46	46	46	46	45	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	41	41	41	41	41	41	41	41	41	41	41	41	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 81b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	92	88	84	81	77	74	66	60	55	51	47	44
	10	93	92	88	84	81	77	74	66	60	55	51	47	44
	20	78	78	78	78	78	77	74	66	60	55	51	47	44
	30	67	67	67	67	67	67	67	66	60	55	51	47	44
	40	59	59	59	59	59	59	59	59	59	55	51	47	44
	50	53	53	53	53	53	53	53	53	53	53	51	47	44
	60	49	49	49	49	49	49	49	49	49	49	49	47	44
	70	46	46	46	46	46	46	46	46	46	46	46	46	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	82	78	74	68	64	60	56	50	45	41	38	35	33
	10	82	78	74	68	64	60	56	50	45	41	38	35	33
	20	78	78	74	68	64	60	56	50	45	41	38	35	33
	30	67	67	67	67	64	60	56	50	45	41	38	35	33
	40	59	59	59	59	59	59	56	50	45	41	38	35	33
	50	53	53	53	53	53	53	53	50	45	41	38	35	33
	60	49	49	49	49	49	49	49	49	45	41	38	35	33
	70	46	46	46	46	46	46	46	46	45	41	38	35	33
	80	43	43	43	43	43	43	43	43	43	41	38	35	33
	90	41	41	41	41	41	41	41	41	41	41	38	35	33
Zone 3r	0	78	73	67	62	58	54	51	45	41	37	34	32	30
	10	78	73	67	62	58	54	51	45	41	37	34	32	30
	20	78	73	67	62	58	54	51	45	41	37	34	32	30
	30	67	67	67	62	58	54	51	45	41	37	34	32	30
	40	59	59	59	59	58	54	51	45	41	37	34	32	30
	50	53	53	53	53	53	53	51	45	41	37	34	32	30
	60	49	49	49	49	49	49	49	45	41	37	34	32	30
	70	46	46	46	46	46	46	46	45	41	37	34	32	30
	80	43	43	43	43	43	43	43	43	41	37	34	32	30
	90	41	41	41	41	41	41	41	41	41	37	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 82a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $27 < \theta \leq 45$ degrees Exposure Category: B								Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	98	98	98	98	98	98	98	98	98	96	90	85	81	
	10	94	94	94	94	94	94	94	93	91	89	87	85	81	
	20	81	81	81	81	81	81	81	80	78	77	75	74	72	
	30	70	70	70	70	70	70	70	70	70	69	67	66	65	
	40	62	62	62	62	62	62	62	62	62	62	62	61	60	
	50	56	56	56	56	56	56	56	56	56	56	56	56	56	
	60	52	52	52	52	52	52	52	52	52	52	52	52	52	
	70	49	49	49	49	49	49	49	49	49	49	49	49	49	
	80	46	46	46	46	46	46	46	46	46	46	46	46	46	
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zones 2n & 3r	0	98	98	98	98	98	98	98	98	93	88	83	79	75	
	10	94	94	94	94	94	94	94	94	93	91	88	83	79	75
	20	81	81	81	81	81	81	81	80	78	77	75	74	72	
	30	70	70	70	70	70	70	70	70	70	69	67	66	65	
	40	62	62	62	62	62	62	62	62	62	62	62	61	60	
	50	56	56	56	56	56	56	56	56	56	56	56	56	56	
	60	52	52	52	52	52	52	52	52	52	52	52	52	52	
	70	49	49	49	49	49	49	49	49	49	49	49	49	49	
	80	46	46	46	46	46	46	46	46	46	46	46	46	46	
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zone 3e	0	98	98	98	98	98	98	98	91	85	80	76	70	64	
	10	94	94	94	94	94	94	94	91	85	80	76	70	64	
	20	81	81	81	81	81	81	81	80	78	77	75	70	64	
	30	70	70	70	70	70	70	70	70	70	69	67	66	64	
	40	62	62	62	62	62	62	62	62	62	62	62	61	60	
	50	56	56	56	56	56	56	56	56	56	56	56	56	56	
	60	52	52	52	52	52	52	52	52	52	52	52	52	52	
	70	49	49	49	49	49	49	49	49	49	49	49	49	49	
	80	46	46	46	46	46	46	46	46	46	46	46	46	46	
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 82b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	98	98	98	98	98	91	84	79	75	68	62
	10	94	94	94	94	94	94	94	91	84	79	75	68	62
	20	81	81	81	81	81	81	81	80	78	77	75	68	62
	30	70	70	70	70	70	70	70	70	70	69	67	66	62
	40	62	62	62	62	62	62	62	62	62	62	62	61	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zones 2n & 3r	0	98	98	98	98	97	93	89	83	78	73	66	61	56
	10	94	94	94	94	94	93	89	83	78	73	66	61	56
	20	81	81	81	81	81	81	81	80	78	73	66	61	56
	30	70	70	70	70	70	70	70	70	70	69	66	61	56
	40	62	62	62	62	62	62	62	62	62	62	62	61	56
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3e	0	98	98	96	92	88	84	81	76	69	62	57	52	48
	10	94	94	94	92	88	84	81	76	69	62	57	52	48
	20	81	81	81	81	81	81	81	76	69	62	57	52	48
	30	70	70	70	70	70	70	70	70	69	62	57	52	48
	40	62	62	62	62	62	62	62	62	62	62	57	52	48
	50	56	56	56	56	56	56	56	56	56	56	56	52	48
	60	52	52	52	52	52	52	52	52	52	52	52	52	48
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 83a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $27 < \theta \leq 45$ degrees Exposure Category: C								Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	98	98	98	98	98	91	85	80	75	69	63
	10	94	94	94	94	92	91	90	87	84	80	75	69	63
	20	81	81	81	80	79	78	77	75	74	72	70	68	63
	30	70	70	70	70	70	70	69	68	66	65	63	62	60
	40	62	62	62	62	62	62	62	62	61	59	58	57	56
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	52	52	52	52	52	52	52	52	52	52	51	50	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zones 2n & 3r	0	98	98	98	98	97	93	90	83	78	73	67	61	56
	10	94	94	94	94	92	91	90	83	78	73	67	61	56
	20	81	81	81	80	79	78	77	75	74	72	67	61	56
	30	70	70	70	70	70	70	69	68	66	65	63	61	56
	40	62	62	62	62	62	62	62	62	61	59	58	57	56
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	52	52	52	52	52	52	52	52	52	52	51	50	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zone 3e	0	98	98	96	92	88	85	82	76	69	63	57	52	48
	10	94	94	94	92	88	85	82	76	69	63	57	52	48
	20	81	81	81	80	79	78	77	75	69	63	57	52	48
	30	70	70	70	70	70	70	69	68	66	63	57	52	48
	40	62	62	62	62	62	62	62	62	61	59	57	52	48
	50	56	56	56	56	56	56	56	56	56	55	54	52	48
	60	52	52	52	52	52	52	52	52	52	52	51	50	48
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 83b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait						
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: C							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	98	98	96	92	88	84	81	75	68	61	55	50	46	
	10	94	94	94	92	88	84	81	75	68	61	55	50	46	
	20	81	81	81	80	79	78	77	75	68	61	55	50	46	
	30	70	70	70	70	70	70	69	68	66	61	55	50	46	
	40	62	62	62	62	62	62	62	62	61	59	55	50	46	
	50	56	56	56	56	56	56	56	56	56	55	54	50	46	
	60	52	52	52	52	52	52	52	52	52	52	51	50	46	
	70	49	49	49	49	49	49	49	49	49	49	49	48	46	
	80	46	46	46	46	46	46	46	46	46	46	46	46	45	
90	43	43	43	43	43	43	43	43	43	43	43	43	43		
Zones 2n & 3r	0	97	92	88	84	81	78	75	67	60	55	50	46	43	
	10	94	92	88	84	81	78	75	67	60	55	50	46	43	
	20	81	81	81	80	79	78	75	67	60	55	50	46	43	
	30	70	70	70	70	70	70	69	67	60	55	50	46	43	
	40	62	62	62	62	62	62	62	62	60	55	50	46	43	
	50	56	56	56	56	56	56	56	56	56	55	50	46	43	
	60	52	52	52	52	52	52	52	52	52	52	50	46	43	
	70	49	49	49	49	49	49	49	49	49	49	49	46	43	
	80	46	46	46	46	46	46	46	46	46	46	46	46	43	
90	43	43	43	43	43	43	43	43	43	43	43	43	43		
Zone 3e	0	88	84	80	77	74	69	65	57	52	47	43	40	37	
	10	88	84	80	77	74	69	65	57	52	47	43	40	37	
	20	81	81	80	77	74	69	65	57	52	47	43	40	37	
	30	70	70	70	70	70	69	65	57	52	47	43	40	37	
	40	62	62	62	62	62	62	62	57	52	47	43	40	37	
	50	56	56	56	56	56	56	56	56	52	47	43	40	37	
	60	52	52	52	52	52	52	52	52	52	47	43	40	37	
	70	49	49	49	49	49	49	49	49	49	47	43	40	37	
	80	46	46	46	46	46	46	46	46	46	46	43	40	37	
	90	43	43	43	43	43	43	43	43	43	43	43	40	37	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 84a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	98	98	97	93	89	83	78	72	65	59	54
	10	94	94	92	91	89	88	87	83	78	72	65	59	54
	20	81	80	79	78	77	76	75	73	71	69	65	59	54
	30	70	70	70	69	69	68	67	66	64	62	61	59	54
	40	62	62	62	62	62	62	62	60	59	58	56	55	54
	50	56	56	56	56	56	56	56	56	55	54	53	52	51
	60	52	52	52	52	52	52	52	52	52	51	50	49	48
	70	49	49	49	49	49	49	49	49	49	48	47	47	46
	80	46	46	46	46	46	46	46	46	46	46	45	44	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zones 2n & 3r	0	98	98	97	93	89	85	82	77	70	64	58	53	49
	10	94	94	92	91	89	85	82	77	70	64	58	53	49
	20	81	80	79	78	77	76	75	73	70	64	58	53	49
	30	70	70	70	69	69	68	67	66	64	62	58	53	49
	40	62	62	62	62	62	62	62	60	59	58	56	53	49
	50	56	56	56	56	56	56	56	56	55	54	53	52	49
	60	52	52	52	52	52	52	52	52	52	51	50	49	48
	70	49	49	49	49	49	49	49	49	49	48	47	47	46
	80	46	46	46	46	46	46	46	46	46	46	45	44	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 3e	0	97	92	88	84	81	78	75	67	60	55	50	46	42
	10	94	92	88	84	81	78	75	67	60	55	50	46	42
	20	81	80	79	78	77	76	75	67	60	55	50	46	42
	30	70	70	70	69	69	68	67	66	60	55	50	46	42
	40	62	62	62	62	62	62	62	60	59	55	50	46	42
	50	56	56	56	56	56	56	56	56	55	54	50	46	42
	60	52	52	52	52	52	52	52	52	52	51	50	46	42
	70	49	49	49	49	49	49	49	49	49	48	47	46	42
	80	46	46	46	46	46	46	46	46	46	46	45	44	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 84b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	92	88	84	80	77	74	65	58	53	48	44	41
	10	94	92	88	84	80	77	74	65	58	53	48	44	41
	20	81	80	79	78	77	76	74	65	58	53	48	44	41
	30	70	70	70	69	69	68	67	65	58	53	48	44	41
	40	62	62	62	62	62	62	62	60	58	53	48	44	41
	50	56	56	56	56	56	56	56	56	55	53	48	44	41
	60	52	52	52	52	52	52	52	52	52	51	48	44	41
	70	49	49	49	49	49	49	49	49	49	48	47	44	41
	80	46	46	46	46	46	46	46	46	46	46	45	44	41
	90	43	43	43	43	43	43	43	43	43	43	43	43	41
Zones 2n & 3r	0	89	85	81	77	74	70	66	58	53	48	44	40	38
	10	89	85	81	77	74	70	66	58	53	48	44	40	38
	20	81	80	79	77	74	70	66	58	53	48	44	40	38
	30	70	70	70	69	69	68	66	58	53	48	44	40	38
	40	62	62	62	62	62	62	62	58	53	48	44	40	38
	50	56	56	56	56	56	56	56	56	53	48	44	40	38
	60	52	52	52	52	52	52	52	52	52	48	44	40	38
	70	49	49	49	49	49	49	49	49	49	48	44	40	38
	80	46	46	46	46	46	46	46	46	46	46	44	40	38
	90	43	43	43	43	43	43	43	43	43	43	43	40	38
Zone 3e	0	81	77	73	68	64	60	56	50	45	41	38	35	33
	10	81	77	73	68	64	60	56	50	45	41	38	35	33
	20	81	77	73	68	64	60	56	50	45	41	38	35	33
	30	70	70	70	68	64	60	56	50	45	41	38	35	33
	40	62	62	62	62	62	60	56	50	45	41	38	35	33
	50	56	56	56	56	56	56	56	50	45	41	38	35	33
	60	52	52	52	52	52	52	52	50	45	41	38	35	33
	70	49	49	49	49	49	49	49	49	45	41	38	35	33
	80	46	46	46	46	46	46	46	46	45	41	38	35	33
	90	43	43	43	43	43	43	43	43	43	41	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 85a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Portrait					
		Exposure Category: B				North/South Support $X_E = 1$					Roof Type : Hip $h/B = \geq 0.8$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	98	98	98	98	98	98	98	98	95	89	84	79	73	
	10	85	85	85	85	85	85	85	85	85	84	83	79	73	
	20	66	66	66	66	66	66	66	66	66	66	66	66	65	
	30	66	66	66	66	66	66	66	66	66	66	66	66	65	
	40	58	58	58	58	58	58	58	58	58	58	58	58	58	
	50	53	53	53	53	53	53	53	53	53	53	53	53	53	
	60	49	49	49	49	49	49	49	49	49	49	49	49	49	
	70	45	45	45	45	45	45	45	45	45	45	45	45	45	
	80	43	43	43	43	43	43	43	43	43	43	43	43	43	
	90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	98	98	98	98	98	98	93	87	81	76	70	64	
	10	85	85	85	85	85	85	85	85	85	81	76	70	64	
	20	66	66	66	66	66	66	66	66	66	66	66	66	64	
	30	66	66	66	66	66	66	66	66	66	66	66	66	64	
	40	58	58	58	58	58	58	58	58	58	58	58	58	58	
	50	53	53	53	53	53	53	53	53	53	53	53	53	53	
	60	49	49	49	49	49	49	49	49	49	49	49	49	49	
	70	45	45	45	45	45	45	45	45	45	45	45	45	45	
	80	43	43	43	43	43	43	43	43	43	43	43	43	43	
	90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	98	98	98	98	96	89	84	79	72	66	61	
	10	85	85	85	85	85	85	85	85	84	79	72	66	61	
	20	66	66	66	66	66	66	66	66	66	66	66	66	61	
	30	66	66	66	66	66	66	66	66	66	66	66	66	61	
	40	58	58	58	58	58	58	58	58	58	58	58	58	58	
	50	53	53	53	53	53	53	53	53	53	53	53	53	53	
	60	49	49	49	49	49	49	49	49	49	49	49	49	49	
	70	45	45	45	45	45	45	45	45	45	45	45	45	45	
	80	43	43	43	43	43	43	43	43	43	43	43	43	43	
	90	40	40	40	40	40	40	40	40	40	40	40	40	40	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 85b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $7 < \theta \leq 20$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Hip $h/B = \geq 0.8$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	95	91	84	78	71	65	61	56
	10	85	85	85	85	85	85	85	84	78	71	65	61	56
	20	66	66	66	66	66	66	66	66	66	66	65	61	56
	30	66	66	66	66	66	66	66	66	66	66	65	61	56
	40	58	58	58	58	58	58	58	58	58	58	58	58	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	98	98	94	90	86	83	77	69	63	57	53	49
	10	85	85	85	85	85	85	83	77	69	63	57	53	49
	20	66	66	66	66	66	66	66	66	66	63	57	53	49
	30	66	66	66	66	66	66	66	66	66	63	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	53	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	95	90	86	83	80	73	65	59	54	50	46
	10	85	85	85	85	85	83	80	73	65	59	54	50	46
	20	66	66	66	66	66	66	66	66	65	59	54	50	46
	30	66	66	66	66	66	66	66	66	65	59	54	50	46
	40	58	58	58	58	58	58	58	58	58	58	54	50	46
	50	53	53	53	53	53	53	53	53	53	53	53	50	46
	60	49	49	49	49	49	49	49	49	49	49	49	49	46
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 86a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $7 < \theta \leq 20$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Hip $h/B = \geq 0.8$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	95	91	84	79	71	66	61	57
	10	85	85	85	85	85	85	85	83	79	71	66	61	57
	20	66	66	66	66	66	66	66	66	66	65	64	61	57
	30	66	66	66	66	66	66	66	66	66	65	64	61	57
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	98	98	98	94	90	86	83	77	69	63	57	53	49
	10	85	85	85	85	85	85	83	77	69	63	57	53	49
	20	66	66	66	66	66	66	66	66	66	63	57	53	49
	30	66	66	66	66	66	66	66	66	66	63	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	53	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	98	98	95	91	87	83	80	73	66	59	54	50	47
	10	85	85	85	85	85	83	80	73	66	59	54	50	47
	20	66	66	66	66	66	66	66	66	66	59	54	50	47
	30	66	66	66	66	66	66	66	66	66	59	54	50	47
	40	58	58	58	58	58	58	58	58	58	58	54	50	47
	50	53	53	53	53	53	53	53	53	53	53	53	50	47
	60	49	49	49	49	49	49	49	49	49	49	49	49	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 86b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Hip $h/B = \geq 0.8$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	94	89	85	82	78	73	66	60	55	51	47	44
	10	85	85	85	85	82	78	73	66	60	55	51	47	44
	20	66	66	66	66	66	66	66	66	60	55	51	47	44
	30	66	66	66	66	66	66	66	66	60	55	51	47	44
	40	58	58	58	58	58	58	58	58	58	55	51	47	44
	50	53	53	53	53	53	53	53	53	53	53	51	47	44
	60	49	49	49	49	49	49	49	49	49	49	49	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	90	85	82	78	73	69	65	58	52	48	44	40	38
	10	85	85	82	78	73	69	65	58	52	48	44	40	38
	20	66	66	66	66	66	66	65	58	52	48	44	40	38
	30	66	66	66	66	66	66	65	58	52	48	44	40	38
	40	58	58	58	58	58	58	58	58	52	48	44	40	38
	50	53	53	53	53	53	53	53	53	52	48	44	40	38
	60	49	49	49	49	49	49	49	49	49	48	44	40	38
	70	45	45	45	45	45	45	45	45	45	45	44	40	38
	80	43	43	43	43	43	43	43	43	43	43	43	40	38
90	40	40	40	40	40	40	40	40	40	40	40	40	38	
Zones 2e & 3	0	87	82	79	74	69	65	61	55	50	45	42	38	36
	10	85	82	79	74	69	65	61	55	50	45	42	38	36
	20	66	66	66	66	66	65	61	55	50	45	42	38	36
	30	66	66	66	66	66	65	61	55	50	45	42	38	36
	40	58	58	58	58	58	58	58	55	50	45	42	38	36
	50	53	53	53	53	53	53	53	53	50	45	42	38	36
	60	49	49	49	49	49	49	49	49	49	45	42	38	36
	70	45	45	45	45	45	45	45	45	45	45	42	38	36
	80	43	43	43	43	43	43	43	43	43	43	42	38	36
	90	40	40	40	40	40	40	40	40	40	40	40	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 87a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $7 < \theta \leq 20$ degrees Exposure Category: D								Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Hip $h/B = \geq 0.8$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	95	90	86	83	77	69	63	58	54	50
	10	85	85	85	85	84	83	83	77	69	63	58	54	50
	20	66	66	66	66	66	66	66	66	65	63	58	54	50
	30	66	66	66	66	66	66	66	66	65	63	58	54	50
	40	58	58	58	58	58	58	58	58	58	58	57	54	50
	50	53	53	53	53	53	53	53	53	53	53	53	52	50
	60	49	49	49	49	49	49	49	49	49	49	49	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	94	90	86	82	79	75	67	61	55	50	47	43
	10	85	85	85	85	82	79	75	67	61	55	50	47	43
	20	66	66	66	66	66	66	66	66	61	55	50	47	43
	30	66	66	66	66	66	66	66	66	61	55	50	47	43
	40	58	58	58	58	58	58	58	58	58	55	50	47	43
	50	53	53	53	53	53	53	53	53	53	53	50	47	43
	60	49	49	49	49	49	49	49	49	49	49	49	47	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	96	91	87	83	80	76	71	64	57	52	48	44	41
	10	85	85	85	83	80	76	71	64	57	52	48	44	41
	20	66	66	66	66	66	66	66	64	57	52	48	44	41
	30	66	66	66	66	66	66	66	64	57	52	48	44	41
	40	58	58	58	58	58	58	58	58	57	52	48	44	41
	50	53	53	53	53	53	53	53	53	53	52	48	44	41
	60	49	49	49	49	49	49	49	49	49	49	48	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 87b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Hip $h/B = \geq 0.8$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	90	86	81	78	72	68	65	59	53	49	46	42	40
	10	85	85	81	78	72	68	65	59	53	49	46	42	40
	20	66	66	66	66	66	66	65	59	53	49	46	42	40
	30	66	66	66	66	66	66	65	59	53	49	46	42	40
	40	58	58	58	58	58	58	58	58	53	49	46	42	40
	50	53	53	53	53	53	53	53	53	53	49	46	42	40
	60	49	49	49	49	49	49	49	49	49	49	46	42	40
	70	45	45	45	45	45	45	45	45	45	45	45	42	40
	80	43	43	43	43	43	43	43	43	43	43	43	42	40
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	82	78	73	68	64	60	57	51	46	42	39	36	34
	10	82	78	73	68	64	60	57	51	46	42	39	36	34
	20	66	66	66	66	64	60	57	51	46	42	39	36	34
	30	66	66	66	66	64	60	57	51	46	42	39	36	34
	40	58	58	58	58	58	58	57	51	46	42	39	36	34
	50	53	53	53	53	53	53	53	51	46	42	39	36	34
	60	49	49	49	49	49	49	49	49	46	42	39	36	34
	70	45	45	45	45	45	45	45	45	45	42	39	36	34
	80	43	43	43	43	43	43	43	43	43	42	39	36	34
	90	40	40	40	40	40	40	40	40	40	40	39	36	34
Zones 2e & 3	0	79	74	69	64	60	57	54	48	44	40	37	34	32
	10	79	74	69	64	60	57	54	48	44	40	37	34	32
	20	66	66	66	64	60	57	54	48	44	40	37	34	32
	30	66	66	66	64	60	57	54	48	44	40	37	34	32
	40	58	58	58	58	58	57	54	48	44	40	37	34	32
	50	53	53	53	53	53	53	53	48	44	40	37	34	32
	60	49	49	49	49	49	49	49	48	44	40	37	34	32
	70	45	45	45	45	45	45	45	45	44	40	37	34	32
	80	43	43	43	43	43	43	43	43	43	40	37	34	32
	90	40	40	40	40	40	40	40	40	40	40	37	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 88a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $7 < \theta \leq 20$ degrees Exposure Category: B								Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Hip $h/B = \leq 0.5$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	98	98	98	96	91	86
	10	85	85	85	85	85	85	85	85	85	84	83	81	80
	20	66	66	66	66	66	66	66	66	66	66	66	65	64
	30	66	66	66	66	66	66	66	66	66	66	66	65	64
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	98	98	98	98	98	98	93	87	81	76	70	64
	10	85	85	85	85	85	85	85	85	85	81	76	70	64
	20	66	66	66	66	66	66	66	66	66	66	66	65	64
	30	66	66	66	66	66	66	66	66	66	66	66	65	64
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	98	98	98	98	98	98	98	92	86	82	78
	10	85	85	85	85	85	85	85	85	85	84	83	81	78
	20	66	66	66	66	66	66	66	66	66	66	66	65	64
	30	66	66	66	66	66	66	66	66	66	66	66	65	64
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 88b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	97	90	85	80	75	69
	10	85	85	85	85	85	85	85	85	85	84	80	75	69
	20	66	66	66	66	66	66	66	66	66	66	66	65	64
	30	66	66	66	66	66	66	66	66	66	66	66	65	64
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	98	98	98	94	90	86	83	77	69	63	57	53	49
	10	85	85	85	85	85	85	83	77	69	63	57	53	49
	20	66	66	66	66	66	66	66	66	66	63	57	53	49
	30	66	66	66	66	66	66	66	66	66	63	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	53	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	98	98	98	98	98	97	93	87	81	76	69	64	59
	10	85	85	85	85	85	85	85	85	81	76	69	64	59
	20	66	66	66	66	66	66	66	66	66	66	66	64	59
	30	66	66	66	66	66	66	66	66	66	66	66	64	59
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 89a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $7 < \theta \leq 20$ degrees Exposure Category: C								Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Hip $h/B = \leq 0.5$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	97	90	85	80	75	69
	10	85	85	85	85	85	85	85	83	81	79	78	75	69
	20	66	66	66	66	66	66	66	66	65	64	63	61	60
	30	66	66	66	66	66	66	66	66	65	64	63	61	60
	40	58	58	58	58	58	58	58	58	58	58	57	56	55
	50	53	53	53	53	53	53	53	53	53	53	53	52	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	98	98	94	90	86	83	77	69	63	57	53	49
	10	85	85	85	85	85	85	83	77	69	63	57	53	49
	20	66	66	66	66	66	66	66	66	65	63	57	53	49
	30	66	66	66	66	66	66	66	66	65	63	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	52	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	98	98	98	98	94	87	82	76	69	64	59
	10	85	85	85	85	85	85	85	83	81	76	69	64	59
	20	66	66	66	66	66	66	66	66	65	64	63	61	59
	30	66	66	66	66	66	66	66	66	65	64	63	61	59
	40	58	58	58	58	58	58	58	58	58	58	57	56	55
	50	53	53	53	53	53	53	53	53	53	53	53	52	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 89b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	94	90	87	81	74	68	62	58	54
	10	85	85	85	85	85	85	85	81	74	68	62	58	54
	20	66	66	66	66	66	66	66	66	65	64	62	58	54
	30	66	66	66	66	66	66	66	66	65	64	62	58	54
	40	58	58	58	58	58	58	58	58	58	58	57	56	54
	50	53	53	53	53	53	53	53	53	53	53	53	52	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	90	85	82	78	73	69	65	58	52	48	44	40	38
	10	85	85	82	78	73	69	65	58	52	48	44	40	38
	20	66	66	66	66	66	66	65	58	52	48	44	40	38
	30	66	66	66	66	66	66	65	58	52	48	44	40	38
	40	58	58	58	58	58	58	58	58	52	48	44	40	38
	50	53	53	53	53	53	53	53	53	52	48	44	40	38
	60	49	49	49	49	49	49	49	49	49	48	44	40	38
	70	45	45	45	45	45	45	45	45	45	45	44	40	38
	80	43	43	43	43	43	43	43	43	43	43	43	40	38
90	40	40	40	40	40	40	40	40	40	40	40	40	38	
Zones 2e & 3	0	98	96	92	88	84	81	78	70	63	57	53	49	45
	10	85	85	85	85	84	81	78	70	63	57	53	49	45
	20	66	66	66	66	66	66	66	66	63	57	53	49	45
	30	66	66	66	66	66	66	66	66	63	57	53	49	45
	40	58	58	58	58	58	58	58	58	58	57	53	49	45
	50	53	53	53	53	53	53	53	53	53	53	53	49	45
	60	49	49	49	49	49	49	49	49	49	49	49	49	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 90a		Mean Roof Height: $h \leq 15$ ft Roof Angle: $7 < \theta \leq 20$ degrees Exposure Category: D								Panel Orientation: Portrait North/South Support $X_E = 1$ Roof Type : Hip $h/B = \leq 0.5$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	95	89	83	78	71	66	62
	10	85	85	85	85	84	83	83	81	79	77	71	66	62
	20	66	66	66	66	66	66	66	64	63	62	61	59	58
	30	66	66	66	66	66	66	66	64	63	62	61	59	58
	40	58	58	58	58	58	58	58	58	58	57	56	55	54
	50	53	53	53	53	53	53	53	53	53	53	52	51	50
	60	49	49	49	49	49	49	49	49	49	49	49	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	94	90	86	82	79	75	67	61	55	50	47	43
	10	85	85	85	85	82	79	75	67	61	55	50	47	43
	20	66	66	66	66	66	66	66	64	61	55	50	47	43
	30	66	66	66	66	66	66	66	64	61	55	50	47	43
	40	58	58	58	58	58	58	58	58	58	55	50	47	43
	50	53	53	53	53	53	53	53	53	53	53	50	47	43
	60	49	49	49	49	49	49	49	49	49	49	49	47	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	98	97	93	89	86	80	73	66	61	56	52
	10	85	85	85	85	84	83	83	80	73	66	61	56	52
	20	66	66	66	66	66	66	66	64	63	62	61	56	52
	30	66	66	66	66	66	66	66	64	63	62	61	56	52
	40	58	58	58	58	58	58	58	58	58	57	56	55	52
	50	53	53	53	53	53	53	53	53	53	53	52	51	50
	60	49	49	49	49	49	49	49	49	49	49	49	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 90b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $7 < \theta \leq 20$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Hip $h/B = \leq 0.5$				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	94	90	86	82	79	72	65	60	55	51	48
	10	85	85	85	85	84	82	79	72	65	60	55	51	48
	20	66	66	66	66	66	66	66	64	63	60	55	51	48
	30	66	66	66	66	66	66	66	64	63	60	55	51	48
	40	58	58	58	58	58	58	58	58	58	57	55	51	48
	50	53	53	53	53	53	53	53	53	53	53	52	51	48
	60	49	49	49	49	49	49	49	49	49	49	49	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	82	78	73	68	64	60	57	51	46	42	39	36	34
	10	82	78	73	68	64	60	57	51	46	42	39	36	34
	20	66	66	66	66	64	60	57	51	46	42	39	36	34
	30	66	66	66	66	64	60	57	51	46	42	39	36	34
	40	58	58	58	58	58	58	57	51	46	42	39	36	34
	50	53	53	53	53	53	53	53	51	46	42	39	36	34
	60	49	49	49	49	49	49	49	49	46	42	39	36	34
	70	45	45	45	45	45	45	45	45	45	42	39	36	34
	80	43	43	43	43	43	43	43	43	43	42	39	36	34
	90	40	40	40	40	40	40	40	40	40	40	39	36	34
Zones 2e & 3	0	93	88	84	81	77	73	68	61	55	51	46	43	40
	10	85	85	84	81	77	73	68	61	55	51	46	43	40
	20	66	66	66	66	66	66	66	61	55	51	46	43	40
	30	66	66	66	66	66	66	66	61	55	51	46	43	40
	40	58	58	58	58	58	58	58	58	55	51	46	43	40
	50	53	53	53	53	53	53	53	53	53	51	46	43	40
	60	49	49	49	49	49	49	49	49	49	49	46	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	43	43	43	43	43	43	43	43	43	43	43	43	40
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 91a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	98	98	98	98	94	89
	10	93	93	93	93	93	93	93	93	93	93	91	89	87
	20	78	78	78	78	78	78	78	78	78	78	76	75	74
	30	67	67	67	67	67	67	67	67	67	67	67	66	66
	40	59	59	59	59	59	59	59	59	59	59	59	59	59
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	98	98	98	98	98	98	95	89	84	79	75
	10	93	93	93	93	93	93	93	93	93	89	84	79	75
	20	78	78	78	78	78	78	78	78	78	78	76	75	74
	30	67	67	67	67	67	67	67	67	67	67	67	66	66
	40	59	59	59	59	59	59	59	59	59	59	59	59	59
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 91b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	98	93	88	83	78	73
	10	93	93	93	93	93	93	93	93	93	88	83	78	73
	20	78	78	78	78	78	78	78	78	78	78	76	75	73
	30	67	67	67	67	67	67	67	67	67	67	67	66	66
	40	59	59	59	59	59	59	59	59	59	59	59	59	59
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	98	98	98	94	90	84	79	73	66	61	56
	10	93	93	93	93	93	93	90	84	79	73	66	61	56
	20	78	78	78	78	78	78	78	78	78	73	66	61	56
	30	67	67	67	67	67	67	67	67	67	67	66	61	56
	40	59	59	59	59	59	59	59	59	59	59	59	59	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 92a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	98	94	88	83	78	73
	10	93	93	93	93	93	93	93	91	89	87	83	78	73
	20	78	78	78	78	78	78	78	77	75	74	72	71	69
	30	67	67	67	67	67	67	67	67	66	65	64	63	62
	40	59	59	59	59	59	59	59	59	59	59	58	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	98	98	98	94	91	84	79	73	66	61	56
	10	93	93	93	93	93	93	91	84	79	73	66	61	56
	20	78	78	78	78	78	78	78	77	75	73	66	61	56
	30	67	67	67	67	67	67	67	67	66	65	64	61	56
	40	59	59	59	59	59	59	59	59	59	59	58	58	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 92b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	97	93	89	83	78	71	65	59	55
	10	93	93	93	93	93	93	89	83	78	71	65	59	55
	20	78	78	78	78	78	78	78	77	75	71	65	59	55
	30	67	67	67	67	67	67	67	67	66	65	64	59	55
	40	59	59	59	59	59	59	59	59	59	59	58	58	55
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	93	89	85	82	78	75	67	60	55	50	46	43
	10	93	93	89	85	82	78	75	67	60	55	50	46	43
	20	78	78	78	78	78	78	75	67	60	55	50	46	43
	30	67	67	67	67	67	67	67	67	60	55	50	46	43
	40	59	59	59	59	59	59	59	59	59	55	50	46	43
	50	53	53	53	53	53	53	53	53	53	53	50	46	43
	60	49	49	49	49	49	49	49	49	49	49	49	46	43
	70	46	46	46	46	46	46	46	46	46	46	46	46	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 93a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	92	86	80	76	69	64
	10	93	93	93	93	93	92	91	88	86	80	76	69	64
	20	78	78	78	78	78	77	76	75	73	71	70	68	64
	30	67	67	67	67	67	67	67	66	65	64	62	61	60
	40	59	59	59	59	59	59	59	59	59	58	57	56	55
	50	53	53	53	53	53	53	53	53	53	53	53	52	51
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	98	94	90	86	83	77	70	63	58	53	49
	10	93	93	93	93	90	86	83	77	70	63	58	53	49
	20	78	78	78	78	78	77	76	75	70	63	58	53	49
	30	67	67	67	67	67	67	67	66	65	63	58	53	49
	40	59	59	59	59	59	59	59	59	59	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	52	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 93b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	97	93	89	85	82	76	68	62	56	52	48
	10	93	93	93	93	89	85	82	76	68	62	56	52	48
	20	78	78	78	78	78	77	76	75	68	62	56	52	48
	30	67	67	67	67	67	67	67	66	65	62	56	52	48
	40	59	59	59	59	59	59	59	59	59	58	56	52	48
	50	53	53	53	53	53	53	53	53	53	53	53	52	48
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	90	85	82	78	74	70	65	58	53	48	44	40	38
	10	90	85	82	78	74	70	65	58	53	48	44	40	38
	20	78	78	78	78	74	70	65	58	53	48	44	40	38
	30	67	67	67	67	67	67	65	58	53	48	44	40	38
	40	59	59	59	59	59	59	59	58	53	48	44	40	38
	50	53	53	53	53	53	53	53	53	53	48	44	40	38
	60	49	49	49	49	49	49	49	49	49	48	44	40	38
	70	46	46	46	46	46	46	46	46	46	46	44	40	38
	80	43	43	43	43	43	43	43	43	43	43	43	40	38
	90	41	41	41	41	41	41	41	41	41	41	41	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 94a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	98	98	98	94	89	85
	10	94	94	94	94	94	94	94	94	94	94	93	89	85
	20	81	81	81	81	81	81	81	81	81	80	79	78	77
	30	70	70	70	70	70	70	70	70	70	70	70	69	68
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	98	98	98	98	98	98	95	89	84
	10	94	94	94	94	94	94	94	94	94	94	93	89	84
	20	81	81	81	81	81	81	81	81	81	80	79	78	77
	30	70	70	70	70	70	70	70	70	70	70	70	69	68
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	98	98	98	98	98	98	98	91	85	81	76	72
	10	94	94	94	94	94	94	94	94	91	85	81	76	72
	20	81	81	81	81	81	81	81	81	81	80	79	76	72
	30	70	70	70	70	70	70	70	70	70	70	70	69	68
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	98	98	98	98	98	98	96	89	83	78	74
	10	94	94	94	94	94	94	94	94	94	89	83	78	74
	20	81	81	81	81	81	81	81	81	81	80	79	78	74
	30	70	70	70	70	70	70	70	70	70	70	70	69	68
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 94b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	95	89	83	79	75	69
	10	94	94	94	94	94	94	94	94	89	83	79	75	69
	20	81	81	81	81	81	81	81	81	81	80	79	75	69
	30	70	70	70	70	70	70	70	70	70	70	70	69	68
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	98	98	98	95	88	82	77	72	65
	10	94	94	94	94	94	94	94	94	88	82	77	72	65
	20	81	81	81	81	81	81	81	81	81	80	77	72	65
	30	70	70	70	70	70	70	70	70	70	70	70	69	65
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	98	98	98	95	91	87	81	76	69	62	57	52
	10	94	94	94	94	94	91	87	81	76	69	62	57	52
	20	81	81	81	81	81	81	81	81	76	69	62	57	52
	30	70	70	70	70	70	70	70	70	70	69	62	57	52
	40	62	62	62	62	62	62	62	62	62	62	62	57	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	98	98	98	95	91	84	78	71	63	57	51
	10	94	94	94	94	94	94	91	84	78	71	63	57	51
	20	81	81	81	81	81	81	81	81	78	71	63	57	51
	30	70	70	70	70	70	70	70	70	70	70	63	57	51
	40	62	62	62	62	62	62	62	62	62	62	62	57	51
	50	56	56	56	56	56	56	56	56	56	56	56	56	51
	60	52	52	52	52	52	52	52	52	52	52	52	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 95a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	95	89	84	79	75	70
	10	94	94	94	94	94	94	94	93	89	84	79	75	70
	20	81	81	81	81	81	81	81	79	78	76	75	73	70
	30	70	70	70	70	70	70	70	70	69	68	67	66	65
	40	62	62	62	62	62	62	62	62	62	62	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	98	98	98	95	88	82	77	73	65
	10	94	94	94	94	94	94	94	93	88	82	77	73	65
	20	81	81	81	81	81	81	81	79	78	76	75	73	65
	30	70	70	70	70	70	70	70	70	69	68	67	66	65
	40	62	62	62	62	62	62	62	62	62	62	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	98	98	98	95	91	87	81	76	70	63	57	52
	10	94	94	94	94	94	91	87	81	76	70	63	57	52
	20	81	81	81	81	81	81	81	79	76	70	63	57	52
	30	70	70	70	70	70	70	70	70	69	68	63	57	52
	40	62	62	62	62	62	62	62	62	62	62	61	57	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	98	98	98	96	91	84	78	72	63	57	52
	10	94	94	94	94	94	94	91	84	78	72	63	57	52
	20	81	81	81	81	81	81	81	79	78	72	63	57	52
	30	70	70	70	70	70	70	70	70	69	68	63	57	52
	40	62	62	62	62	62	62	62	62	62	62	61	57	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 95b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	96	92	88	85	79	74	67	61	56	52
	10	94	94	94	94	92	88	85	79	74	67	61	56	52
	20	81	81	81	81	81	81	81	79	74	67	61	56	52
	30	70	70	70	70	70	70	70	70	69	67	61	56	52
	40	62	62	62	62	62	62	62	62	62	62	61	56	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	97	92	88	84	78	71	63	57	51	47
	10	94	94	94	94	92	88	84	78	71	63	57	51	47
	20	81	81	81	81	81	81	81	78	71	63	57	51	47
	30	70	70	70	70	70	70	70	70	69	63	57	51	47
	40	62	62	62	62	62	62	62	62	62	62	57	51	47
	50	56	56	56	56	56	56	56	56	56	56	56	51	47
	60	52	52	52	52	52	52	52	52	52	52	52	51	47
	70	49	49	49	49	49	49	49	49	49	49	49	49	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	95	90	86	82	79	75	72	63	56	51	46	42	39
	10	94	90	86	82	79	75	72	63	56	51	46	42	39
	20	81	81	81	81	79	75	72	63	56	51	46	42	39
	30	70	70	70	70	70	70	70	63	56	51	46	42	39
	40	62	62	62	62	62	62	62	62	56	51	46	42	39
	50	56	56	56	56	56	56	56	56	56	51	46	42	39
	60	52	52	52	52	52	52	52	52	52	51	46	42	39
	70	49	49	49	49	49	49	49	49	49	49	46	42	39
	80	46	46	46	46	46	46	46	46	46	46	46	42	39
	90	43	43	43	43	43	43	43	43	43	43	43	42	39
Zone 3	0	98	94	89	85	81	77	74	64	56	50	45	41	37
	10	94	94	89	85	81	77	74	64	56	50	45	41	37
	20	81	81	81	81	81	77	74	64	56	50	45	41	37
	30	70	70	70	70	70	70	70	64	56	50	45	41	37
	40	62	62	62	62	62	62	62	62	56	50	45	41	37
	50	56	56	56	56	56	56	56	56	56	50	45	41	37
	60	52	52	52	52	52	52	52	52	52	50	45	41	37
	70	49	49	49	49	49	49	49	49	49	49	45	41	37
	80	46	46	46	46	46	46	46	46	46	46	45	41	37
	90	43	43	43	43	43	43	43	43	43	43	43	41	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 96a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1$					
		Exposure Category: D							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	97	94	87	82	77	72	66	60
	10	94	94	94	94	94	94	92	87	82	77	72	66	60
	20	81	81	81	81	80	80	79	77	76	74	72	66	60
	30	70	70	70	70	70	70	70	69	68	66	65	64	60
	40	62	62	62	62	62	62	62	62	62	61	60	59	58
	50	56	56	56	56	56	56	56	56	56	56	56	55	54
	60	52	52	52	52	52	52	52	52	52	52	52	51	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	98	98	94	86	80	75	68	61	56
	10	94	94	94	94	94	94	92	86	80	75	68	61	56
	20	81	81	81	81	80	80	79	77	76	74	68	61	56
	30	70	70	70	70	70	70	70	69	68	66	65	61	56
	40	62	62	62	62	62	62	62	62	62	61	60	59	56
	50	56	56	56	56	56	56	56	56	56	56	56	55	54
	60	52	52	52	52	52	52	52	52	52	52	52	51	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	98	95	91	87	83	80	74	67	60	54	49	46
	10	94	94	94	91	87	83	80	74	67	60	54	49	46
	20	81	81	81	81	80	80	79	74	67	60	54	49	46
	30	70	70	70	70	70	70	70	69	67	60	54	49	46
	40	62	62	62	62	62	62	62	62	62	60	54	49	46
	50	56	56	56	56	56	56	56	56	56	56	54	49	46
	60	52	52	52	52	52	52	52	52	52	52	52	49	46
	70	49	49	49	49	49	49	49	49	49	49	49	49	46
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	98	95	90	86	82	76	68	60	53	48	44
	10	94	94	94	94	90	86	82	76	68	60	53	48	44
	20	81	81	81	81	80	80	79	76	68	60	53	48	44
	30	70	70	70	70	70	70	70	69	68	60	53	48	44
	40	62	62	62	62	62	62	62	62	62	60	53	48	44
	50	56	56	56	56	56	56	56	56	56	56	53	48	44
	60	52	52	52	52	52	52	52	52	52	52	52	48	44
	70	49	49	49	49	49	49	49	49	49	49	49	48	44
	80	46	46	46	46	46	46	46	46	46	46	46	46	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 96b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	96	92	88	84	81	78	73	65	59	53	49	45
	10	94	94	92	88	84	81	78	73	65	59	53	49	45
	20	81	81	81	81	80	80	78	73	65	59	53	49	45
	30	70	70	70	70	70	70	70	69	65	59	53	49	45
	40	62	62	62	62	62	62	62	62	62	59	53	49	45
	50	56	56	56	56	56	56	56	56	56	56	53	49	45
	60	52	52	52	52	52	52	52	52	52	52	52	49	45
	70	49	49	49	49	49	49	49	49	49	49	49	49	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	97	92	87	83	80	77	69	60	54	48	44	40
	10	94	94	92	87	83	80	77	69	60	54	48	44	40
	20	81	81	81	81	80	80	77	69	60	54	48	44	40
	30	70	70	70	70	70	70	70	69	60	54	48	44	40
	40	62	62	62	62	62	62	62	62	60	54	48	44	40
	50	56	56	56	56	56	56	56	56	56	54	48	44	40
	60	52	52	52	52	52	52	52	52	52	52	48	44	40
	70	49	49	49	49	49	49	49	49	49	49	48	44	40
	80	46	46	46	46	46	46	46	46	46	46	46	44	40
	90	43	43	43	43	43	43	43	43	43	43	43	43	40
Zone 2r	0	86	82	78	75	71	66	62	54	49	44	40	37	34
	10	86	82	78	75	71	66	62	54	49	44	40	37	34
	20	81	81	78	75	71	66	62	54	49	44	40	37	34
	30	70	70	70	70	70	66	62	54	49	44	40	37	34
	40	62	62	62	62	62	62	62	54	49	44	40	37	34
	50	56	56	56	56	56	56	56	54	49	44	40	37	34
	60	52	52	52	52	52	52	52	52	49	44	40	37	34
	70	49	49	49	49	49	49	49	49	49	44	40	37	34
	80	46	46	46	46	46	46	46	46	46	44	40	37	34
	90	43	43	43	43	43	43	43	43	43	43	40	37	34
Zone 3	0	90	85	81	77	73	67	62	54	48	43	39	35	33
	10	90	85	81	77	73	67	62	54	48	43	39	35	33
	20	81	81	81	77	73	67	62	54	48	43	39	35	33
	30	70	70	70	70	70	67	62	54	48	43	39	35	33
	40	62	62	62	62	62	62	62	54	48	43	39	35	33
	50	56	56	56	56	56	56	56	54	48	43	39	35	33
	60	52	52	52	52	52	52	52	52	48	43	39	35	33
	70	49	49	49	49	49	49	49	49	48	43	39	35	33
	80	46	46	46	46	46	46	46	46	46	43	39	35	33
	90	43	43	43	43	43	43	43	43	43	43	39	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 97a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	98	98	98	96	92
	10	91	91	91	91	91	91	91	91	91	91	91	91	90
	20	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	98	98	98	98	97	90	85	80	75	69
	10	91	91	91	91	91	91	91	91	90	85	80	75	69
	20	72	72	72	72	72	72	72	72	72	72	72	72	69
	30	70	70	70	70	70	70	70	70	70	70	70	70	69
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	98	98	98	98	98	94	91	84	79	72	66	61	56
	10	91	91	91	91	91	91	91	84	79	72	66	61	56
	20	72	72	72	72	72	72	72	72	72	72	66	61	56
	30	70	70	70	70	70	70	70	70	70	70	66	61	56
	40	62	62	62	62	62	62	62	62	62	62	62	61	56
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	94	90	86	83	80	71	64	58	54	49	46
	10	91	91	91	90	86	83	80	71	64	58	54	49	46
	20	72	72	72	72	72	72	72	71	64	58	54	49	46
	30	70	70	70	70	70	70	70	70	64	58	54	49	46
	40	62	62	62	62	62	62	62	62	62	58	54	49	46
	50	56	56	56	56	56	56	56	56	56	56	54	49	46
	60	52	52	52	52	52	52	52	52	52	52	52	49	46
	70	48	48	48	48	48	48	48	48	48	48	48	48	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 97b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	96	90	85	81	76
	10	91	91	91	91	91	91	91	91	91	90	85	81	76
	20	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	98	94	90	87	81	74	67	61	57	53
	10	91	91	91	91	91	90	87	81	74	67	61	57	53
	20	72	72	72	72	72	72	72	72	72	67	61	57	53
	30	70	70	70	70	70	70	70	70	70	67	61	57	53
	40	62	62	62	62	62	62	62	62	62	62	61	57	53
	50	56	56	56	56	56	56	56	56	56	56	56	56	53
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	98	93	89	85	82	78	74	66	60	55	50	47	43
	10	91	91	89	85	82	78	74	66	60	55	50	47	43
	20	72	72	72	72	72	72	72	66	60	55	50	47	43
	30	70	70	70	70	70	70	70	66	60	55	50	47	43
	40	62	62	62	62	62	62	62	62	60	55	50	47	43
	50	56	56	56	56	56	56	56	56	56	55	50	47	43
	60	52	52	52	52	52	52	52	52	52	52	50	47	43
	70	48	48	48	48	48	48	48	48	48	48	48	47	43
	80	45	45	45	45	45	45	45	45	45	45	45	45	43
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	86	82	77	72	68	64	60	54	49	45	41	38	35
	10	86	82	77	72	68	64	60	54	49	45	41	38	35
	20	72	72	72	72	68	64	60	54	49	45	41	38	35
	30	70	70	70	70	68	64	60	54	49	45	41	38	35
	40	62	62	62	62	62	62	60	54	49	45	41	38	35
	50	56	56	56	56	56	56	56	54	49	45	41	38	35
	60	52	52	52	52	52	52	52	52	49	45	41	38	35
	70	48	48	48	48	48	48	48	48	48	45	41	38	35
	80	45	45	45	45	45	45	45	45	45	45	41	38	35
	90	43	43	43	43	43	43	43	43	43	43	41	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 98a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	98	93	88	83	80
	10	91	91	91	91	91	91	91	91	91	91	88	83	80
	20	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	98	97	93	89	83	77	70	64	59	55
	10	91	91	91	91	91	91	89	83	77	70	64	59	55
	20	72	72	72	72	72	72	72	72	72	70	64	59	55
	30	70	70	70	70	70	70	70	70	70	70	64	59	55
	40	62	62	62	62	62	62	62	62	62	62	62	59	55
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	98	96	92	88	84	81	77	69	63	57	53	49	45
	10	91	91	91	88	84	81	77	69	63	57	53	49	45
	20	72	72	72	72	72	72	72	69	63	57	53	49	45
	30	70	70	70	70	70	70	70	69	63	57	53	49	45
	40	62	62	62	62	62	62	62	62	62	57	53	49	45
	50	56	56	56	56	56	56	56	56	56	56	53	49	45
	60	52	52	52	52	52	52	52	52	52	52	52	49	45
	70	48	48	48	48	48	48	48	48	48	48	48	48	45
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	89	84	81	76	71	67	63	56	51	47	43	40	37
	10	89	84	81	76	71	67	63	56	51	47	43	40	37
	20	72	72	72	72	71	67	63	56	51	47	43	40	37
	30	70	70	70	70	70	67	63	56	51	47	43	40	37
	40	62	62	62	62	62	62	62	56	51	47	43	40	37
	50	56	56	56	56	56	56	56	56	51	47	43	40	37
	60	52	52	52	52	52	52	52	52	51	47	43	40	37
	70	48	48	48	48	48	48	48	48	48	47	43	40	37
	80	45	45	45	45	45	45	45	45	45	45	43	40	37
	90	43	43	43	43	43	43	43	43	43	43	43	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 98b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	95	88	83	78	71	66	62
	10	91	91	91	91	91	91	91	88	83	78	71	66	62
	20	72	72	72	72	72	72	72	72	72	72	71	66	62
	30	70	70	70	70	70	70	70	70	70	70	70	66	62
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	97	92	88	84	81	77	72	65	59	54	49	46	43
	10	91	91	88	84	81	77	72	65	59	54	49	46	43
	20	72	72	72	72	72	72	72	65	59	54	49	46	43
	30	70	70	70	70	70	70	70	65	59	54	49	46	43
	40	62	62	62	62	62	62	62	62	59	54	49	46	43
	50	56	56	56	56	56	56	56	56	56	54	49	46	43
	60	52	52	52	52	52	52	52	52	52	52	49	46	43
	70	48	48	48	48	48	48	48	48	48	48	48	46	43
	80	45	45	45	45	45	45	45	45	45	45	45	45	43
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	84	80	75	70	66	62	59	53	48	44	41	38	35
	10	84	80	75	70	66	62	59	53	48	44	41	38	35
	20	72	72	72	70	66	62	59	53	48	44	41	38	35
	30	70	70	70	70	66	62	59	53	48	44	41	38	35
	40	62	62	62	62	62	62	59	53	48	44	41	38	35
	50	56	56	56	56	56	56	56	53	48	44	41	38	35
	60	52	52	52	52	52	52	52	52	48	44	41	38	35
	70	48	48	48	48	48	48	48	48	48	44	41	38	35
	80	45	45	45	45	45	45	45	45	45	44	41	38	35
	90	43	43	43	43	43	43	43	43	43	43	41	38	35
Zone 3	0	71	66	61	57	54	51	48	43	39	36	34	32	30
	10	71	66	61	57	54	51	48	43	39	36	34	32	30
	20	71	66	61	57	54	51	48	43	39	36	34	32	30
	30	70	66	61	57	54	51	48	43	39	36	34	32	30
	40	62	62	61	57	54	51	48	43	39	36	34	32	30
	50	56	56	56	56	54	51	48	43	39	36	34	32	30
	60	52	52	52	52	52	51	48	43	39	36	34	32	30
	70	48	48	48	48	48	48	48	43	39	36	34	32	30
	80	45	45	45	45	45	45	45	43	39	36	34	32	30
	90	43	43	43	43	43	43	43	43	39	36	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 99a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	92	86	82	77	72
	10	91	91	91	91	91	91	91	91	90	86	82	77	72
	20	72	72	72	72	72	72	72	72	72	72	72	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	69
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	93	90	86	83	76	69	63	58	53	49
	10	91	91	91	91	90	86	83	76	69	63	58	53	49
	20	72	72	72	72	72	72	72	72	69	63	58	53	49
	30	70	70	70	70	70	70	70	70	69	63	58	53	49
	40	62	62	62	62	62	62	62	62	62	62	58	53	49
	50	56	56	56	56	56	56	56	56	56	56	56	53	49
	60	52	52	52	52	52	52	52	52	52	52	52	52	49
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	93	89	85	81	78	73	69	62	56	51	47	44	41
	10	91	89	85	81	78	73	69	62	56	51	47	44	41
	20	72	72	72	72	72	72	69	62	56	51	47	44	41
	30	70	70	70	70	70	70	69	62	56	51	47	44	41
	40	62	62	62	62	62	62	62	62	56	51	47	44	41
	50	56	56	56	56	56	56	56	56	56	51	47	44	41
	60	52	52	52	52	52	52	52	52	52	51	47	44	41
	70	48	48	48	48	48	48	48	48	48	48	47	44	41
	80	45	45	45	45	45	45	45	45	45	45	45	44	41
	90	43	43	43	43	43	43	43	43	43	43	43	43	41
Zone 3	0	82	78	72	67	63	59	56	50	46	42	39	36	34
	10	82	78	72	67	63	59	56	50	46	42	39	36	34
	20	72	72	72	67	63	59	56	50	46	42	39	36	34
	30	70	70	70	67	63	59	56	50	46	42	39	36	34
	40	62	62	62	62	62	59	56	50	46	42	39	36	34
	50	56	56	56	56	56	56	56	50	46	42	39	36	34
	60	52	52	52	52	52	52	52	50	46	42	39	36	34
	70	48	48	48	48	48	48	48	48	46	42	39	36	34
	80	45	45	45	45	45	45	45	45	45	42	39	36	34
	90	43	43	43	43	43	43	43	43	43	42	39	36	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 99b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	95	91	88	82	76	70	64	60	56
	10	91	91	91	91	91	91	88	82	76	70	64	60	56
	20	72	72	72	72	72	72	72	72	72	70	64	60	56
	30	70	70	70	70	70	70	70	70	70	70	64	60	56
	40	62	62	62	62	62	62	62	62	62	62	62	60	56
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	89	85	81	77	72	68	64	58	53	48	44	41	38
	10	89	85	81	77	72	68	64	58	53	48	44	41	38
	20	72	72	72	72	72	68	64	58	53	48	44	41	38
	30	70	70	70	70	70	68	64	58	53	48	44	41	38
	40	62	62	62	62	62	62	62	58	53	48	44	41	38
	50	56	56	56	56	56	56	56	56	53	48	44	41	38
	60	52	52	52	52	52	52	52	52	52	48	44	41	38
	70	48	48	48	48	48	48	48	48	48	48	44	41	38
	80	45	45	45	45	45	45	45	45	45	45	44	41	38
	90	43	43	43	43	43	43	43	43	43	43	43	41	38
Zone 2	0	77	72	67	63	59	56	53	48	43	40	37	34	32
	10	77	72	67	63	59	56	53	48	43	40	37	34	32
	20	72	72	67	63	59	56	53	48	43	40	37	34	32
	30	70	70	67	63	59	56	53	48	43	40	37	34	32
	40	62	62	62	62	59	56	53	48	43	40	37	34	32
	50	56	56	56	56	56	56	53	48	43	40	37	34	32
	60	52	52	52	52	52	52	52	48	43	40	37	34	32
	70	48	48	48	48	48	48	48	48	43	40	37	34	32
	80	45	45	45	45	45	45	45	45	43	40	37	34	32
	90	43	43	43	43	43	43	43	43	43	40	37	34	32
Zone 3	0	63	59	55	51	48	45	43	39	35	33	31	29	27
	10	63	59	55	51	48	45	43	39	35	33	31	29	27
	20	63	59	55	51	48	45	43	39	35	33	31	29	27
	30	63	59	55	51	48	45	43	39	35	33	31	29	27
	40	62	59	55	51	48	45	43	39	35	33	31	29	27
	50	56	56	55	51	48	45	43	39	35	33	31	29	27
	60	52	52	52	51	48	45	43	39	35	33	31	29	27
	70	48	48	48	48	48	45	43	39	35	33	31	29	27
	80	45	45	45	45	45	45	43	39	35	33	31	29	27
	90	43	43	43	43	43	43	43	39	35	33	31	29	27

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 100a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	98	98	98	90	83	77	69	64	60
	10	85	85	85	85	85	85	85	85	83	77	69	64	60
	20	66	66	66	66	66	66	66	66	66	66	66	64	60
	30	66	66	66	66	66	66	66	66	66	66	66	64	60
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	98	98	98	96	91	87	84	78	70	63	57	53	49
	10	85	85	85	85	85	85	84	78	70	63	57	53	49
	20	66	66	66	66	66	66	66	66	66	63	57	53	49
	30	66	66	66	66	66	66	66	66	66	63	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	53	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	98	97	92	88	84	81	78	69	61	56	51	47	43
	10	85	85	85	85	84	81	78	69	61	56	51	47	43
	20	66	66	66	66	66	66	66	66	61	56	51	47	43
	30	66	66	66	66	66	66	66	66	61	56	51	47	43
	40	58	58	58	58	58	58	58	58	58	56	51	47	43
	50	53	53	53	53	53	53	53	53	53	53	51	47	43
	60	49	49	49	49	49	49	49	49	49	49	49	47	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 100b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	96	91	87	83	79	70	64	58	54	50	47
	10	85	85	85	85	85	83	79	70	64	58	54	50	47
	20	66	66	66	66	66	66	66	66	64	58	54	50	47
	30	66	66	66	66	66	66	66	66	64	58	54	50	47
	40	58	58	58	58	58	58	58	58	58	58	54	50	47
	50	53	53	53	53	53	53	53	53	53	53	53	50	47
	60	49	49	49	49	49	49	49	49	49	49	49	49	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	91	86	82	79	74	69	65	58	52	47	43	40	37
	10	85	85	82	79	74	69	65	58	52	47	43	40	37
	20	66	66	66	66	66	66	65	58	52	47	43	40	37
	30	66	66	66	66	66	66	65	58	52	47	43	40	37
	40	58	58	58	58	58	58	58	58	52	47	43	40	37
	50	53	53	53	53	53	53	53	53	52	47	43	40	37
	60	49	49	49	49	49	49	49	49	49	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37
Zone 3r	0	84	80	75	70	65	61	57	51	46	42	38	35	33
	10	84	80	75	70	65	61	57	51	46	42	38	35	33
	20	66	66	66	66	65	61	57	51	46	42	38	35	33
	30	66	66	66	66	65	61	57	51	46	42	38	35	33
	40	58	58	58	58	58	58	57	51	46	42	38	35	33
	50	53	53	53	53	53	53	53	51	46	42	38	35	33
	60	49	49	49	49	49	49	49	49	46	42	38	35	33
	70	45	45	45	45	45	45	45	45	45	42	38	35	33
	80	43	43	43	43	43	43	43	43	43	42	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 101a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	95	90	86	82	74	66	61	56	52	49
	10	85	85	85	85	85	85	82	74	66	61	56	52	49
	20	66	66	66	66	66	66	66	66	66	61	56	52	49
	30	66	66	66	66	66	66	66	66	66	61	56	52	49
	40	58	58	58	58	58	58	58	58	58	58	56	52	49
	50	53	53	53	53	53	53	53	53	53	53	53	52	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	94	89	85	81	78	73	68	61	55	50	45	42	39
	10	85	85	85	81	78	73	68	61	55	50	45	42	39
	20	66	66	66	66	66	66	66	61	55	50	45	42	39
	30	66	66	66	66	66	66	66	61	55	50	45	42	39
	40	58	58	58	58	58	58	58	58	55	50	45	42	39
	50	53	53	53	53	53	53	53	53	53	50	45	42	39
	60	49	49	49	49	49	49	49	49	49	49	45	42	39
	70	45	45	45	45	45	45	45	45	45	45	45	42	39
	80	43	43	43	43	43	43	43	43	43	43	43	42	39
	90	40	40	40	40	40	40	40	40	40	40	40	40	39
Zone 3r	0	87	82	79	73	68	64	60	54	48	44	40	37	35
	10	85	82	79	73	68	64	60	54	48	44	40	37	35
	20	66	66	66	66	66	64	60	54	48	44	40	37	35
	30	66	66	66	66	66	64	60	54	48	44	40	37	35
	40	58	58	58	58	58	58	58	54	48	44	40	37	35
	50	53	53	53	53	53	53	53	53	48	44	40	37	35
	60	49	49	49	49	49	49	49	49	48	44	40	37	35
	70	45	45	45	45	45	45	45	45	45	44	40	37	35
	80	43	43	43	43	43	43	43	43	43	43	40	37	35
	90	40	40	40	40	40	40	40	40	40	40	40	37	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 101b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	90	85	80	75	70	66	62	57	52	48	44	41	38
	10	85	85	80	75	70	66	62	57	52	48	44	41	38
	20	66	66	66	66	66	66	62	57	52	48	44	41	38
	30	66	66	66	66	66	66	62	57	52	48	44	41	38
	40	58	58	58	58	58	58	58	57	52	48	44	41	38
	50	53	53	53	53	53	53	53	53	52	48	44	41	38
	60	49	49	49	49	49	49	49	49	49	48	44	41	38
	70	45	45	45	45	45	45	45	45	45	45	44	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38
Zones 2n, 2r, & 3e	0	78	72	66	62	58	54	51	46	41	38	35	33	31
	10	78	72	66	62	58	54	51	46	41	38	35	33	31
	20	66	66	66	62	58	54	51	46	41	38	35	33	31
	30	66	66	66	62	58	54	51	46	41	38	35	33	31
	40	58	58	58	58	58	54	51	46	41	38	35	33	31
	50	53	53	53	53	53	53	51	46	41	38	35	33	31
	60	49	49	49	49	49	49	49	46	41	38	35	33	31
	70	45	45	45	45	45	45	45	45	41	38	35	33	31
	80	43	43	43	43	43	43	43	43	41	38	35	33	31
	90	40	40	40	40	40	40	40	40	40	38	35	33	31
Zone 3r	0	68	63	58	54	51	48	45	40	37	34	32	30	28
	10	68	63	58	54	51	48	45	40	37	34	32	30	28
	20	66	63	58	54	51	48	45	40	37	34	32	30	28
	30	66	63	58	54	51	48	45	40	37	34	32	30	28
	40	58	58	58	54	51	48	45	40	37	34	32	30	28
	50	53	53	53	53	51	48	45	40	37	34	32	30	28
	60	49	49	49	49	49	48	45	40	37	34	32	30	28
	70	45	45	45	45	45	45	45	40	37	34	32	30	28
	80	43	43	43	43	43	43	43	40	37	34	32	30	28
	90	40	40	40	40	40	40	40	40	37	34	32	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 102a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	97	91	86	82	79	73	66	60	55	51	47	44
	10	85	85	85	85	82	79	73	66	60	55	51	47	44
	20	66	66	66	66	66	66	66	66	60	55	51	47	44
	30	66	66	66	66	66	66	66	66	60	55	51	47	44
	40	58	58	58	58	58	58	58	58	58	55	51	47	44
	50	53	53	53	53	53	53	53	53	53	53	51	47	44
	60	49	49	49	49	49	49	49	49	49	49	49	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	87	83	79	74	69	64	60	54	49	44	40	37	35
	10	85	83	79	74	69	64	60	54	49	44	40	37	35
	20	66	66	66	66	66	64	60	54	49	44	40	37	35
	30	66	66	66	66	66	64	60	54	49	44	40	37	35
	40	58	58	58	58	58	58	58	54	49	44	40	37	35
	50	53	53	53	53	53	53	53	53	49	44	40	37	35
	60	49	49	49	49	49	49	49	49	49	44	40	37	35
	70	45	45	45	45	45	45	45	45	45	44	40	37	35
	80	43	43	43	43	43	43	43	43	43	43	40	37	35
	90	40	40	40	40	40	40	40	40	40	40	40	37	35
Zone 3r	0	80	75	70	65	60	57	53	48	43	39	36	34	32
	10	80	75	70	65	60	57	53	48	43	39	36	34	32
	20	66	66	66	65	60	57	53	48	43	39	36	34	32
	30	66	66	66	65	60	57	53	48	43	39	36	34	32
	40	58	58	58	58	58	57	53	48	43	39	36	34	32
	50	53	53	53	53	53	53	53	48	43	39	36	34	32
	60	49	49	49	49	49	49	49	48	43	39	36	34	32
	70	45	45	45	45	45	45	45	45	43	39	36	34	32
	80	43	43	43	43	43	43	43	43	43	39	36	34	32
	90	40	40	40	40	40	40	40	40	40	39	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 102b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	82	78	71	66	63	59	56	51	47	43	40	37	35
	10	82	78	71	66	63	59	56	51	47	43	40	37	35
	20	66	66	66	66	63	59	56	51	47	43	40	37	35
	30	66	66	66	66	63	59	56	51	47	43	40	37	35
	40	58	58	58	58	58	58	56	51	47	43	40	37	35
	50	53	53	53	53	53	53	53	51	47	43	40	37	35
	60	49	49	49	49	49	49	49	49	47	43	40	37	35
	70	45	45	45	45	45	45	45	45	45	43	40	37	35
	80	43	43	43	43	43	43	43	43	43	43	40	37	35
	90	40	40	40	40	40	40	40	40	40	40	40	37	35
Zones 2n, 2r, & 3e	0	69	63	59	55	51	48	45	41	37	34	32	30	28
	10	69	63	59	55	51	48	45	41	37	34	32	30	28
	20	66	63	59	55	51	48	45	41	37	34	32	30	28
	30	66	63	59	55	51	48	45	41	37	34	32	30	28
	40	58	58	58	55	51	48	45	41	37	34	32	30	28
	50	53	53	53	53	51	48	45	41	37	34	32	30	28
	60	49	49	49	49	49	48	45	41	37	34	32	30	28
	70	45	45	45	45	45	45	45	41	37	34	32	30	28
	80	43	43	43	43	43	43	43	41	37	34	32	30	28
	90	40	40	40	40	40	40	40	40	37	34	32	30	28
Zone 3r	0	60	56	52	48	45	43	40	36	33	31	29	27	26
	10	60	56	52	48	45	43	40	36	33	31	29	27	26
	20	60	56	52	48	45	43	40	36	33	31	29	27	26
	30	60	56	52	48	45	43	40	36	33	31	29	27	26
	40	58	56	52	48	45	43	40	36	33	31	29	27	26
	50	53	53	52	48	45	43	40	36	33	31	29	27	26
	60	49	49	49	48	45	43	40	36	33	31	29	27	26
	70	45	45	45	45	45	43	40	36	33	31	29	27	26
	80	43	43	43	43	43	43	40	36	33	31	29	27	26
	90	40	40	40	40	40	40	40	36	33	31	29	27	26

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 103a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	98	98	98	98	93	87	82	78	73
	10	93	93	93	93	93	93	93	93	93	87	82	78	73
	20	78	78	78	78	78	78	78	78	78	78	76	75	73
	30	67	67	67	67	67	67	67	67	67	67	67	67	66
	40	59	59	59	59	59	59	59	59	59	59	59	59	59
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	98	98	98	98	98	94	91	84	79	73	66	60	55
	10	93	93	93	93	93	93	91	84	79	73	66	60	55
	20	78	78	78	78	78	78	78	78	78	73	66	60	55
	30	67	67	67	67	67	67	67	67	67	67	66	60	55
	40	59	59	59	59	59	59	59	59	59	59	59	59	55
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zone 3r	0	98	98	98	98	94	90	86	80	73	66	60	54	50
	10	93	93	93	93	93	90	86	80	73	66	60	54	50
	20	78	78	78	78	78	78	78	78	73	66	60	54	50
	30	67	67	67	67	67	67	67	67	67	66	60	54	50
	40	59	59	59	59	59	59	59	59	59	59	59	54	50
	50	53	53	53	53	53	53	53	53	53	53	53	53	50
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 103b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	96	92	89	82	77	71	65	60	56
	10	93	93	93	93	93	92	89	82	77	71	65	60	56
	20	78	78	78	78	78	78	78	78	77	71	65	60	56
	30	67	67	67	67	67	67	67	67	67	67	65	60	56
	40	59	59	59	59	59	59	59	59	59	59	59	59	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	98	93	89	85	81	78	75	66	59	54	49	45	42
	10	93	93	89	85	81	78	75	66	59	54	49	45	42
	20	78	78	78	78	78	78	75	66	59	54	49	45	42
	30	67	67	67	67	67	67	67	66	59	54	49	45	42
	40	59	59	59	59	59	59	59	59	59	54	49	45	42
	50	53	53	53	53	53	53	53	53	53	53	49	45	42
	60	49	49	49	49	49	49	49	49	49	49	49	45	42
	70	46	46	46	46	46	46	46	46	46	46	46	45	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zone 3r	0	93	89	84	81	77	73	68	60	54	49	44	41	38
	10	93	89	84	81	77	73	68	60	54	49	44	41	38
	20	78	78	78	78	77	73	68	60	54	49	44	41	38
	30	67	67	67	67	67	67	67	60	54	49	44	41	38
	40	59	59	59	59	59	59	59	59	54	49	44	41	38
	50	53	53	53	53	53	53	53	53	53	49	44	41	38
	60	49	49	49	49	49	49	49	49	49	49	44	41	38
	70	46	46	46	46	46	46	46	46	46	46	44	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	41	41	41	41	41	41	41	41	41	41	41	41	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 104a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	98	95	91	85	80	74	68	63	58
	10	93	93	93	93	93	93	91	85	80	74	68	63	58
	20	78	78	78	78	78	78	78	77	76	74	68	63	58
	30	67	67	67	67	67	67	67	67	67	66	65	63	58
	40	59	59	59	59	59	59	59	59	59	59	59	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	98	96	92	88	84	81	78	70	63	57	52	47	44
	10	93	93	92	88	84	81	78	70	63	57	52	47	44
	20	78	78	78	78	78	78	78	70	63	57	52	47	44
	30	67	67	67	67	67	67	67	67	63	57	52	47	44
	40	59	59	59	59	59	59	59	59	59	57	52	47	44
	50	53	53	53	53	53	53	53	53	53	53	52	47	44
	60	49	49	49	49	49	49	49	49	49	49	49	47	44
	70	46	46	46	46	46	46	46	46	46	46	46	46	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zone 3r	0	97	92	87	83	80	76	72	63	57	51	47	43	39
	10	93	92	87	83	80	76	72	63	57	51	47	43	39
	20	78	78	78	78	78	76	72	63	57	51	47	43	39
	30	67	67	67	67	67	67	67	63	57	51	47	43	39
	40	59	59	59	59	59	59	59	59	57	51	47	43	39
	50	53	53	53	53	53	53	53	53	53	51	47	43	39
	60	49	49	49	49	49	49	49	49	49	49	47	43	39
	70	46	46	46	46	46	46	46	46	46	46	46	43	39
	80	43	43	43	43	43	43	43	43	43	43	43	43	39
	90	41	41	41	41	41	41	41	41	41	41	41	41	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 104b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	94	90	86	82	79	76	68	62	57	53	49	46
	10	93	93	90	86	82	79	76	68	62	57	53	49	46
	20	78	78	78	78	78	78	76	68	62	57	53	49	46
	30	67	67	67	67	67	67	67	67	62	57	53	49	46
	40	59	59	59	59	59	59	59	59	59	57	53	49	46
	50	53	53	53	53	53	53	53	53	53	53	53	49	46
	60	49	49	49	49	49	49	49	49	49	49	49	49	46
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	84	80	76	71	66	62	58	52	47	43	39	36	34
	10	84	80	76	71	66	62	58	52	47	43	39	36	34
	20	78	78	76	71	66	62	58	52	47	43	39	36	34
	30	67	67	67	67	66	62	58	52	47	43	39	36	34
	40	59	59	59	59	59	59	58	52	47	43	39	36	34
	50	53	53	53	53	53	53	53	52	47	43	39	36	34
	60	49	49	49	49	49	49	49	49	47	43	39	36	34
	70	46	46	46	46	46	46	46	46	46	43	39	36	34
	80	43	43	43	43	43	43	43	43	43	43	39	36	34
	90	41	41	41	41	41	41	41	41	41	41	39	36	34
Zone 3r	0	80	76	69	64	60	56	53	47	42	38	35	33	31
	10	80	76	69	64	60	56	53	47	42	38	35	33	31
	20	78	76	69	64	60	56	53	47	42	38	35	33	31
	30	67	67	67	64	60	56	53	47	42	38	35	33	31
	40	59	59	59	59	59	56	53	47	42	38	35	33	31
	50	53	53	53	53	53	53	53	47	42	38	35	33	31
	60	49	49	49	49	49	49	49	47	42	38	35	33	31
	70	46	46	46	46	46	46	46	46	42	38	35	33	31
	80	43	43	43	43	43	43	43	43	42	38	35	33	31
	90	41	41	41	41	41	41	41	41	41	38	35	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 105a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	96	92	88	85	79	73	66	61	57	53
	10	93	93	93	93	92	88	85	79	73	66	61	57	53
	20	78	78	78	78	78	78	77	76	73	66	61	57	53
	30	67	67	67	67	67	67	67	67	66	65	61	57	53
	40	59	59	59	59	59	59	59	59	59	59	58	57	53
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	94	89	85	81	78	74	69	62	55	50	46	42	39
	10	93	89	85	81	78	74	69	62	55	50	46	42	39
	20	78	78	78	78	78	74	69	62	55	50	46	42	39
	30	67	67	67	67	67	67	67	62	55	50	46	42	39
	40	59	59	59	59	59	59	59	59	55	50	46	42	39
	50	53	53	53	53	53	53	53	53	53	50	46	42	39
	60	49	49	49	49	49	49	49	49	49	49	46	42	39
	70	46	46	46	46	46	46	46	46	46	46	46	42	39
	80	43	43	43	43	43	43	43	43	43	43	43	42	39
	90	41	41	41	41	41	41	41	41	41	41	41	41	39
Zone 3r	0	89	84	80	77	72	67	63	56	50	45	41	38	35
	10	89	84	80	77	72	67	63	56	50	45	41	38	35
	20	78	78	78	77	72	67	63	56	50	45	41	38	35
	30	67	67	67	67	67	67	63	56	50	45	41	38	35
	40	59	59	59	59	59	59	59	56	50	45	41	38	35
	50	53	53	53	53	53	53	53	53	50	45	41	38	35
	60	49	49	49	49	49	49	49	49	49	45	41	38	35
	70	46	46	46	46	46	46	46	46	46	45	41	38	35
	80	43	43	43	43	43	43	43	43	43	43	41	38	35
	90	41	41	41	41	41	41	41	41	41	41	41	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 105b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	91	87	83	80	76	72	68	61	56	51	47	44	41
	10	91	87	83	80	76	72	68	61	56	51	47	44	41
	20	78	78	78	78	76	72	68	61	56	51	47	44	41
	30	67	67	67	67	67	67	67	61	56	51	47	44	41
	40	59	59	59	59	59	59	59	59	56	51	47	44	41
	50	53	53	53	53	53	53	53	53	53	51	47	44	41
	60	49	49	49	49	49	49	49	49	49	49	47	44	41
	70	46	46	46	46	46	46	46	46	46	46	46	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	78	73	67	63	58	55	52	46	42	38	35	33	31
	10	78	73	67	63	58	55	52	46	42	38	35	33	31
	20	78	73	67	63	58	55	52	46	42	38	35	33	31
	30	67	67	67	63	58	55	52	46	42	38	35	33	31
	40	59	59	59	59	58	55	52	46	42	38	35	33	31
	50	53	53	53	53	53	53	52	46	42	38	35	33	31
	60	49	49	49	49	49	49	49	46	42	38	35	33	31
	70	46	46	46	46	46	46	46	46	42	38	35	33	31
	80	43	43	43	43	43	43	43	43	42	38	35	33	31
	90	41	41	41	41	41	41	41	41	41	38	35	33	31
Zone 3r	0	72	66	61	57	53	49	47	42	38	34	32	30	28
	10	72	66	61	57	53	49	47	42	38	34	32	30	28
	20	72	66	61	57	53	49	47	42	38	34	32	30	28
	30	67	66	61	57	53	49	47	42	38	34	32	30	28
	40	59	59	59	57	53	49	47	42	38	34	32	30	28
	50	53	53	53	53	53	49	47	42	38	34	32	30	28
	60	49	49	49	49	49	49	47	42	38	34	32	30	28
	70	46	46	46	46	46	46	46	42	38	34	32	30	28
	80	43	43	43	43	43	43	43	42	38	34	32	30	28
	90	41	41	41	41	41	41	41	41	38	34	32	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 106a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	98	98	98	98	98	98	93	87	82	78	73
	10	94	94	94	94	94	94	93	90	88	85	82	78	73
	20	81	81	81	81	81	80	79	78	76	74	73	71	69
	30	70	70	70	70	70	70	70	69	68	67	65	64	63
	40	62	62	62	62	62	62	62	62	62	61	60	59	58
	50	56	56	56	56	56	56	56	56	56	56	56	55	54
	60	52	52	52	52	52	52	52	52	52	52	52	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zones 2n & 3r	0	98	98	98	98	98	98	98	91	85	80	76	70	65
	10	94	94	94	94	94	94	93	90	85	80	76	70	65
	20	81	81	81	81	81	80	79	78	76	74	73	70	65
	30	70	70	70	70	70	70	70	69	68	67	65	64	63
	40	62	62	62	62	62	62	62	62	62	61	60	59	58
	50	56	56	56	56	56	56	56	56	56	56	56	55	54
	60	52	52	52	52	52	52	52	52	52	52	52	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3e	0	98	98	98	98	96	92	89	83	78	72	66	60	55
	10	94	94	94	94	94	92	89	83	78	72	66	60	55
	20	81	81	81	81	81	80	79	78	76	72	66	60	55
	30	70	70	70	70	70	70	70	69	68	67	65	60	55
	40	62	62	62	62	62	62	62	62	62	61	60	59	55
	50	56	56	56	56	56	56	56	56	56	56	56	55	54
	60	52	52	52	52	52	52	52	52	52	52	52	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 106b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1.5					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	98	98	96	92	89	82	77	71	64	58	53
	10	94	94	94	94	94	92	89	82	77	71	64	58	53
	20	81	81	81	81	81	80	79	78	76	71	64	58	53
	30	70	70	70	70	70	70	70	69	68	67	64	58	53
	40	62	62	62	62	62	62	62	62	62	61	60	58	53
	50	56	56	56	56	56	56	56	56	56	56	56	55	53
	60	52	52	52	52	52	52	52	52	52	52	52	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zones 2n & 3r	0	98	98	96	92	88	85	82	76	69	63	57	53	49
	10	94	94	94	92	88	85	82	76	69	63	57	53	49
	20	81	81	81	81	81	80	79	76	69	63	57	53	49
	30	70	70	70	70	70	70	70	69	68	63	57	53	49
	40	62	62	62	62	62	62	62	62	62	61	57	53	49
	50	56	56	56	56	56	56	56	56	56	56	56	53	49
	60	52	52	52	52	52	52	52	52	52	52	52	52	49
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zone 3e	0	96	91	87	84	80	77	74	66	59	54	49	45	42
	10	94	91	87	84	80	77	74	66	59	54	49	45	42
	20	81	81	81	81	80	77	74	66	59	54	49	45	42
	30	70	70	70	70	70	70	70	66	59	54	49	45	42
	40	62	62	62	62	62	62	62	62	59	54	49	45	42
	50	56	56	56	56	56	56	56	56	56	54	49	45	42
	60	52	52	52	52	52	52	52	52	52	52	49	45	42
	70	49	49	49	49	49	49	49	49	49	49	49	45	42
	80	46	46	46	46	46	46	46	46	46	46	46	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 107a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	98	98	98	95	92	85	79	75	68	61	56
	10	94	94	93	92	90	89	87	85	79	75	68	61	56
	20	81	80	79	78	78	77	76	74	72	70	68	61	56
	30	70	70	70	70	69	68	68	66	65	63	62	60	56
	40	62	62	62	62	62	62	62	61	59	58	57	56	54
	50	56	56	56	56	56	56	56	56	55	54	53	52	51
	60	52	52	52	52	52	52	52	52	52	51	50	49	48
	70	49	49	49	49	49	49	49	49	49	48	48	47	46
	80	46	46	46	46	46	46	46	46	46	46	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zones 2n & 3r	0	98	98	98	95	91	87	84	78	73	66	60	55	51
	10	94	94	93	92	90	87	84	78	73	66	60	55	51
	20	81	80	79	78	78	77	76	74	72	66	60	55	51
	30	70	70	70	70	69	68	68	66	65	63	60	55	51
	40	62	62	62	62	62	62	62	61	59	58	57	55	51
	50	56	56	56	56	56	56	56	56	55	54	53	52	51
	60	52	52	52	52	52	52	52	52	52	51	50	49	48
	70	49	49	49	49	49	49	49	49	49	48	48	47	46
	80	46	46	46	46	46	46	46	46	46	46	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 3e	0	98	94	90	86	83	80	77	70	62	57	52	47	44
	10	94	94	90	86	83	80	77	70	62	57	52	47	44
	20	81	80	79	78	78	77	76	70	62	57	52	47	44
	30	70	70	70	70	69	68	68	66	62	57	52	47	44
	40	62	62	62	62	62	62	62	61	59	57	52	47	44
	50	56	56	56	56	56	56	56	56	55	54	52	47	44
	60	52	52	52	52	52	52	52	52	52	51	50	47	44
	70	49	49	49	49	49	49	49	49	49	48	48	47	44
	80	46	46	46	46	46	46	46	46	46	46	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 107b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	94	90	86	82	79	76	68	61	55	50	46	42
	10	94	94	90	86	82	79	76	68	61	55	50	46	42
	20	81	80	79	78	78	77	76	68	61	55	50	46	42
	30	70	70	70	70	69	68	68	66	61	55	50	46	42
	40	62	62	62	62	62	62	62	61	59	55	50	46	42
	50	56	56	56	56	56	56	56	56	55	54	50	46	42
	60	52	52	52	52	52	52	52	52	52	51	50	46	42
	70	49	49	49	49	49	49	49	49	49	48	48	46	42
	80	46	46	46	46	46	46	46	46	46	46	45	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zones 2n & 3r	0	91	86	83	79	76	73	68	61	55	50	45	42	39
	10	91	86	83	79	76	73	68	61	55	50	45	42	39
	20	81	80	79	78	76	73	68	61	55	50	45	42	39
	30	70	70	70	70	69	68	68	61	55	50	45	42	39
	40	62	62	62	62	62	62	62	61	55	50	45	42	39
	50	56	56	56	56	56	56	56	56	55	50	45	42	39
	60	52	52	52	52	52	52	52	52	52	50	45	42	39
	70	49	49	49	49	49	49	49	49	49	48	45	42	39
	80	46	46	46	46	46	46	46	46	46	46	45	42	39
	90	43	43	43	43	43	43	43	43	43	43	43	42	39
Zone 3e	0	83	79	75	71	66	62	58	52	47	43	39	36	34
	10	83	79	75	71	66	62	58	52	47	43	39	36	34
	20	81	79	75	71	66	62	58	52	47	43	39	36	34
	30	70	70	70	70	66	62	58	52	47	43	39	36	34
	40	62	62	62	62	62	62	58	52	47	43	39	36	34
	50	56	56	56	56	56	56	56	52	47	43	39	36	34
	60	52	52	52	52	52	52	52	52	47	43	39	36	34
	70	49	49	49	49	49	49	49	49	47	43	39	36	34
	80	46	46	46	46	46	46	46	46	46	43	39	36	34
	90	43	43	43	43	43	43	43	43	43	43	39	36	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 108a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	98	96	92	88	85	79	73	65	59	54	50
	10	94	92	91	89	88	86	84	79	73	65	59	54	50
	20	80	79	78	77	76	75	74	71	69	65	59	54	50
	30	70	70	69	69	68	67	66	64	63	61	59	54	50
	40	62	62	62	62	62	61	61	59	58	57	55	54	50
	50	56	56	56	56	56	56	56	55	54	53	52	51	49
	60	52	52	52	52	52	52	52	52	51	50	49	48	47
	70	49	49	49	49	49	49	49	49	48	47	47	46	45
	80	46	46	46	46	46	46	46	46	46	45	44	44	43
	90	43	43	43	43	43	43	43	43	43	43	43	42	41
Zones 2n & 3r	0	98	96	92	88	84	81	78	72	65	58	53	49	45
	10	94	92	91	88	84	81	78	72	65	58	53	49	45
	20	80	79	78	77	76	75	74	71	65	58	53	49	45
	30	70	70	69	69	68	67	66	64	63	58	53	49	45
	40	62	62	62	62	62	61	61	59	58	57	53	49	45
	50	56	56	56	56	56	56	56	55	54	53	52	49	45
	60	52	52	52	52	52	52	52	52	51	50	49	48	45
	70	49	49	49	49	49	49	49	49	48	47	47	46	45
	80	46	46	46	46	46	46	46	46	46	45	44	44	43
	90	43	43	43	43	43	43	43	43	43	43	43	42	41
Zone 3e	0	92	87	84	80	77	74	69	61	55	50	46	42	39
	10	92	87	84	80	77	74	69	61	55	50	46	42	39
	20	80	79	78	77	76	74	69	61	55	50	46	42	39
	30	70	70	69	69	68	67	66	61	55	50	46	42	39
	40	62	62	62	62	62	61	61	59	55	50	46	42	39
	50	56	56	56	56	56	56	56	55	54	50	46	42	39
	60	52	52	52	52	52	52	52	52	51	50	46	42	39
	70	49	49	49	49	49	49	49	49	48	47	46	42	39
	80	46	46	46	46	46	46	46	46	46	45	44	42	39
	90	43	43	43	43	43	43	43	43	43	43	43	42	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 108b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	92	87	83	79	76	72	68	60	53	48	44	40	37
	10	92	87	83	79	76	72	68	60	53	48	44	40	37
	20	80	79	78	77	76	72	68	60	53	48	44	40	37
	30	70	70	69	69	68	67	66	60	53	48	44	40	37
	40	62	62	62	62	62	61	61	59	53	48	44	40	37
	50	56	56	56	56	56	56	56	55	53	48	44	40	37
	60	52	52	52	52	52	52	52	52	51	48	44	40	37
	70	49	49	49	49	49	49	49	49	48	47	44	40	37
	80	46	46	46	46	46	46	46	46	46	45	44	40	37
	90	43	43	43	43	43	43	43	43	43	43	43	40	37
Zones 2n & 3r	0	84	80	77	73	68	64	60	54	49	44	41	37	35
	10	84	80	77	73	68	64	60	54	49	44	41	37	35
	20	80	79	77	73	68	64	60	54	49	44	41	37	35
	30	70	70	69	69	68	64	60	54	49	44	41	37	35
	40	62	62	62	62	62	61	60	54	49	44	41	37	35
	50	56	56	56	56	56	56	56	54	49	44	41	37	35
	60	52	52	52	52	52	52	52	52	49	44	41	37	35
	70	49	49	49	49	49	49	49	49	48	44	41	37	35
	80	46	46	46	46	46	46	46	46	46	44	41	37	35
	90	43	43	43	43	43	43	43	43	43	43	41	37	35
Zone 3e	0	77	73	67	62	58	55	52	46	42	38	35	33	31
	10	77	73	67	62	58	55	52	46	42	38	35	33	31
	20	77	73	67	62	58	55	52	46	42	38	35	33	31
	30	70	70	67	62	58	55	52	46	42	38	35	33	31
	40	62	62	62	62	58	55	52	46	42	38	35	33	31
	50	56	56	56	56	56	55	52	46	42	38	35	33	31
	60	52	52	52	52	52	52	52	46	42	38	35	33	31
	70	49	49	49	49	49	49	49	46	42	38	35	33	31
	80	46	46	46	46	46	46	46	46	42	38	35	33	31
	90	43	43	43	43	43	43	43	43	42	38	35	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 109a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	93	86	81	75	69	64
	10	85	85	85	85	85	85	85	85	83	81	75	69	64
	20	66	66	66	66	66	66	66	66	66	66	66	65	64
	30	66	66	66	66	66	66	66	66	66	66	66	65	64
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	98	98	98	98	94	91	84	79	72	66	60	56
	10	85	85	85	85	85	85	85	84	79	72	66	60	56
	20	66	66	66	66	66	66	66	66	66	66	66	60	56
	30	66	66	66	66	66	66	66	66	66	66	66	60	56
	40	58	58	58	58	58	58	58	58	58	58	58	58	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	98	98	95	91	88	81	75	68	62	57	53
	10	85	85	85	85	85	85	85	81	75	68	62	57	53
	20	66	66	66	66	66	66	66	66	66	66	62	57	53
	30	66	66	66	66	66	66	66	66	66	66	62	57	53
	40	58	58	58	58	58	58	58	58	58	58	58	57	53
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 109b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	94	89	86	82	76	68	62	58	53	50
	10	85	85	85	85	85	85	82	76	68	62	58	53	50
	20	66	66	66	66	66	66	66	66	66	62	58	53	50
	30	66	66	66	66	66	66	66	66	66	62	58	53	50
	40	58	58	58	58	58	58	58	58	58	58	58	53	50
	50	53	53	53	53	53	53	53	53	53	53	53	53	50
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	93	89	85	82	79	74	66	60	54	50	46	43
	10	85	85	85	85	82	79	74	66	60	54	50	46	43
	20	66	66	66	66	66	66	66	66	60	54	50	46	43
	30	66	66	66	66	66	66	66	66	60	54	50	46	43
	40	58	58	58	58	58	58	58	58	58	54	50	46	43
	50	53	53	53	53	53	53	53	53	53	53	50	46	43
	60	49	49	49	49	49	49	49	49	49	49	49	46	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	95	90	86	82	79	75	70	63	57	52	47	44	40
	10	85	85	85	82	79	75	70	63	57	52	47	44	40
	20	66	66	66	66	66	66	66	63	57	52	47	44	40
	30	66	66	66	66	66	66	66	63	57	52	47	44	40
	40	58	58	58	58	58	58	58	58	57	52	47	44	40
	50	53	53	53	53	53	53	53	53	53	52	47	44	40
	60	49	49	49	49	49	49	49	49	49	49	47	44	40
	70	45	45	45	45	45	45	45	45	45	45	45	44	40
	80	43	43	43	43	43	43	43	43	43	43	43	43	40
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 110a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	97	93	89	85	79	71	65	60	56	52
	10	85	85	85	85	85	84	83	79	71	65	60	56	52
	20	66	66	66	66	66	66	66	66	65	64	60	56	52
	30	66	66	66	66	66	66	66	66	65	64	60	56	52
	40	58	58	58	58	58	58	58	58	58	58	57	56	52
	50	53	53	53	53	53	53	53	53	53	53	53	52	51
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	97	92	88	84	81	78	70	63	57	52	48	45
	10	85	85	85	85	84	81	78	70	63	57	52	48	45
	20	66	66	66	66	66	66	66	66	63	57	52	48	45
	30	66	66	66	66	66	66	66	66	63	57	52	48	45
	40	58	58	58	58	58	58	58	58	58	57	52	48	45
	50	53	53	53	53	53	53	53	53	53	53	52	48	45
	60	49	49	49	49	49	49	49	49	49	49	49	48	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	93	89	85	81	78	74	66	59	54	49	46	42
	10	85	85	85	85	81	78	74	66	59	54	49	46	42
	20	66	66	66	66	66	66	66	66	59	54	49	46	42
	30	66	66	66	66	66	66	66	66	59	54	49	46	42
	40	58	58	58	58	58	58	58	58	58	54	49	46	42
	50	53	53	53	53	53	53	53	53	53	53	49	46	42
	60	49	49	49	49	49	49	49	49	49	49	49	46	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 110b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	92	88	83	80	75	70	67	60	55	51	47	44	41
	10	85	85	83	80	75	70	67	60	55	51	47	44	41
	20	66	66	66	66	66	66	66	60	55	51	47	44	41
	30	66	66	66	66	66	66	66	60	55	51	47	44	41
	40	58	58	58	58	58	58	58	58	55	51	47	44	41
	50	53	53	53	53	53	53	53	53	53	51	47	44	41
	60	49	49	49	49	49	49	49	49	49	49	47	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	84	80	76	71	66	62	59	53	48	43	40	37	35
	10	84	80	76	71	66	62	59	53	48	43	40	37	35
	20	66	66	66	66	66	62	59	53	48	43	40	37	35
	30	66	66	66	66	66	62	59	53	48	43	40	37	35
	40	58	58	58	58	58	58	58	53	48	43	40	37	35
	50	53	53	53	53	53	53	53	53	48	43	40	37	35
	60	49	49	49	49	49	49	49	49	48	43	40	37	35
	70	45	45	45	45	45	45	45	45	45	43	40	37	35
	80	43	43	43	43	43	43	43	43	43	43	40	37	35
	90	40	40	40	40	40	40	40	40	40	40	40	37	35
Zones 2e & 3	0	81	77	72	67	63	59	55	50	45	41	38	35	33
	10	81	77	72	67	63	59	55	50	45	41	38	35	33
	20	66	66	66	66	63	59	55	50	45	41	38	35	33
	30	66	66	66	66	63	59	55	50	45	41	38	35	33
	40	58	58	58	58	58	58	55	50	45	41	38	35	33
	50	53	53	53	53	53	53	53	50	45	41	38	35	33
	60	49	49	49	49	49	49	49	49	45	41	38	35	33
	70	45	45	45	45	45	45	45	45	45	41	38	35	33
	80	43	43	43	43	43	43	43	43	43	41	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 111a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	94	89	85	82	79	70	64	59	54	50	47
	10	85	85	85	84	83	82	79	70	64	59	54	50	47
	20	66	66	66	66	66	66	66	65	64	59	54	50	47
	30	66	66	66	66	66	66	66	65	64	59	54	50	47
	40	58	58	58	58	58	58	58	58	58	57	54	50	47
	50	53	53	53	53	53	53	53	53	53	53	52	50	47
	60	49	49	49	49	49	49	49	49	49	49	48	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	94	89	85	81	78	74	69	62	56	51	47	43	40
	10	85	85	85	81	78	74	69	62	56	51	47	43	40
	20	66	66	66	66	66	66	66	62	56	51	47	43	40
	30	66	66	66	66	66	66	66	62	56	51	47	43	40
	40	58	58	58	58	58	58	58	58	56	51	47	43	40
	50	53	53	53	53	53	53	53	53	53	51	47	43	40
	60	49	49	49	49	49	49	49	49	49	49	47	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	43	43	43	43	43	43	43	43	43	43	43	43	40
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	90	86	82	79	74	69	65	58	53	48	44	41	38
	10	85	85	82	79	74	69	65	58	53	48	44	41	38
	20	66	66	66	66	66	66	65	58	53	48	44	41	38
	30	66	66	66	66	66	66	65	58	53	48	44	41	38
	40	58	58	58	58	58	58	58	58	53	48	44	41	38
	50	53	53	53	53	53	53	53	53	53	48	44	41	38
	60	49	49	49	49	49	49	49	49	49	48	44	41	38
	70	45	45	45	45	45	45	45	45	45	45	44	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 111b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	85	81	77	71	67	63	60	54	50	46	42	39	37
	10	85	81	77	71	67	63	60	54	50	46	42	39	37
	20	66	66	66	66	66	63	60	54	50	46	42	39	37
	30	66	66	66	66	66	63	60	54	50	46	42	39	37
	40	58	58	58	58	58	58	58	54	50	46	42	39	37
	50	53	53	53	53	53	53	53	53	50	46	42	39	37
	60	49	49	49	49	49	49	49	49	49	46	42	39	37
	70	45	45	45	45	45	45	45	45	45	45	42	39	37
	80	43	43	43	43	43	43	43	43	43	43	42	39	37
	90	40	40	40	40	40	40	40	40	40	40	40	39	37
Zone 2r	0	78	72	67	63	59	55	52	47	43	39	36	34	32
	10	78	72	67	63	59	55	52	47	43	39	36	34	32
	20	66	66	66	63	59	55	52	47	43	39	36	34	32
	30	66	66	66	63	59	55	52	47	43	39	36	34	32
	40	58	58	58	58	58	55	52	47	43	39	36	34	32
	50	53	53	53	53	53	53	52	47	43	39	36	34	32
	60	49	49	49	49	49	49	49	47	43	39	36	34	32
	70	45	45	45	45	45	45	45	45	43	39	36	34	32
	80	43	43	43	43	43	43	43	43	43	39	36	34	32
	90	40	40	40	40	40	40	40	40	40	39	36	34	32
Zones 2e & 3	0	74	68	64	59	56	52	50	45	40	37	34	32	30
	10	74	68	64	59	56	52	50	45	40	37	34	32	30
	20	66	66	64	59	56	52	50	45	40	37	34	32	30
	30	66	66	64	59	56	52	50	45	40	37	34	32	30
	40	58	58	58	58	56	52	50	45	40	37	34	32	30
	50	53	53	53	53	53	52	50	45	40	37	34	32	30
	60	49	49	49	49	49	49	49	45	40	37	34	32	30
	70	45	45	45	45	45	45	45	45	40	37	34	32	30
	80	43	43	43	43	43	43	43	43	40	37	34	32	30
	90	40	40	40	40	40	40	40	40	40	37	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 112a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1					
		Exposure Category: B							Roof Type : Hip h/B = ≤ 0.5					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	98	98	93	87	83	79
	10	85	85	85	85	85	85	85	85	83	82	80	79	77
	20	66	66	66	66	66	66	66	66	66	65	64	63	62
	30	66	66	66	66	66	66	66	66	66	65	64	63	62
	40	58	58	58	58	58	58	58	58	58	58	58	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	98	98	98	98	98	94	91	84	79	72	66	60	56
	10	85	85	85	85	85	85	85	84	79	72	66	60	56
	20	66	66	66	66	66	66	66	66	66	65	64	60	56
	30	66	66	66	66	66	66	66	66	66	65	64	60	56
	40	58	58	58	58	58	58	58	58	58	58	58	58	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	98	98	98	98	98	98	98	95	89	84	79	73	67
	10	85	85	85	85	85	85	85	85	83	82	79	73	67
	20	66	66	66	66	66	66	66	66	66	65	64	63	62
	30	66	66	66	66	66	66	66	66	66	65	64	63	62
	40	58	58	58	58	58	58	58	58	58	58	58	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 112b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	95	88	82	77	71	65	61
	10	85	85	85	85	85	85	85	85	82	77	71	65	61
	20	66	66	66	66	66	66	66	66	66	65	64	63	61
	30	66	66	66	66	66	66	66	66	66	65	64	63	61
	40	58	58	58	58	58	58	58	58	58	58	58	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	93	89	85	82	79	74	66	60	54	50	46	43
	10	85	85	85	85	82	79	74	66	60	54	50	46	43
	20	66	66	66	66	66	66	66	66	60	54	50	46	43
	30	66	66	66	66	66	66	66	66	60	54	50	46	43
	40	58	58	58	58	58	58	58	58	58	54	50	46	43
	50	53	53	53	53	53	53	53	53	53	53	50	46	43
	60	49	49	49	49	49	49	49	49	49	49	49	46	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	98	96	92	88	85	79	72	66	60	55	51
	10	85	85	85	85	85	85	85	79	72	66	60	55	51
	20	66	66	66	66	66	66	66	66	66	65	60	55	51
	30	66	66	66	66	66	66	66	66	66	65	60	55	51
	40	58	58	58	58	58	58	58	58	58	58	58	55	51
	50	53	53	53	53	53	53	53	53	53	53	53	53	51
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 113a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	91	85	80	74	68	63
	10	85	85	85	85	85	84	83	81	79	77	74	68	63
	20	66	66	66	66	66	66	66	65	64	62	61	60	59
	30	66	66	66	66	66	66	66	65	64	62	61	60	59
	40	58	58	58	58	58	58	58	58	58	57	56	55	54
	50	53	53	53	53	53	53	53	53	53	53	52	51	50
	60	49	49	49	49	49	49	49	49	49	49	49	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	97	92	88	84	81	78	70	63	57	52	48	45
	10	85	85	85	85	84	81	78	70	63	57	52	48	45
	20	66	66	66	66	66	66	66	65	63	57	52	48	45
	30	66	66	66	66	66	66	66	65	63	57	52	48	45
	40	58	58	58	58	58	58	58	58	58	57	52	48	45
	50	53	53	53	53	53	53	53	53	53	53	52	48	45
	60	49	49	49	49	49	49	49	49	49	49	49	48	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	98	98	95	91	88	82	76	69	63	58	54
	10	85	85	85	85	85	84	83	81	76	69	63	58	54
	20	66	66	66	66	66	66	66	65	64	62	61	58	54
	30	66	66	66	66	66	66	66	65	64	62	61	58	54
	40	58	58	58	58	58	58	58	58	58	57	56	55	54
	50	53	53	53	53	53	53	53	53	53	53	52	51	50
	60	49	49	49	49	49	49	49	49	49	49	49	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 113b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	96	92	88	84	81	75	67	62	57	53	49
	10	85	85	85	85	85	84	81	75	67	62	57	53	49
	20	66	66	66	66	66	66	66	65	64	62	57	53	49
	30	66	66	66	66	66	66	66	65	64	62	57	53	49
	40	58	58	58	58	58	58	58	58	58	57	56	53	49
	50	53	53	53	53	53	53	53	53	53	53	52	51	49
	60	49	49	49	49	49	49	49	49	49	49	49	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	84	80	76	71	66	62	59	53	48	43	40	37	35
	10	84	80	76	71	66	62	59	53	48	43	40	37	35
	20	66	66	66	66	66	62	59	53	48	43	40	37	35
	30	66	66	66	66	66	62	59	53	48	43	40	37	35
	40	58	58	58	58	58	58	58	53	48	43	40	37	35
	50	53	53	53	53	53	53	53	53	48	43	40	37	35
	60	49	49	49	49	49	49	49	49	48	43	40	37	35
	70	45	45	45	45	45	45	45	45	45	43	40	37	35
	80	43	43	43	43	43	43	43	43	43	43	40	37	35
90	40	40	40	40	40	40	40	40	40	40	40	37	35	
Zones 2e & 3	0	95	90	86	83	79	75	71	63	57	52	48	44	41
	10	85	85	85	83	79	75	71	63	57	52	48	44	41
	20	66	66	66	66	66	66	66	63	57	52	48	44	41
	30	66	66	66	66	66	66	66	63	57	52	48	44	41
	40	58	58	58	58	58	58	58	58	57	52	48	44	41
	50	53	53	53	53	53	53	53	53	53	52	48	44	41
	60	49	49	49	49	49	49	49	49	49	49	48	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 114a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	94	90	84	79	72	66	61	57
	10	85	85	85	84	83	82	81	79	77	72	66	61	57
	20	66	66	66	66	66	65	65	63	62	61	59	58	56
	30	66	66	66	66	66	65	65	63	62	61	59	58	56
	40	58	58	58	58	58	58	58	58	57	56	55	54	52
	50	53	53	53	53	53	53	53	53	53	52	51	50	49
	60	49	49	49	49	49	49	49	49	49	49	48	47	46
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	94	89	85	81	78	74	69	62	56	51	47	43	40
	10	85	85	85	81	78	74	69	62	56	51	47	43	40
	20	66	66	66	66	66	65	65	62	56	51	47	43	40
	30	66	66	66	66	66	65	65	62	56	51	47	43	40
	40	58	58	58	58	58	58	58	58	56	51	47	43	40
	50	53	53	53	53	53	53	53	53	53	51	47	43	40
	60	49	49	49	49	49	49	49	49	49	49	47	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	43	43	43	43	43	43	43	43	43	43	43	43	40
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	98	98	96	92	88	85	81	75	67	61	56	52	48
	10	85	85	85	84	83	82	81	75	67	61	56	52	48
	20	66	66	66	66	66	65	65	63	62	61	56	52	48
	30	66	66	66	66	66	65	65	63	62	61	56	52	48
	40	58	58	58	58	58	58	58	58	57	56	55	52	48
	50	53	53	53	53	53	53	53	53	53	52	51	50	48
	60	49	49	49	49	49	49	49	49	49	49	48	47	46
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 114b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	93	89	85	81	78	74	67	61	56	52	48	45
	10	85	85	85	84	81	78	74	67	61	56	52	48	45
	20	66	66	66	66	66	65	65	63	61	56	52	48	45
	30	66	66	66	66	66	65	65	63	61	56	52	48	45
	40	58	58	58	58	58	58	58	58	57	56	52	48	45
	50	53	53	53	53	53	53	53	53	53	52	51	48	45
	60	49	49	49	49	49	49	49	49	49	49	48	47	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	78	72	67	63	59	55	52	47	43	39	36	34	32
	10	78	72	67	63	59	55	52	47	43	39	36	34	32
	20	66	66	66	63	59	55	52	47	43	39	36	34	32
	30	66	66	66	63	59	55	52	47	43	39	36	34	32
	40	58	58	58	58	58	55	52	47	43	39	36	34	32
	50	53	53	53	53	53	53	52	47	43	39	36	34	32
	60	49	49	49	49	49	49	49	47	43	39	36	34	32
	70	45	45	45	45	45	45	45	45	43	39	36	34	32
	80	43	43	43	43	43	43	43	43	43	39	36	34	32
90	40	40	40	40	40	40	40	40	40	39	36	34	32	
Zones 2e & 3	0	88	84	80	76	71	67	63	57	51	47	43	40	37
	10	85	84	80	76	71	67	63	57	51	47	43	40	37
	20	66	66	66	66	66	65	63	57	51	47	43	40	37
	30	66	66	66	66	66	65	63	57	51	47	43	40	37
	40	58	58	58	58	58	58	58	57	51	47	43	40	37
	50	53	53	53	53	53	53	53	53	51	47	43	40	37
	60	49	49	49	49	49	49	49	49	49	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 115a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	98	98	96	90	86	81
	10	93	93	93	93	93	93	93	93	92	90	88	86	81
	20	78	78	78	78	78	78	78	78	77	76	74	73	72
	30	67	67	67	67	67	67	67	67	67	67	66	65	64
	40	59	59	59	59	59	59	59	59	59	59	59	59	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	98	98	98	98	98	92	86	81	76	70	64
	10	93	93	93	93	93	93	93	92	86	81	76	70	64
	20	78	78	78	78	78	78	78	78	77	76	74	70	64
	30	67	67	67	67	67	67	67	67	67	67	66	65	64
	40	59	59	59	59	59	59	59	59	59	59	59	59	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 115b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	91	85	80	75	68	63
	10	93	93	93	93	93	93	93	91	85	80	75	68	63
	20	78	78	78	78	78	78	78	78	77	76	74	68	63
	30	67	67	67	67	67	67	67	67	67	67	66	65	63
	40	59	59	59	59	59	59	59	59	59	59	59	59	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	97	93	89	86	82	77	69	63	57	52	49
	10	93	93	93	93	89	86	82	77	69	63	57	52	49
	20	78	78	78	78	78	78	78	77	69	63	57	52	49
	30	67	67	67	67	67	67	67	67	67	63	57	52	49
	40	59	59	59	59	59	59	59	59	59	59	57	52	49
	50	53	53	53	53	53	53	53	53	53	53	53	52	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 116a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	94	88	82	78	72	66
	10	93	93	93	93	93	92	91	89	87	82	78	72	66
	20	78	78	78	78	78	77	77	75	74	72	70	69	66
	30	67	67	67	67	67	67	67	66	65	64	63	62	60
	40	59	59	59	59	59	59	59	59	59	58	57	56	55
	50	53	53	53	53	53	53	53	53	53	53	53	52	51
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	98	96	92	88	85	79	73	66	60	55	51
	10	93	93	93	93	92	88	85	79	73	66	60	55	51
	20	78	78	78	78	78	77	77	75	73	66	60	55	51
	30	67	67	67	67	67	67	67	66	65	64	60	55	51
	40	59	59	59	59	59	59	59	59	59	58	57	55	51
	50	53	53	53	53	53	53	53	53	53	53	53	52	51
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 116b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	95	91	87	84	78	71	64	58	53	49
	10	93	93	93	93	91	87	84	78	71	64	58	53	49
	20	78	78	78	78	78	77	77	75	71	64	58	53	49
	30	67	67	67	67	67	67	67	66	65	64	58	53	49
	40	59	59	59	59	59	59	59	59	59	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	52	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	92	87	83	80	77	72	68	60	54	49	45	42	39
	10	92	87	83	80	77	72	68	60	54	49	45	42	39
	20	78	78	78	78	77	72	68	60	54	49	45	42	39
	30	67	67	67	67	67	67	67	60	54	49	45	42	39
	40	59	59	59	59	59	59	59	59	54	49	45	42	39
	50	53	53	53	53	53	53	53	53	53	49	45	42	39
	60	49	49	49	49	49	49	49	49	49	49	45	42	39
	70	46	46	46	46	46	46	46	46	46	46	45	42	39
	80	43	43	43	43	43	43	43	43	43	43	43	42	39
	90	41	41	41	41	41	41	41	41	41	41	41	41	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 117a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1					
		Exposure Category: D							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	94	87	81	76	69	63	58
	10	93	93	93	93	91	90	89	86	81	76	69	63	58
	20	78	78	78	78	77	76	75	73	72	70	68	63	58
	30	67	67	67	67	67	67	66	65	64	62	61	60	58
	40	59	59	59	59	59	59	59	59	58	57	56	55	54
	50	53	53	53	53	53	53	53	53	53	53	52	51	50
	60	49	49	49	49	49	49	49	49	49	49	49	48	47
	70	46	46	46	46	46	46	46	46	46	46	46	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	93	89	85	82	79	72	64	58	53	49	45
	10	93	93	93	89	85	82	79	72	64	58	53	49	45
	20	78	78	78	78	77	76	75	72	64	58	53	49	45
	30	67	67	67	67	67	67	66	65	64	58	53	49	45
	40	59	59	59	59	59	59	59	59	58	57	53	49	45
	50	53	53	53	53	53	53	53	53	53	53	52	49	45
	60	49	49	49	49	49	49	49	49	49	49	49	48	45
	70	46	46	46	46	46	46	46	46	46	46	46	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 117b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	96	92	88	84	81	78	70	63	57	52	48	44
	10	93	93	92	88	84	81	78	70	63	57	52	48	44
	20	78	78	78	78	77	76	75	70	63	57	52	48	44
	30	67	67	67	67	67	67	66	65	63	57	52	48	44
	40	59	59	59	59	59	59	59	59	58	57	52	48	44
	50	53	53	53	53	53	53	53	53	53	53	52	48	44
	60	49	49	49	49	49	49	49	49	49	49	49	48	44
	70	46	46	46	46	46	46	46	46	46	46	46	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	85	81	77	73	68	64	60	54	48	44	41	37	35
	10	85	81	77	73	68	64	60	54	48	44	41	37	35
	20	78	78	77	73	68	64	60	54	48	44	41	37	35
	30	67	67	67	67	67	64	60	54	48	44	41	37	35
	40	59	59	59	59	59	59	59	54	48	44	41	37	35
	50	53	53	53	53	53	53	53	53	48	44	41	37	35
	60	49	49	49	49	49	49	49	49	48	44	41	37	35
	70	46	46	46	46	46	46	46	46	46	44	41	37	35
	80	43	43	43	43	43	43	43	43	43	43	41	37	35
	90	41	41	41	41	41	41	41	41	41	41	41	37	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 118a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	98	97	91	86	81	78
	10	94	94	94	94	94	94	94	94	94	91	86	81	78
	20	81	81	81	81	81	81	81	81	80	78	77	76	74
	30	70	70	70	70	70	70	70	70	70	70	69	68	67
	40	62	62	62	62	62	62	62	62	62	62	62	62	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	98	98	98	98	98	91	85	80	76
	10	94	94	94	94	94	94	94	94	94	91	85	80	76
	20	81	81	81	81	81	81	81	81	80	78	77	76	74
	30	70	70	70	70	70	70	70	70	70	70	69	68	67
	40	62	62	62	62	62	62	62	62	62	62	62	62	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	98	98	98	98	98	96	89	83	78	73	66	61
	10	94	94	94	94	94	94	94	89	83	78	73	66	61
	20	81	81	81	81	81	81	81	81	80	78	73	66	61
	30	70	70	70	70	70	70	70	70	70	70	69	66	61
	40	62	62	62	62	62	62	62	62	62	62	62	62	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	98	98	98	98	98	93	86	80	75	68	61
	10	94	94	94	94	94	94	94	93	86	80	75	68	61
	20	81	81	81	81	81	81	81	81	80	78	75	68	61
	30	70	70	70	70	70	70	70	70	70	70	69	68	61
	40	62	62	62	62	62	62	62	62	62	62	62	62	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 118b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	97	93	86	81	76	71	65	59
	10	94	94	94	94	94	94	93	86	81	76	71	65	59
	20	81	81	81	81	81	81	81	81	80	76	71	65	59
	30	70	70	70	70	70	70	70	70	70	70	69	65	59
	40	62	62	62	62	62	62	62	62	62	62	62	62	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	98	97	93	86	80	74	67	60	55
	10	94	94	94	94	94	94	93	86	80	74	67	60	55
	20	81	81	81	81	81	81	81	81	80	74	67	60	55
	30	70	70	70	70	70	70	70	70	70	70	67	60	55
	40	62	62	62	62	62	62	62	62	62	62	62	60	55
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	98	94	90	86	82	79	74	66	59	53	49	45
	10	94	94	94	90	86	82	79	74	66	59	53	49	45
	20	81	81	81	81	81	81	79	74	66	59	53	49	45
	30	70	70	70	70	70	70	70	70	66	59	53	49	45
	40	62	62	62	62	62	62	62	62	62	59	53	49	45
	50	56	56	56	56	56	56	56	56	56	56	53	49	45
	60	52	52	52	52	52	52	52	52	52	52	52	49	45
	70	49	49	49	49	49	49	49	49	49	49	49	49	45
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	98	94	89	85	82	75	67	59	53	48	43
	10	94	94	94	94	89	85	82	75	67	59	53	48	43
	20	81	81	81	81	81	81	81	75	67	59	53	48	43
	30	70	70	70	70	70	70	70	70	67	59	53	48	43
	40	62	62	62	62	62	62	62	62	62	59	53	48	43
	50	56	56	56	56	56	56	56	56	56	56	53	48	43
	60	52	52	52	52	52	52	52	52	52	52	52	48	43
	70	49	49	49	49	49	49	49	49	49	49	49	48	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 119a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	96	89	83	78	74	68	63
	10	94	94	94	94	94	94	93	89	83	78	74	68	63
	20	81	81	81	81	81	80	79	78	76	75	73	68	63
	30	70	70	70	70	70	70	70	69	68	67	66	64	63
	40	62	62	62	62	62	62	62	62	62	61	60	59	58
	50	56	56	56	56	56	56	56	56	56	56	56	55	54
	60	52	52	52	52	52	52	52	52	52	52	52	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	98	98	96	89	82	77	71	64	58
	10	94	94	94	94	94	94	93	89	82	77	71	64	58
	20	81	81	81	81	81	80	79	78	76	75	71	64	58
	30	70	70	70	70	70	70	70	69	68	67	66	64	58
	40	62	62	62	62	62	62	62	62	62	61	60	59	58
	50	56	56	56	56	56	56	56	56	56	56	56	55	54
	60	52	52	52	52	52	52	52	52	52	52	52	52	51
	70	49	49	49	49	49	49	49	49	49	49	49	49	48
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	98	97	93	89	85	82	76	69	62	56	51	47
	10	94	94	94	93	89	85	82	76	69	62	56	51	47
	20	81	81	81	81	81	80	79	76	69	62	56	51	47
	30	70	70	70	70	70	70	70	69	68	62	56	51	47
	40	62	62	62	62	62	62	62	62	62	61	56	51	47
	50	56	56	56	56	56	56	56	56	56	56	56	51	47
	60	52	52	52	52	52	52	52	52	52	52	52	51	47
	70	49	49	49	49	49	49	49	49	49	49	49	49	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	98	98	93	88	85	78	71	63	56	50	46
	10	94	94	94	94	93	88	85	78	71	63	56	50	46
	20	81	81	81	81	81	80	79	78	71	63	56	50	46
	30	70	70	70	70	70	70	70	69	68	63	56	50	46
	40	62	62	62	62	62	62	62	62	62	61	56	50	46
	50	56	56	56	56	56	56	56	56	56	56	56	50	46
	60	52	52	52	52	52	52	52	52	52	52	52	50	46
	70	49	49	49	49	49	49	49	49	49	49	49	49	46
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 119b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	94	90	86	83	80	75	67	61	55	51	47
	10	94	94	94	90	86	83	80	75	67	61	55	51	47
	20	81	81	81	81	81	80	79	75	67	61	55	51	47
	30	70	70	70	70	70	70	70	69	67	61	55	51	47
	40	62	62	62	62	62	62	62	62	62	61	55	51	47
	50	56	56	56	56	56	56	56	56	56	56	55	51	47
	60	52	52	52	52	52	52	52	52	52	52	52	51	47
	70	49	49	49	49	49	49	49	49	49	49	49	49	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	94	90	85	82	78	72	63	56	50	46	42
	10	94	94	94	90	85	82	78	72	63	56	50	46	42
	20	81	81	81	81	81	80	78	72	63	56	50	46	42
	30	70	70	70	70	70	70	70	69	63	56	50	46	42
	40	62	62	62	62	62	62	62	62	62	56	50	46	42
	50	56	56	56	56	56	56	56	56	56	56	50	46	42
	60	52	52	52	52	52	52	52	52	52	52	50	46	42
	70	49	49	49	49	49	49	49	49	49	49	49	46	42
	80	46	46	46	46	46	46	46	46	46	46	46	46	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 2r	0	89	84	80	77	74	69	64	57	51	46	42	38	35
	10	89	84	80	77	74	69	64	57	51	46	42	38	35
	20	81	81	80	77	74	69	64	57	51	46	42	38	35
	30	70	70	70	70	70	69	64	57	51	46	42	38	35
	40	62	62	62	62	62	62	62	57	51	46	42	38	35
	50	56	56	56	56	56	56	56	56	51	46	42	38	35
	60	52	52	52	52	52	52	52	52	51	46	42	38	35
	70	49	49	49	49	49	49	49	49	49	46	42	38	35
	80	46	46	46	46	46	46	46	46	46	46	42	38	35
	90	43	43	43	43	43	43	43	43	43	43	42	38	35
Zone 3	0	93	87	83	79	75	71	65	56	50	44	40	37	34
	10	93	87	83	79	75	71	65	56	50	44	40	37	34
	20	81	81	81	79	75	71	65	56	50	44	40	37	34
	30	70	70	70	70	70	70	65	56	50	44	40	37	34
	40	62	62	62	62	62	62	62	56	50	44	40	37	34
	50	56	56	56	56	56	56	56	56	50	44	40	37	34
	60	52	52	52	52	52	52	52	52	50	44	40	37	34
	70	49	49	49	49	49	49	49	49	49	44	40	37	34
	80	46	46	46	46	46	46	46	46	46	44	40	37	34
	90	43	43	43	43	43	43	43	43	43	43	40	37	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 120a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	96	92	89	83	77	73	66	60	55
	10	94	94	94	94	93	92	89	83	77	73	66	60	55
	20	81	81	81	80	79	79	78	76	74	72	66	60	55
	30	70	70	70	70	70	70	69	68	67	65	64	60	55
	40	62	62	62	62	62	62	62	62	61	60	59	57	55
	50	56	56	56	56	56	56	56	56	56	56	55	54	53
	60	52	52	52	52	52	52	52	52	52	52	51	51	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	97	92	88	81	76	69	61	55	50
	10	94	94	94	94	93	92	88	81	76	69	61	55	50
	20	81	81	81	80	79	79	78	76	74	69	61	55	50
	30	70	70	70	70	70	70	69	68	67	65	61	55	50
	40	62	62	62	62	62	62	62	62	61	60	59	55	50
	50	56	56	56	56	56	56	56	56	56	56	55	54	50
	60	52	52	52	52	52	52	52	52	52	52	51	51	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	94	90	86	82	79	76	68	61	55	50	45	42
	10	94	94	90	86	82	79	76	68	61	55	50	45	42
	20	81	81	81	80	79	79	76	68	61	55	50	45	42
	30	70	70	70	70	70	70	69	68	61	55	50	45	42
	40	62	62	62	62	62	62	62	62	61	55	50	45	42
	50	56	56	56	56	56	56	56	56	56	55	50	45	42
	60	52	52	52	52	52	52	52	52	52	52	50	45	42
	70	49	49	49	49	49	49	49	49	49	49	49	45	42
	80	46	46	46	46	46	46	46	46	46	46	46	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 3	0	98	98	94	89	85	81	78	70	61	54	48	44	40
	10	94	94	94	89	85	81	78	70	61	54	48	44	40
	20	81	81	81	80	79	79	78	70	61	54	48	44	40
	30	70	70	70	70	70	70	69	68	61	54	48	44	40
	40	62	62	62	62	62	62	62	62	61	54	48	44	40
	50	56	56	56	56	56	56	56	56	56	54	48	44	40
	60	52	52	52	52	52	52	52	52	52	52	48	44	40
	70	49	49	49	49	49	49	49	49	49	49	48	44	40
	80	46	46	46	46	46	46	46	46	46	46	46	44	40
	90	43	43	43	43	43	43	43	43	43	43	43	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 120b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	96	91	87	83	80	77	74	66	59	54	49	45	42
	10	94	91	87	83	80	77	74	66	59	54	49	45	42
	20	81	81	81	80	79	77	74	66	59	54	49	45	42
	30	70	70	70	70	70	70	69	66	59	54	49	45	42
	40	62	62	62	62	62	62	62	62	59	54	49	45	42
	50	56	56	56	56	56	56	56	56	56	54	49	45	42
	60	52	52	52	52	52	52	52	52	52	52	49	45	42
	70	49	49	49	49	49	49	49	49	49	49	49	45	42
	80	46	46	46	46	46	46	46	46	46	46	46	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 2e	0	96	91	86	82	79	75	71	62	55	49	44	40	37
	10	94	91	86	82	79	75	71	62	55	49	44	40	37
	20	81	81	81	80	79	75	71	62	55	49	44	40	37
	30	70	70	70	70	70	70	69	62	55	49	44	40	37
	40	62	62	62	62	62	62	62	62	55	49	44	40	37
	50	56	56	56	56	56	56	56	56	55	49	44	40	37
	60	52	52	52	52	52	52	52	52	52	49	44	40	37
	70	49	49	49	49	49	49	49	49	49	49	44	40	37
	80	46	46	46	46	46	46	46	46	46	46	44	40	37
	90	43	43	43	43	43	43	43	43	43	43	43	40	37
Zone 2r	0	82	78	74	69	64	60	56	50	45	41	37	34	32
	10	82	78	74	69	64	60	56	50	45	41	37	34	32
	20	81	78	74	69	64	60	56	50	45	41	37	34	32
	30	70	70	70	69	64	60	56	50	45	41	37	34	32
	40	62	62	62	62	62	60	56	50	45	41	37	34	32
	50	56	56	56	56	56	56	56	50	45	41	37	34	32
	60	52	52	52	52	52	52	52	50	45	41	37	34	32
	70	49	49	49	49	49	49	49	49	45	41	37	34	32
	80	46	46	46	46	46	46	46	46	45	41	37	34	32
	90	43	43	43	43	43	43	43	43	43	41	37	34	32
Zone 3	0	85	80	76	71	65	60	56	49	43	39	35	33	30
	10	85	80	76	71	65	60	56	49	43	39	35	33	30
	20	81	80	76	71	65	60	56	49	43	39	35	33	30
	30	70	70	70	70	65	60	56	49	43	39	35	33	30
	40	62	62	62	62	62	60	56	49	43	39	35	33	30
	50	56	56	56	56	56	56	56	49	43	39	35	33	30
	60	52	52	52	52	52	52	52	49	43	39	35	33	30
	70	49	49	49	49	49	49	49	49	43	39	35	33	30
	80	46	46	46	46	46	46	46	46	43	39	35	33	30
	90	43	43	43	43	43	43	43	43	43	39	35	33	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 121a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	98	98	93	89	84
	10	91	91	91	91	91	91	91	91	91	91	91	89	84
	20	72	72	72	72	72	72	72	72	72	72	72	72	72
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	98	98	98	95	89	83	77	71	65	61
	10	91	91	91	91	91	91	91	89	83	77	71	65	61
	20	72	72	72	72	72	72	72	72	72	72	71	65	61
	30	70	70	70	70	70	70	70	70	70	70	70	65	61
	40	62	62	62	62	62	62	62	62	62	62	62	62	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	98	98	98	94	90	86	83	76	69	63	58	53	50
	10	91	91	91	91	90	86	83	76	69	63	58	53	50
	20	72	72	72	72	72	72	72	72	69	63	58	53	50
	30	70	70	70	70	70	70	70	70	69	63	58	53	50
	40	62	62	62	62	62	62	62	62	62	62	58	53	50
	50	56	56	56	56	56	56	56	56	56	56	56	53	50
	60	52	52	52	52	52	52	52	52	52	52	52	52	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	95	90	86	82	79	74	69	62	56	51	47	44	40
	10	91	90	86	82	79	74	69	62	56	51	47	44	40
	20	72	72	72	72	72	72	69	62	56	51	47	44	40
	30	70	70	70	70	70	70	69	62	56	51	47	44	40
	40	62	62	62	62	62	62	62	62	56	51	47	44	40
	50	56	56	56	56	56	56	56	56	56	51	47	44	40
	60	52	52	52	52	52	52	52	52	52	51	47	44	40
	70	48	48	48	48	48	48	48	48	48	48	47	44	40
	80	45	45	45	45	45	45	45	45	45	45	45	44	40
	90	43	43	43	43	43	43	43	43	43	43	43	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 121b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	94	88	83	78	72	67
	10	91	91	91	91	91	91	91	91	88	83	78	72	67
	20	72	72	72	72	72	72	72	72	72	72	72	72	67
	30	70	70	70	70	70	70	70	70	70	70	70	70	67
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	94	89	86	83	80	71	65	59	54	50	47
	10	91	91	91	89	86	83	80	71	65	59	54	50	47
	20	72	72	72	72	72	72	72	71	65	59	54	50	47
	30	70	70	70	70	70	70	70	70	65	59	54	50	47
	40	62	62	62	62	62	62	62	62	62	59	54	50	47
	50	56	56	56	56	56	56	56	56	56	56	54	50	47
	60	52	52	52	52	52	52	52	52	52	52	52	50	47
	70	48	48	48	48	48	48	48	48	48	48	48	48	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	90	85	82	78	73	68	65	58	53	48	45	41	38
	10	90	85	82	78	73	68	65	58	53	48	45	41	38
	20	72	72	72	72	72	68	65	58	53	48	45	41	38
	30	70	70	70	70	70	68	65	58	53	48	45	41	38
	40	62	62	62	62	62	62	62	58	53	48	45	41	38
	50	56	56	56	56	56	56	56	56	53	48	45	41	38
	60	52	52	52	52	52	52	52	52	52	48	45	41	38
	70	48	48	48	48	48	48	48	48	48	48	45	41	38
	80	45	45	45	45	45	45	45	45	45	45	45	41	38
	90	43	43	43	43	43	43	43	43	43	43	43	41	38
Zone 3	0	78	73	68	63	59	56	53	47	43	39	36	34	32
	10	78	73	68	63	59	56	53	47	43	39	36	34	32
	20	72	72	68	63	59	56	53	47	43	39	36	34	32
	30	70	70	68	63	59	56	53	47	43	39	36	34	32
	40	62	62	62	62	59	56	53	47	43	39	36	34	32
	50	56	56	56	56	56	56	53	47	43	39	36	34	32
	60	52	52	52	52	52	52	52	47	43	39	36	34	32
	70	48	48	48	48	48	48	48	47	43	39	36	34	32
	80	45	45	45	45	45	45	45	45	43	39	36	34	32
	90	43	43	43	43	43	43	43	43	43	39	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 122a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	98	93	87	83	78	73
	10	91	91	91	91	91	91	91	91	91	87	83	78	73
	20	72	72	72	72	72	72	72	72	72	72	72	72	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	98	98	95	91	87	84	78	70	64	59	54	50
	10	91	91	91	91	91	87	84	78	70	64	59	54	50
	20	72	72	72	72	72	72	72	72	70	64	59	54	50
	30	70	70	70	70	70	70	70	70	70	64	59	54	50
	40	62	62	62	62	62	62	62	62	62	62	59	54	50
	50	56	56	56	56	56	56	56	56	56	56	56	54	50
	60	52	52	52	52	52	52	52	52	52	52	52	52	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	95	90	86	82	79	74	70	63	57	52	48	45	41
	10	91	90	86	82	79	74	70	63	57	52	48	45	41
	20	72	72	72	72	72	72	70	63	57	52	48	45	41
	30	70	70	70	70	70	70	70	63	57	52	48	45	41
	40	62	62	62	62	62	62	62	62	57	52	48	45	41
	50	56	56	56	56	56	56	56	56	56	52	48	45	41
	60	52	52	52	52	52	52	52	52	52	52	48	45	41
	70	48	48	48	48	48	48	48	48	48	48	48	45	41
	80	45	45	45	45	45	45	45	45	45	45	45	45	41
	90	43	43	43	43	43	43	43	43	43	43	43	43	41
Zone 3	0	83	79	74	69	64	61	57	51	47	43	39	36	34
	10	83	79	74	69	64	61	57	51	47	43	39	36	34
	20	72	72	72	69	64	61	57	51	47	43	39	36	34
	30	70	70	70	69	64	61	57	51	47	43	39	36	34
	40	62	62	62	62	62	61	57	51	47	43	39	36	34
	50	56	56	56	56	56	56	56	51	47	43	39	36	34
	60	52	52	52	52	52	52	52	51	47	43	39	36	34
	70	48	48	48	48	48	48	48	48	47	43	39	36	34
	80	45	45	45	45	45	45	45	45	45	43	39	36	34
	90	43	43	43	43	43	43	43	43	43	43	39	36	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 122b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	96	92	89	83	77	71	65	61	57
	10	91	91	91	91	91	91	89	83	77	71	65	61	57
	20	72	72	72	72	72	72	72	72	72	71	65	61	57
	30	70	70	70	70	70	70	70	70	70	70	65	61	57
	40	62	62	62	62	62	62	62	62	62	62	62	61	57
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	90	86	82	79	74	69	66	59	54	49	45	42	39
	10	90	86	82	79	74	69	66	59	54	49	45	42	39
	20	72	72	72	72	72	69	66	59	54	49	45	42	39
	30	70	70	70	70	70	69	66	59	54	49	45	42	39
	40	62	62	62	62	62	62	62	59	54	49	45	42	39
	50	56	56	56	56	56	56	56	56	54	49	45	42	39
	60	52	52	52	52	52	52	52	52	52	49	45	42	39
	70	48	48	48	48	48	48	48	48	48	48	45	42	39
	80	45	45	45	45	45	45	45	45	45	45	45	42	39
	90	43	43	43	43	43	43	43	43	43	43	43	42	39
Zone 2	0	79	73	68	64	60	57	54	48	44	40	37	35	33
	10	79	73	68	64	60	57	54	48	44	40	37	35	33
	20	72	72	68	64	60	57	54	48	44	40	37	35	33
	30	70	70	68	64	60	57	54	48	44	40	37	35	33
	40	62	62	62	62	60	57	54	48	44	40	37	35	33
	50	56	56	56	56	56	56	54	48	44	40	37	35	33
	60	52	52	52	52	52	52	52	48	44	40	37	35	33
	70	48	48	48	48	48	48	48	48	44	40	37	35	33
	80	45	45	45	45	45	45	45	45	44	40	37	35	33
	90	43	43	43	43	43	43	43	43	43	40	37	35	33
Zone 3	0	64	60	56	52	49	46	44	39	36	33	31	29	28
	10	64	60	56	52	49	46	44	39	36	33	31	29	28
	20	64	60	56	52	49	46	44	39	36	33	31	29	28
	30	64	60	56	52	49	46	44	39	36	33	31	29	28
	40	62	60	56	52	49	46	44	39	36	33	31	29	28
	50	56	56	56	52	49	46	44	39	36	33	31	29	28
	60	52	52	52	52	49	46	44	39	36	33	31	29	28
	70	48	48	48	48	48	46	44	39	36	33	31	29	28
	80	45	45	45	45	45	45	44	39	36	33	31	29	28
	90	43	43	43	43	43	43	43	39	36	33	31	29	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 123a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	98	98	98	98	93	87	82	77	71	66
	10	91	91	91	91	91	91	91	91	87	82	77	71	66
	20	72	72	72	72	72	72	72	72	72	72	71	70	66
	30	70	70	70	70	70	70	70	70	70	70	70	69	66
	40	62	62	62	62	62	62	62	62	62	62	62	62	62
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	98	97	92	88	85	82	78	70	63	58	53	49	46
	10	91	91	91	88	85	82	78	70	63	58	53	49	46
	20	72	72	72	72	72	72	72	70	63	58	53	49	46
	30	70	70	70	70	70	70	70	70	63	58	53	49	46
	40	62	62	62	62	62	62	62	62	62	58	53	49	46
	50	56	56	56	56	56	56	56	56	56	56	53	49	46
	60	52	52	52	52	52	52	52	52	52	52	52	49	46
	70	48	48	48	48	48	48	48	48	48	48	48	48	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2	0	88	84	81	76	71	67	64	57	52	48	44	41	38
	10	88	84	81	76	71	67	64	57	52	48	44	41	38
	20	72	72	72	72	71	67	64	57	52	48	44	41	38
	30	70	70	70	70	70	67	64	57	52	48	44	41	38
	40	62	62	62	62	62	62	62	57	52	48	44	41	38
	50	56	56	56	56	56	56	56	56	52	48	44	41	38
	60	52	52	52	52	52	52	52	52	52	48	44	41	38
	70	48	48	48	48	48	48	48	48	48	48	44	41	38
	80	45	45	45	45	45	45	45	45	45	45	44	41	38
	90	43	43	43	43	43	43	43	43	43	43	43	41	38
Zone 3	0	77	71	66	62	58	55	52	47	42	39	36	33	32
	10	77	71	66	62	58	55	52	47	42	39	36	33	32
	20	72	71	66	62	58	55	52	47	42	39	36	33	32
	30	70	70	66	62	58	55	52	47	42	39	36	33	32
	40	62	62	62	62	58	55	52	47	42	39	36	33	32
	50	56	56	56	56	56	55	52	47	42	39	36	33	32
	60	52	52	52	52	52	52	52	47	42	39	36	33	32
	70	48	48	48	48	48	48	48	47	42	39	36	33	32
	80	45	45	45	45	45	45	45	45	42	39	36	33	32
	90	43	43	43	43	43	43	43	43	42	39	36	33	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 123b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	98	98	98	94	90	86	83	77	70	65	60	55	52
	10	91	91	91	91	90	86	83	77	70	65	60	55	52
	20	72	72	72	72	72	72	72	72	70	65	60	55	52
	30	70	70	70	70	70	70	70	70	70	65	60	55	52
	40	62	62	62	62	62	62	62	62	62	62	60	55	52
	50	56	56	56	56	56	56	56	56	56	56	56	55	52
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 1	0	85	81	76	71	67	63	59	54	49	45	41	38	35
	10	85	81	76	71	67	63	59	54	49	45	41	38	35
	20	72	72	72	71	67	63	59	54	49	45	41	38	35
	30	70	70	70	70	67	63	59	54	49	45	41	38	35
	40	62	62	62	62	62	62	59	54	49	45	41	38	35
	50	56	56	56	56	56	56	56	54	49	45	41	38	35
	60	52	52	52	52	52	52	52	52	49	45	41	38	35
	70	48	48	48	48	48	48	48	48	48	45	41	38	35
	80	45	45	45	45	45	45	45	45	45	45	41	38	35
	90	43	43	43	43	43	43	43	43	43	43	41	38	35
Zone 2	0	71	66	62	58	55	52	49	44	40	37	34	32	30
	10	71	66	62	58	55	52	49	44	40	37	34	32	30
	20	71	66	62	58	55	52	49	44	40	37	34	32	30
	30	70	66	62	58	55	52	49	44	40	37	34	32	30
	40	62	62	62	58	55	52	49	44	40	37	34	32	30
	50	56	56	56	56	55	52	49	44	40	37	34	32	30
	60	52	52	52	52	52	52	49	44	40	37	34	32	30
	70	48	48	48	48	48	48	48	44	40	37	34	32	30
	80	45	45	45	45	45	45	45	44	40	37	34	32	30
	90	43	43	43	43	43	43	43	43	40	37	34	32	30
Zone 3	0	58	54	50	47	44	42	40	36	33	31	29	27	26
	10	58	54	50	47	44	42	40	36	33	31	29	27	26
	20	58	54	50	47	44	42	40	36	33	31	29	27	26
	30	58	54	50	47	44	42	40	36	33	31	29	27	26
	40	58	54	50	47	44	42	40	36	33	31	29	27	26
	50	56	54	50	47	44	42	40	36	33	31	29	27	26
	60	52	52	50	47	44	42	40	36	33	31	29	27	26
	70	48	48	48	47	44	42	40	36	33	31	29	27	26
	80	45	45	45	45	44	42	40	36	33	31	29	27	26
	90	43	43	43	43	43	42	40	36	33	31	29	27	26

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 124a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	98	93	88	81	73	67	61	57	53
	10	85	85	85	85	85	85	85	81	73	67	61	57	53
	20	66	66	66	66	66	66	66	66	66	66	61	57	53
	30	66	66	66	66	66	66	66	66	66	66	61	57	53
	40	58	58	58	58	58	58	58	58	58	58	58	57	53
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	98	96	91	87	83	80	76	68	61	55	50	46	43
	10	85	85	85	85	83	80	76	68	61	55	50	46	43
	20	66	66	66	66	66	66	66	66	61	55	50	46	43
	30	66	66	66	66	66	66	66	66	61	55	50	46	43
	40	58	58	58	58	58	58	58	58	58	55	50	46	43
	50	53	53	53	53	53	53	53	53	53	53	50	46	43
	60	49	49	49	49	49	49	49	49	49	49	49	46	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	93	88	84	80	76	71	67	59	53	48	44	41	38
	10	85	85	84	80	76	71	67	59	53	48	44	41	38
	20	66	66	66	66	66	66	66	59	53	48	44	41	38
	30	66	66	66	66	66	66	66	59	53	48	44	41	38
	40	58	58	58	58	58	58	58	58	53	48	44	41	38
	50	53	53	53	53	53	53	53	53	53	48	44	41	38
	60	49	49	49	49	49	49	49	49	49	48	44	41	38
	70	45	45	45	45	45	45	45	45	45	45	44	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 124b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	91	86	82	78	72	68	62	56	52	48	45	42
	10	85	85	85	82	78	72	68	62	56	52	48	45	42
	20	66	66	66	66	66	66	66	62	56	52	48	45	42
	30	66	66	66	66	66	66	66	62	56	52	48	45	42
	40	58	58	58	58	58	58	58	58	56	52	48	45	42
	50	53	53	53	53	53	53	53	53	53	52	48	45	42
	60	49	49	49	49	49	49	49	49	49	49	48	45	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	83	79	74	69	64	60	56	50	46	41	38	35	33
	10	83	79	74	69	64	60	56	50	46	41	38	35	33
	20	66	66	66	66	64	60	56	50	46	41	38	35	33
	30	66	66	66	66	64	60	56	50	46	41	38	35	33
	40	58	58	58	58	58	58	56	50	46	41	38	35	33
	50	53	53	53	53	53	53	53	50	46	41	38	35	33
	60	49	49	49	49	49	49	49	49	46	41	38	35	33
	70	45	45	45	45	45	45	45	45	45	41	38	35	33
	80	43	43	43	43	43	43	43	43	43	41	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33
Zone 3r	0	76	70	65	60	56	53	50	45	40	37	34	32	30
	10	76	70	65	60	56	53	50	45	40	37	34	32	30
	20	66	66	65	60	56	53	50	45	40	37	34	32	30
	30	66	66	65	60	56	53	50	45	40	37	34	32	30
	40	58	58	58	58	56	53	50	45	40	37	34	32	30
	50	53	53	53	53	53	53	50	45	40	37	34	32	30
	60	49	49	49	49	49	49	49	45	40	37	34	32	30
	70	45	45	45	45	45	45	45	45	40	37	34	32	30
	80	43	43	43	43	43	43	43	43	40	37	34	32	30
	90	40	40	40	40	40	40	40	40	40	37	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 125a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	92	88	83	80	75	67	61	56	52	48	45
	10	85	85	85	85	83	80	75	67	61	56	52	48	45
	20	66	66	66	66	66	66	66	66	61	56	52	48	45
	30	66	66	66	66	66	66	66	66	61	56	52	48	45
	40	58	58	58	58	58	58	58	58	58	56	52	48	45
	50	53	53	53	53	53	53	53	53	53	53	52	48	45
	60	49	49	49	49	49	49	49	49	49	49	49	48	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	88	84	80	75	70	66	62	55	49	45	41	38	35
	10	85	84	80	75	70	66	62	55	49	45	41	38	35
	20	66	66	66	66	66	66	62	55	49	45	41	38	35
	30	66	66	66	66	66	66	62	55	49	45	41	38	35
	40	58	58	58	58	58	58	58	55	49	45	41	38	35
	50	53	53	53	53	53	53	53	53	49	45	41	38	35
	60	49	49	49	49	49	49	49	49	49	45	41	38	35
	70	45	45	45	45	45	45	45	45	45	45	41	38	35
	80	43	43	43	43	43	43	43	43	43	43	41	38	35
90	40	40	40	40	40	40	40	40	40	40	40	38	35	
Zone 3r	0	81	77	71	66	62	58	54	48	44	40	36	34	32
	10	81	77	71	66	62	58	54	48	44	40	36	34	32
	20	66	66	66	66	62	58	54	48	44	40	36	34	32
	30	66	66	66	66	62	58	54	48	44	40	36	34	32
	40	58	58	58	58	58	58	54	48	44	40	36	34	32
	50	53	53	53	53	53	53	53	48	44	40	36	34	32
	60	49	49	49	49	49	49	49	48	44	40	36	34	32
	70	45	45	45	45	45	45	45	45	44	40	36	34	32
	80	43	43	43	43	43	43	43	43	43	40	36	34	32
	90	40	40	40	40	40	40	40	40	40	40	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 125b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	83	79	72	68	64	60	57	52	47	44	40	38	35
	10	83	79	72	68	64	60	57	52	47	44	40	38	35
	20	66	66	66	66	64	60	57	52	47	44	40	38	35
	30	66	66	66	66	64	60	57	52	47	44	40	38	35
	40	58	58	58	58	58	58	57	52	47	44	40	38	35
	50	53	53	53	53	53	53	53	52	47	44	40	38	35
	60	49	49	49	49	49	49	49	49	47	44	40	38	35
	70	45	45	45	45	45	45	45	45	45	44	40	38	35
	80	43	43	43	43	43	43	43	43	43	43	40	38	35
	90	40	40	40	40	40	40	40	40	40	40	40	38	35
Zones 2n, 2r, & 3e	0	70	64	60	56	52	49	46	41	38	35	32	30	29
	10	70	64	60	56	52	49	46	41	38	35	32	30	29
	20	66	64	60	56	52	49	46	41	38	35	32	30	29
	30	66	64	60	56	52	49	46	41	38	35	32	30	29
	40	58	58	58	56	52	49	46	41	38	35	32	30	29
	50	53	53	53	53	52	49	46	41	38	35	32	30	29
	60	49	49	49	49	49	49	46	41	38	35	32	30	29
	70	45	45	45	45	45	45	45	41	38	35	32	30	29
	80	43	43	43	43	43	43	43	41	38	35	32	30	29
	90	40	40	40	40	40	40	40	40	38	35	32	30	29
Zone 3r	0	61	57	53	49	46	43	41	37	34	31	29	28	26
	10	61	57	53	49	46	43	41	37	34	31	29	28	26
	20	61	57	53	49	46	43	41	37	34	31	29	28	26
	30	61	57	53	49	46	43	41	37	34	31	29	28	26
	40	58	57	53	49	46	43	41	37	34	31	29	28	26
	50	53	53	53	49	46	43	41	37	34	31	29	28	26
	60	49	49	49	49	46	43	41	37	34	31	29	28	26
	70	45	45	45	45	45	43	41	37	34	31	29	28	26
	80	43	43	43	43	43	43	41	37	34	31	29	28	26
	90	40	40	40	40	40	40	40	37	34	31	29	28	26

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 126a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	96	90	85	81	77	71	67	61	55	51	47	44	41
	10	85	85	85	81	77	71	67	61	55	51	47	44	41
	20	66	66	66	66	66	66	66	61	55	51	47	44	41
	30	66	66	66	66	66	66	66	61	55	51	47	44	41
	40	58	58	58	58	58	58	58	58	55	51	47	44	41
	50	53	53	53	53	53	53	53	53	53	51	47	44	41
	60	49	49	49	49	49	49	49	49	49	49	47	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	82	78	72	67	63	59	55	50	45	41	37	35	33
	10	82	78	72	67	63	59	55	50	45	41	37	35	33
	20	66	66	66	66	63	59	55	50	45	41	37	35	33
	30	66	66	66	66	63	59	55	50	45	41	37	35	33
	40	58	58	58	58	58	58	55	50	45	41	37	35	33
	50	53	53	53	53	53	53	53	50	45	41	37	35	33
	60	49	49	49	49	49	49	49	49	45	41	37	35	33
	70	45	45	45	45	45	45	45	45	45	41	37	35	33
	80	43	43	43	43	43	43	43	43	43	41	37	35	33
	90	40	40	40	40	40	40	40	40	40	40	37	35	33
Zone 3r	0	75	69	63	59	55	52	49	44	40	36	34	32	30
	10	75	69	63	59	55	52	49	44	40	36	34	32	30
	20	66	66	63	59	55	52	49	44	40	36	34	32	30
	30	66	66	63	59	55	52	49	44	40	36	34	32	30
	40	58	58	58	58	55	52	49	44	40	36	34	32	30
	50	53	53	53	53	53	52	49	44	40	36	34	32	30
	60	49	49	49	49	49	49	49	44	40	36	34	32	30
	70	45	45	45	45	45	45	45	44	40	36	34	32	30
	80	43	43	43	43	43	43	43	43	40	36	34	32	30
	90	40	40	40	40	40	40	40	40	40	36	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 126b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	77	70	65	62	58	55	52	47	43	40	37	35	33
	10	77	70	65	62	58	55	52	47	43	40	37	35	33
	20	66	66	65	62	58	55	52	47	43	40	37	35	33
	30	66	66	65	62	58	55	52	47	43	40	37	35	33
	40	58	58	58	58	58	55	52	47	43	40	37	35	33
	50	53	53	53	53	53	53	52	47	43	40	37	35	33
	60	49	49	49	49	49	49	49	47	43	40	37	35	33
	70	45	45	45	45	45	45	45	45	43	40	37	35	33
	80	43	43	43	43	43	43	43	43	43	40	37	35	33
	90	40	40	40	40	40	40	40	40	40	40	37	35	33
Zones 2n, 2r, & 3e	0	63	58	54	50	47	44	42	38	34	32	30	28	26
	10	63	58	54	50	47	44	42	38	34	32	30	28	26
	20	63	58	54	50	47	44	42	38	34	32	30	28	26
	30	63	58	54	50	47	44	42	38	34	32	30	28	26
	40	58	58	54	50	47	44	42	38	34	32	30	28	26
	50	53	53	53	50	47	44	42	38	34	32	30	28	26
	60	49	49	49	49	47	44	42	38	34	32	30	28	26
	70	45	45	45	45	45	44	42	38	34	32	30	28	26
	80	43	43	43	43	43	43	42	38	34	32	30	28	26
	90	40	40	40	40	40	40	40	38	34	32	30	28	26
Zone 3r	0	55	51	47	44	42	39	37	34	31	29	27	26	24
	10	55	51	47	44	42	39	37	34	31	29	27	26	24
	20	55	51	47	44	42	39	37	34	31	29	27	26	24
	30	55	51	47	44	42	39	37	34	31	29	27	26	24
	40	55	51	47	44	42	39	37	34	31	29	27	26	24
	50	53	51	47	44	42	39	37	34	31	29	27	26	24
	60	49	49	47	44	42	39	37	34	31	29	27	26	24
	70	45	45	45	44	42	39	37	34	31	29	27	26	24
	80	43	43	43	43	42	39	37	34	31	29	27	26	24
	90	40	40	40	40	40	39	37	34	31	29	27	26	24

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 127a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	98	98	98	98	91	85	80	75	69	64
	10	93	93	93	93	93	93	93	91	85	80	75	69	64
	20	78	78	78	78	78	78	78	78	77	76	75	69	64
	30	67	67	67	67	67	67	67	67	67	67	66	65	64
	40	59	59	59	59	59	59	59	59	59	59	59	59	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	98	98	98	94	90	86	83	77	70	63	57	52	48
	10	93	93	93	93	90	86	83	77	70	63	57	52	48
	20	78	78	78	78	78	78	78	77	70	63	57	52	48
	30	67	67	67	67	67	67	67	67	67	63	57	52	48
	40	59	59	59	59	59	59	59	59	59	59	57	52	48
	50	53	53	53	53	53	53	53	53	53	53	53	52	48
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zone 3r	0	98	98	93	89	85	82	79	71	63	57	52	47	44
	10	93	93	93	89	85	82	79	71	63	57	52	47	44
	20	78	78	78	78	78	78	78	71	63	57	52	47	44
	30	67	67	67	67	67	67	67	67	63	57	52	47	44
	40	59	59	59	59	59	59	59	59	59	57	52	47	44
	50	53	53	53	53	53	53	53	53	53	53	52	47	44
	60	49	49	49	49	49	49	49	49	49	49	49	47	44
	70	46	46	46	46	46	46	46	46	46	46	46	46	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 127b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	96	92	88	84	81	76	68	62	57	53	50
	10	93	93	93	92	88	84	81	76	68	62	57	53	50
	20	78	78	78	78	78	78	78	76	68	62	57	53	50
	30	67	67	67	67	67	67	67	67	67	62	57	53	50
	40	59	59	59	59	59	59	59	59	59	59	57	53	50
	50	53	53	53	53	53	53	53	53	53	53	53	53	50
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	41	41	41	41	41	41	41	41	41	41	41	41	41	
Zones 2n, 2r, & 3e	0	90	85	81	78	74	69	65	58	52	47	43	40	37
	10	90	85	81	78	74	69	65	58	52	47	43	40	37
	20	78	78	78	78	74	69	65	58	52	47	43	40	37
	30	67	67	67	67	67	67	65	58	52	47	43	40	37
	40	59	59	59	59	59	59	59	58	52	47	43	40	37
	50	53	53	53	53	53	53	53	53	52	47	43	40	37
	60	49	49	49	49	49	49	49	49	49	47	43	40	37
	70	46	46	46	46	46	46	46	46	46	46	43	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
90	41	41	41	41	41	41	41	41	41	41	41	40	37	
Zone 3r	0	85	81	77	72	67	62	58	52	47	42	39	36	33
	10	85	81	77	72	67	62	58	52	47	42	39	36	33
	20	78	78	77	72	67	62	58	52	47	42	39	36	33
	30	67	67	67	67	67	62	58	52	47	42	39	36	33
	40	59	59	59	59	59	59	58	52	47	42	39	36	33
	50	53	53	53	53	53	53	53	52	47	42	39	36	33
	60	49	49	49	49	49	49	49	49	47	42	39	36	33
	70	46	46	46	46	46	46	46	46	46	42	39	36	33
	80	43	43	43	43	43	43	43	43	43	42	39	36	33
	90	41	41	41	41	41	41	41	41	41	41	39	36	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 128a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	98	97	93	89	86	80	74	67	62	57	54
	10	93	93	93	93	93	89	86	80	74	67	62	57	54
	20	78	78	78	78	78	78	77	76	74	67	62	57	54
	30	67	67	67	67	67	67	67	67	66	65	62	57	54
	40	59	59	59	59	59	59	59	59	59	59	58	57	54
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	95	90	86	82	79	76	71	63	56	51	47	43	40
	10	93	90	86	82	79	76	71	63	56	51	47	43	40
	20	78	78	78	78	78	76	71	63	56	51	47	43	40
	30	67	67	67	67	67	67	67	63	56	51	47	43	40
	40	59	59	59	59	59	59	59	59	56	51	47	43	40
	50	53	53	53	53	53	53	53	53	53	51	47	43	40
	60	49	49	49	49	49	49	49	49	49	49	47	43	40
	70	46	46	46	46	46	46	46	46	46	46	46	43	40
	80	43	43	43	43	43	43	43	43	43	43	43	43	40
	90	41	41	41	41	41	41	41	41	41	41	41	41	40
Zone 3r	0	90	86	81	78	74	69	64	57	51	46	42	39	36
	10	90	86	81	78	74	69	64	57	51	46	42	39	36
	20	78	78	78	78	74	69	64	57	51	46	42	39	36
	30	67	67	67	67	67	67	64	57	51	46	42	39	36
	40	59	59	59	59	59	59	59	57	51	46	42	39	36
	50	53	53	53	53	53	53	53	53	51	46	42	39	36
	60	49	49	49	49	49	49	49	49	49	46	42	39	36
	70	46	46	46	46	46	46	46	46	46	46	42	39	36
	80	43	43	43	43	43	43	43	43	43	43	42	39	36
	90	41	41	41	41	41	41	41	41	41	41	41	39	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 128b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support Y _E = 1.5					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	93	88	84	81	77	73	69	62	57	52	48	45	42
	10	93	88	84	81	77	73	69	62	57	52	48	45	42
	20	78	78	78	78	77	73	69	62	57	52	48	45	42
	30	67	67	67	67	67	67	67	62	57	52	48	45	42
	40	59	59	59	59	59	59	59	59	57	52	48	45	42
	50	53	53	53	53	53	53	53	53	53	52	48	45	42
	60	49	49	49	49	49	49	49	49	49	49	48	45	42
	70	46	46	46	46	46	46	46	46	46	46	46	45	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	79	74	69	64	60	56	53	47	43	39	36	33	31
	10	79	74	69	64	60	56	53	47	43	39	36	33	31
	20	78	74	69	64	60	56	53	47	43	39	36	33	31
	30	67	67	67	64	60	56	53	47	43	39	36	33	31
	40	59	59	59	59	59	56	53	47	43	39	36	33	31
	50	53	53	53	53	53	53	53	47	43	39	36	33	31
	60	49	49	49	49	49	49	49	47	43	39	36	33	31
	70	46	46	46	46	46	46	46	46	43	39	36	33	31
	80	43	43	43	43	43	43	43	43	43	39	36	33	31
	90	41	41	41	41	41	41	41	41	41	39	36	33	31
Zone 3r	0	73	67	62	58	54	50	47	42	38	35	32	30	28
	10	73	67	62	58	54	50	47	42	38	35	32	30	28
	20	73	67	62	58	54	50	47	42	38	35	32	30	28
	30	67	67	62	58	54	50	47	42	38	35	32	30	28
	40	59	59	59	58	54	50	47	42	38	35	32	30	28
	50	53	53	53	53	53	50	47	42	38	35	32	30	28
	60	49	49	49	49	49	49	47	42	38	35	32	30	28
	70	46	46	46	46	46	46	46	42	38	35	32	30	28
	80	43	43	43	43	43	43	43	42	38	35	32	30	28
	90	41	41	41	41	41	41	41	41	38	35	32	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 129a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	98	98	95	90	87	83	80	74	67	61	57	52	49
	10	93	93	93	90	87	83	80	74	67	61	57	52	49
	20	78	78	78	78	78	77	76	74	67	61	57	52	49
	30	67	67	67	67	67	67	67	66	65	61	57	52	49
	40	59	59	59	59	59	59	59	59	59	58	57	52	49
	50	53	53	53	53	53	53	53	53	53	53	53	52	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2n, 2r, & 3e	0	88	84	80	77	72	67	63	56	51	46	42	39	36
	10	88	84	80	77	72	67	63	56	51	46	42	39	36
	20	78	78	78	77	72	67	63	56	51	46	42	39	36
	30	67	67	67	67	67	67	63	56	51	46	42	39	36
	40	59	59	59	59	59	59	59	56	51	46	42	39	36
	50	53	53	53	53	53	53	53	53	51	46	42	39	36
	60	49	49	49	49	49	49	49	49	49	46	42	39	36
	70	46	46	46	46	46	46	46	46	46	46	42	39	36
	80	43	43	43	43	43	43	43	43	43	43	42	39	36
	90	41	41	41	41	41	41	41	41	41	41	41	39	36
Zone 3r	0	84	80	76	70	65	61	57	51	46	42	38	35	33
	10	84	80	76	70	65	61	57	51	46	42	38	35	33
	20	78	78	76	70	65	61	57	51	46	42	38	35	33
	30	67	67	67	67	65	61	57	51	46	42	38	35	33
	40	59	59	59	59	59	59	57	51	46	42	38	35	33
	50	53	53	53	53	53	53	53	51	46	42	38	35	33
	60	49	49	49	49	49	49	49	49	46	42	38	35	33
	70	46	46	46	46	46	46	46	46	46	42	38	35	33
	80	43	43	43	43	43	43	43	43	43	42	38	35	33
	90	41	41	41	41	41	41	41	41	41	41	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 129b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	86	82	79	75	70	66	63	57	52	48	44	41	38
	10	86	82	79	75	70	66	63	57	52	48	44	41	38
	20	78	78	78	75	70	66	63	57	52	48	44	41	38
	30	67	67	67	67	67	66	63	57	52	48	44	41	38
	40	59	59	59	59	59	59	59	57	52	48	44	41	38
	50	53	53	53	53	53	53	53	53	52	48	44	41	38
	60	49	49	49	49	49	49	49	49	49	48	44	41	38
	70	46	46	46	46	46	46	46	46	46	46	44	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	41	41	41	41	41	41	41	41	41	41	41	41	38
Zones 2n, 2r, & 3e	0	72	66	61	57	54	50	47	43	39	35	33	31	29
	10	72	66	61	57	54	50	47	43	39	35	33	31	29
	20	72	66	61	57	54	50	47	43	39	35	33	31	29
	30	67	66	61	57	54	50	47	43	39	35	33	31	29
	40	59	59	59	57	54	50	47	43	39	35	33	31	29
	50	53	53	53	53	53	50	47	43	39	35	33	31	29
	60	49	49	49	49	49	49	47	43	39	35	33	31	29
	70	46	46	46	46	46	46	46	43	39	35	33	31	29
	80	43	43	43	43	43	43	43	43	39	35	33	31	29
	90	41	41	41	41	41	41	41	41	39	35	33	31	29
Zone 3r	0	65	60	56	52	48	45	43	38	35	32	30	28	26
	10	65	60	56	52	48	45	43	38	35	32	30	28	26
	20	65	60	56	52	48	45	43	38	35	32	30	28	26
	30	65	60	56	52	48	45	43	38	35	32	30	28	26
	40	59	59	56	52	48	45	43	38	35	32	30	28	26
	50	53	53	53	52	48	45	43	38	35	32	30	28	26
	60	49	49	49	49	48	45	43	38	35	32	30	28	26
	70	46	46	46	46	46	45	43	38	35	32	30	28	26
	80	43	43	43	43	43	43	43	38	35	32	30	28	26
	90	41	41	41	41	41	41	41	38	35	32	30	28	26

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 130a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	98	98	98	98	98	91	85	80	75	69	63
	10	94	94	94	94	92	91	90	87	84	80	75	69	63
	20	81	81	81	80	79	78	77	75	74	72	70	68	63
	30	70	70	70	70	70	70	69	68	66	65	63	62	60
	40	62	62	62	62	62	62	62	62	61	59	58	57	56
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	52	52	52	52	52	52	52	52	52	52	51	50	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zones 2n & 3r	0	98	98	98	98	97	93	90	83	78	73	67	61	56
	10	94	94	94	94	92	91	90	83	78	73	67	61	56
	20	81	81	81	80	79	78	77	75	74	72	67	61	56
	30	70	70	70	70	70	70	69	68	66	65	63	61	56
	40	62	62	62	62	62	62	62	62	61	59	58	57	56
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	52	52	52	52	52	52	52	52	52	52	51	50	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3e	0	98	98	96	92	88	85	82	76	69	63	57	52	48
	10	94	94	94	92	88	85	82	76	69	63	57	52	48
	20	81	81	81	80	79	78	77	75	69	63	57	52	48
	30	70	70	70	70	70	70	69	68	66	63	57	52	48
	40	62	62	62	62	62	62	62	62	61	59	57	52	48
	50	56	56	56	56	56	56	56	56	56	55	54	52	48
	60	52	52	52	52	52	52	52	52	52	52	51	50	48
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 130b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	96	92	88	84	81	75	68	61	55	50	46
	10	94	94	94	92	88	84	81	75	68	61	55	50	46
	20	81	81	81	80	79	78	77	75	68	61	55	50	46
	30	70	70	70	70	70	70	69	68	66	61	55	50	46
	40	62	62	62	62	62	62	62	62	61	59	55	50	46
	50	56	56	56	56	56	56	56	56	56	55	54	50	46
	60	52	52	52	52	52	52	52	52	52	52	51	50	46
	70	49	49	49	49	49	49	49	49	49	49	49	48	46
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zones 2n & 3r	0	97	92	88	84	81	78	75	67	60	55	50	46	43
	10	94	92	88	84	81	78	75	67	60	55	50	46	43
	20	81	81	81	80	79	78	75	67	60	55	50	46	43
	30	70	70	70	70	70	70	69	67	60	55	50	46	43
	40	62	62	62	62	62	62	62	62	60	55	50	46	43
	50	56	56	56	56	56	56	56	56	56	55	50	46	43
	60	52	52	52	52	52	52	52	52	52	52	50	46	43
	70	49	49	49	49	49	49	49	49	49	49	49	46	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zone 3e	0	88	84	80	77	74	69	65	57	52	47	43	40	37
	10	88	84	80	77	74	69	65	57	52	47	43	40	37
	20	81	81	80	77	74	69	65	57	52	47	43	40	37
	30	70	70	70	70	70	69	65	57	52	47	43	40	37
	40	62	62	62	62	62	62	62	57	52	47	43	40	37
	50	56	56	56	56	56	56	56	56	52	47	43	40	37
	60	52	52	52	52	52	52	52	52	52	47	43	40	37
	70	49	49	49	49	49	49	49	49	49	47	43	40	37
	80	46	46	46	46	46	46	46	46	46	46	43	40	37
	90	43	43	43	43	43	43	43	43	43	43	43	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 131a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	98	97	93	89	86	80	74	67	60	55	51
	10	94	93	91	89	88	86	85	80	74	67	60	55	51
	20	80	79	78	77	76	75	74	72	69	67	60	55	51
	30	70	70	70	69	68	67	66	65	63	61	60	55	51
	40	62	62	62	62	62	61	61	60	58	57	55	54	51
	50	56	56	56	56	56	56	56	55	54	53	52	51	50
	60	52	52	52	52	52	52	52	52	51	50	49	48	47
	70	49	49	49	49	49	49	49	49	48	48	47	46	45
	80	46	46	46	46	46	46	46	46	46	45	45	44	43
90	43	43	43	43	43	43	43	43	43	43	43	42	41	
Zones 2n & 3r	0	98	97	93	89	85	82	79	73	66	60	54	50	46
	10	94	93	91	89	85	82	79	73	66	60	54	50	46
	20	80	79	78	77	76	75	74	72	66	60	54	50	46
	30	70	70	70	69	68	67	66	65	63	60	54	50	46
	40	62	62	62	62	62	61	61	60	58	57	54	50	46
	50	56	56	56	56	56	56	56	55	54	53	52	50	46
	60	52	52	52	52	52	52	52	52	51	50	49	48	46
	70	49	49	49	49	49	49	49	49	48	48	47	46	45
	80	46	46	46	46	46	46	46	46	46	45	45	44	43
90	43	43	43	43	43	43	43	43	43	43	43	42	41	
Zone 3e	0	93	88	84	81	78	75	71	63	56	51	47	43	40
	10	93	88	84	81	78	75	71	63	56	51	47	43	40
	20	80	79	78	77	76	75	71	63	56	51	47	43	40
	30	70	70	70	69	68	67	66	63	56	51	47	43	40
	40	62	62	62	62	62	61	61	60	56	51	47	43	40
	50	56	56	56	56	56	56	56	55	54	51	47	43	40
	60	52	52	52	52	52	52	52	52	51	50	47	43	40
	70	49	49	49	49	49	49	49	49	48	48	47	43	40
	80	46	46	46	46	46	46	46	46	46	45	45	43	40
	90	43	43	43	43	43	43	43	43	43	43	43	42	40

Max Rail Spans for Quick Mount PV QRail Standard System

Table 131b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	93	88	84	80	77	74	69	61	54	49	45	41	38
	10	93	88	84	80	77	74	69	61	54	49	45	41	38
	20	80	79	78	77	76	74	69	61	54	49	45	41	38
	30	70	70	70	69	68	67	66	61	54	49	45	41	38
	40	62	62	62	62	62	61	61	60	54	49	45	41	38
	50	56	56	56	56	56	56	56	55	54	49	45	41	38
	60	52	52	52	52	52	52	52	52	51	49	45	41	38
	70	49	49	49	49	49	49	49	49	48	48	45	41	38
	80	46	46	46	46	46	46	46	46	46	45	45	41	38
	90	43	43	43	43	43	43	43	43	43	43	43	41	38
Zones 2n & 3r	0	85	81	78	74	70	65	61	55	49	45	41	38	35
	10	85	81	78	74	70	65	61	55	49	45	41	38	35
	20	80	79	78	74	70	65	61	55	49	45	41	38	35
	30	70	70	70	69	68	65	61	55	49	45	41	38	35
	40	62	62	62	62	62	61	61	55	49	45	41	38	35
	50	56	56	56	56	56	56	56	55	49	45	41	38	35
	60	52	52	52	52	52	52	52	52	49	45	41	38	35
	70	49	49	49	49	49	49	49	49	48	45	41	38	35
	80	46	46	46	46	46	46	46	46	46	45	41	38	35
	90	43	43	43	43	43	43	43	43	43	43	41	38	35
Zone 3e	0	78	74	68	64	60	56	53	47	43	39	36	33	31
	10	78	74	68	64	60	56	53	47	43	39	36	33	31
	20	78	74	68	64	60	56	53	47	43	39	36	33	31
	30	70	70	68	64	60	56	53	47	43	39	36	33	31
	40	62	62	62	62	60	56	53	47	43	39	36	33	31
	50	56	56	56	56	56	56	53	47	43	39	36	33	31
	60	52	52	52	52	52	52	52	47	43	39	36	33	31
	70	49	49	49	49	49	49	49	47	43	39	36	33	31
	80	46	46	46	46	46	46	46	46	43	39	36	33	31
	90	43	43	43	43	43	43	43	43	43	39	36	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 132a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	98	98	95	91	87	83	80	74	66	60	54	49	46
	10	92	90	89	87	85	83	80	74	66	60	54	49	46
	20	79	78	76	75	74	73	72	70	66	60	54	49	46
	30	70	69	68	67	67	66	65	63	61	59	54	49	46
	40	62	62	62	62	61	60	60	58	57	55	54	49	46
	50	56	56	56	56	56	56	55	54	53	52	51	49	46
	60	52	52	52	52	52	52	52	51	50	49	48	47	46
	70	49	49	49	49	49	49	49	48	48	47	46	45	44
	80	46	46	46	46	46	46	46	46	45	45	44	43	42
90	43	43	43	43	43	43	43	43	43	43	42	41	40	
Zones 2n & 3r	0	96	91	87	83	80	77	74	66	59	54	49	45	42
	10	92	90	87	83	80	77	74	66	59	54	49	45	42
	20	79	78	76	75	74	73	72	66	59	54	49	45	42
	30	70	69	68	67	67	66	65	63	59	54	49	45	42
	40	62	62	62	62	61	60	60	58	57	54	49	45	42
	50	56	56	56	56	56	56	55	54	53	52	49	45	42
	60	52	52	52	52	52	52	52	51	50	49	48	45	42
	70	49	49	49	49	49	49	49	48	48	47	46	45	42
	80	46	46	46	46	46	46	46	46	45	45	44	43	42
90	43	43	43	43	43	43	43	43	43	43	42	41	40	
Zone 3e	0	87	83	79	76	72	67	63	56	51	46	42	39	36
	10	87	83	79	76	72	67	63	56	51	46	42	39	36
	20	79	78	76	75	72	67	63	56	51	46	42	39	36
	30	70	69	68	67	67	66	63	56	51	46	42	39	36
	40	62	62	62	62	61	60	60	56	51	46	42	39	36
	50	56	56	56	56	56	56	55	54	51	46	42	39	36
	60	52	52	52	52	52	52	52	51	50	46	42	39	36
	70	49	49	49	49	49	49	49	48	48	46	42	39	36
	80	46	46	46	46	46	46	46	46	45	45	42	39	36
	90	43	43	43	43	43	43	43	43	43	43	42	39	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 132b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	87	82	79	75	70	66	61	54	49	44	40	37	35
	10	87	82	79	75	70	66	61	54	49	44	40	37	35
	20	79	78	76	75	70	66	61	54	49	44	40	37	35
	30	70	69	68	67	67	66	61	54	49	44	40	37	35
	40	62	62	62	62	61	60	60	54	49	44	40	37	35
	50	56	56	56	56	56	56	55	54	49	44	40	37	35
	60	52	52	52	52	52	52	52	51	49	44	40	37	35
	70	49	49	49	49	49	49	49	48	48	44	40	37	35
	80	46	46	46	46	46	46	46	46	45	44	40	37	35
	90	43	43	43	43	43	43	43	43	43	43	40	37	35
Zones 2n & 3r	0	80	76	72	67	62	59	55	49	45	41	37	35	33
	10	80	76	72	67	62	59	55	49	45	41	37	35	33
	20	79	76	72	67	62	59	55	49	45	41	37	35	33
	30	70	69	68	67	62	59	55	49	45	41	37	35	33
	40	62	62	62	62	61	59	55	49	45	41	37	35	33
	50	56	56	56	56	56	56	55	49	45	41	37	35	33
	60	52	52	52	52	52	52	52	49	45	41	37	35	33
	70	49	49	49	49	49	49	49	48	45	41	37	35	33
	80	46	46	46	46	46	46	46	46	45	41	37	35	33
	90	43	43	43	43	43	43	43	43	43	41	37	35	33
Zone 3e	0	72	66	61	57	54	50	48	43	39	35	33	31	29
	10	72	66	61	57	54	50	48	43	39	35	33	31	29
	20	72	66	61	57	54	50	48	43	39	35	33	31	29
	30	70	66	61	57	54	50	48	43	39	35	33	31	29
	40	62	62	61	57	54	50	48	43	39	35	33	31	29
	50	56	56	56	56	54	50	48	43	39	35	33	31	29
	60	52	52	52	52	52	50	48	43	39	35	33	31	29
	70	49	49	49	49	49	49	48	43	39	35	33	31	29
	80	46	46	46	46	46	46	46	43	39	35	33	31	29
	90	43	43	43	43	43	43	43	43	39	35	33	31	29

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 133a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	95	91	84	79	71	66	61	57
	10	85	85	85	85	85	85	85	83	79	71	66	61	57
	20	66	66	66	66	66	66	66	66	66	65	64	61	57
	30	66	66	66	66	66	66	66	66	66	65	64	61	57
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	98	98	94	90	86	83	77	69	63	57	53	49
	10	85	85	85	85	85	85	83	77	69	63	57	53	49
	20	66	66	66	66	66	66	66	66	66	63	57	53	49
	30	66	66	66	66	66	66	66	66	66	63	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	53	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	95	91	87	83	80	73	66	59	54	50	47
	10	85	85	85	85	85	83	80	73	66	59	54	50	47
	20	66	66	66	66	66	66	66	66	66	59	54	50	47
	30	66	66	66	66	66	66	66	66	66	59	54	50	47
	40	58	58	58	58	58	58	58	58	58	58	54	50	47
	50	53	53	53	53	53	53	53	53	53	53	53	50	47
	60	49	49	49	49	49	49	49	49	49	49	49	49	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 133b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	94	89	85	82	78	73	66	60	55	51	47	44
	10	85	85	85	85	82	78	73	66	60	55	51	47	44
	20	66	66	66	66	66	66	66	66	60	55	51	47	44
	30	66	66	66	66	66	66	66	66	60	55	51	47	44
	40	58	58	58	58	58	58	58	58	58	55	51	47	44
	50	53	53	53	53	53	53	53	53	53	53	51	47	44
	60	49	49	49	49	49	49	49	49	49	49	49	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	90	85	82	78	73	69	65	58	52	48	44	40	38
	10	85	85	82	78	73	69	65	58	52	48	44	40	38
	20	66	66	66	66	66	66	65	58	52	48	44	40	38
	30	66	66	66	66	66	66	65	58	52	48	44	40	38
	40	58	58	58	58	58	58	58	58	52	48	44	40	38
	50	53	53	53	53	53	53	53	53	52	48	44	40	38
	60	49	49	49	49	49	49	49	49	49	48	44	40	38
	70	45	45	45	45	45	45	45	45	45	45	44	40	38
	80	43	43	43	43	43	43	43	43	43	43	43	40	38
90	40	40	40	40	40	40	40	40	40	40	40	40	38	
Zones 2e & 3	0	87	82	79	74	69	65	61	55	50	45	42	38	36
	10	85	82	79	74	69	65	61	55	50	45	42	38	36
	20	66	66	66	66	66	65	61	55	50	45	42	38	36
	30	66	66	66	66	66	65	61	55	50	45	42	38	36
	40	58	58	58	58	58	58	58	55	50	45	42	38	36
	50	53	53	53	53	53	53	53	53	50	45	42	38	36
	60	49	49	49	49	49	49	49	49	49	45	42	38	36
	70	45	45	45	45	45	45	45	45	45	45	42	38	36
	80	43	43	43	43	43	43	43	43	43	43	42	38	36
	90	40	40	40	40	40	40	40	40	40	40	40	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 134a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	95	90	86	83	80	71	65	60	55	51	48
	10	85	85	85	84	83	82	80	71	65	60	55	51	48
	20	66	66	66	66	66	66	66	65	64	60	55	51	48
	30	66	66	66	66	66	66	66	65	64	60	55	51	48
	40	58	58	58	58	58	58	58	58	58	57	55	51	48
	50	53	53	53	53	53	53	53	53	53	53	52	51	48
	60	49	49	49	49	49	49	49	49	49	49	49	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	95	90	86	82	79	75	70	63	57	52	47	44	41
	10	85	85	85	82	79	75	70	63	57	52	47	44	41
	20	66	66	66	66	66	66	66	63	57	52	47	44	41
	30	66	66	66	66	66	66	66	63	57	52	47	44	41
	40	58	58	58	58	58	58	58	58	57	52	47	44	41
	50	53	53	53	53	53	53	53	53	53	52	47	44	41
	60	49	49	49	49	49	49	49	49	49	49	47	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	92	87	83	80	76	71	67	60	54	49	45	42	39
	10	85	85	83	80	76	71	67	60	54	49	45	42	39
	20	66	66	66	66	66	66	66	60	54	49	45	42	39
	30	66	66	66	66	66	66	66	60	54	49	45	42	39
	40	58	58	58	58	58	58	58	58	54	49	45	42	39
	50	53	53	53	53	53	53	53	53	53	49	45	42	39
	60	49	49	49	49	49	49	49	49	49	49	45	42	39
	70	45	45	45	45	45	45	45	45	45	45	45	42	39
	80	43	43	43	43	43	43	43	43	43	43	43	42	39
	90	40	40	40	40	40	40	40	40	40	40	40	40	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 134b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	86	82	78	72	68	64	61	55	51	47	43	40	37
	10	85	82	78	72	68	64	61	55	51	47	43	40	37
	20	66	66	66	66	66	64	61	55	51	47	43	40	37
	30	66	66	66	66	66	64	61	55	51	47	43	40	37
	40	58	58	58	58	58	58	58	55	51	47	43	40	37
	50	53	53	53	53	53	53	53	53	51	47	43	40	37
	60	49	49	49	49	49	49	49	49	49	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37
Zone 2r	0	79	74	68	64	60	56	53	48	43	40	36	34	32
	10	79	74	68	64	60	56	53	48	43	40	36	34	32
	20	66	66	66	64	60	56	53	48	43	40	36	34	32
	30	66	66	66	64	60	56	53	48	43	40	36	34	32
	40	58	58	58	58	58	56	53	48	43	40	36	34	32
	50	53	53	53	53	53	53	53	48	43	40	36	34	32
	60	49	49	49	49	49	49	49	48	43	40	36	34	32
	70	45	45	45	45	45	45	45	45	43	40	36	34	32
	80	43	43	43	43	43	43	43	43	43	40	36	34	32
	90	40	40	40	40	40	40	40	40	40	40	36	34	32
Zones 2e & 3	0	75	70	65	60	57	53	50	45	41	38	35	33	31
	10	75	70	65	60	57	53	50	45	41	38	35	33	31
	20	66	66	65	60	57	53	50	45	41	38	35	33	31
	30	66	66	65	60	57	53	50	45	41	38	35	33	31
	40	58	58	58	58	57	53	50	45	41	38	35	33	31
	50	53	53	53	53	53	53	50	45	41	38	35	33	31
	60	49	49	49	49	49	49	49	45	41	38	35	33	31
	70	45	45	45	45	45	45	45	45	41	38	35	33	31
	80	43	43	43	43	43	43	43	43	41	38	35	33	31
	90	40	40	40	40	40	40	40	40	40	38	35	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 135a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	93	88	84	81	77	72	65	59	54	50	47	44
	10	85	85	84	83	81	77	72	65	59	54	50	47	44
	20	66	66	66	66	66	66	65	64	59	54	50	47	44
	30	66	66	66	66	66	66	65	64	59	54	50	47	44
	40	58	58	58	58	58	58	58	58	57	54	50	47	44
	50	53	53	53	53	53	53	53	53	53	52	50	47	44
	60	49	49	49	49	49	49	49	49	49	49	48	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	44	44
	80	43	43	43	43	43	43	43	43	43	43	43	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	89	84	81	77	72	67	63	57	51	47	43	40	37
	10	85	84	81	77	72	67	63	57	51	47	43	40	37
	20	66	66	66	66	66	66	63	57	51	47	43	40	37
	30	66	66	66	66	66	66	63	57	51	47	43	40	37
	40	58	58	58	58	58	58	58	57	51	47	43	40	37
	50	53	53	53	53	53	53	53	53	51	47	43	40	37
	60	49	49	49	49	49	49	49	49	49	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
90	40	40	40	40	40	40	40	40	40	40	40	40	37	
Zones 2e & 3	0	85	81	78	73	68	64	60	54	49	44	41	38	35
	10	85	81	78	73	68	64	60	54	49	44	41	38	35
	20	66	66	66	66	66	64	60	54	49	44	41	38	35
	30	66	66	66	66	66	64	60	54	49	44	41	38	35
	40	58	58	58	58	58	58	58	54	49	44	41	38	35
	50	53	53	53	53	53	53	53	53	49	44	41	38	35
	60	49	49	49	49	49	49	49	49	49	44	41	38	35
	70	45	45	45	45	45	45	45	45	45	44	41	38	35
	80	43	43	43	43	43	43	43	43	43	43	41	38	35
	90	40	40	40	40	40	40	40	40	40	40	40	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 135b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	80	76	70	66	62	59	56	51	46	43	39	37	34
	10	80	76	70	66	62	59	56	51	46	43	39	37	34
	20	66	66	66	66	62	59	56	51	46	43	39	37	34
	30	66	66	66	66	62	59	56	51	46	43	39	37	34
	40	58	58	58	58	58	58	56	51	46	43	39	37	34
	50	53	53	53	53	53	53	53	51	46	43	39	37	34
	60	49	49	49	49	49	49	49	49	46	43	39	37	34
	70	45	45	45	45	45	45	45	45	45	43	39	37	34
	80	43	43	43	43	43	43	43	43	43	43	39	37	34
	90	40	40	40	40	40	40	40	40	40	40	39	37	34
Zone 2r	0	72	66	62	58	54	51	48	43	39	36	34	32	30
	10	72	66	62	58	54	51	48	43	39	36	34	32	30
	20	66	66	62	58	54	51	48	43	39	36	34	32	30
	30	66	66	62	58	54	51	48	43	39	36	34	32	30
	40	58	58	58	58	54	51	48	43	39	36	34	32	30
	50	53	53	53	53	53	51	48	43	39	36	34	32	30
	60	49	49	49	49	49	49	48	43	39	36	34	32	30
	70	45	45	45	45	45	45	45	43	39	36	34	32	30
	80	43	43	43	43	43	43	43	43	39	36	34	32	30
	90	40	40	40	40	40	40	40	40	39	36	34	32	30
Zones 2e & 3	0	68	63	58	55	51	48	46	41	37	34	32	30	29
	10	68	63	58	55	51	48	46	41	37	34	32	30	29
	20	66	63	58	55	51	48	46	41	37	34	32	30	29
	30	66	63	58	55	51	48	46	41	37	34	32	30	29
	40	58	58	58	55	51	48	46	41	37	34	32	30	29
	50	53	53	53	53	51	48	46	41	37	34	32	30	29
	60	49	49	49	49	49	48	46	41	37	34	32	30	29
	70	45	45	45	45	45	45	45	41	37	34	32	30	29
	80	43	43	43	43	43	43	43	41	37	34	32	30	29
	90	40	40	40	40	40	40	40	40	37	34	32	30	29

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 136a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	97	90	85	80	75	69
	10	85	85	85	85	85	85	85	83	81	79	78	75	69
	20	66	66	66	66	66	66	66	66	65	64	63	61	60
	30	66	66	66	66	66	66	66	66	65	64	63	61	60
	40	58	58	58	58	58	58	58	58	58	58	57	56	55
	50	53	53	53	53	53	53	53	53	53	53	53	52	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	98	98	98	94	90	86	83	77	69	63	57	53	49
	10	85	85	85	85	85	85	83	77	69	63	57	53	49
	20	66	66	66	66	66	66	66	66	65	63	57	53	49
	30	66	66	66	66	66	66	66	66	65	63	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	52	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	98	98	98	98	94	87	82	76	69	64	59
	10	85	85	85	85	85	85	85	83	81	76	69	64	59
	20	66	66	66	66	66	66	66	66	65	64	63	61	59
	30	66	66	66	66	66	66	66	66	65	64	63	61	59
	40	58	58	58	58	58	58	58	58	58	58	57	56	55
	50	53	53	53	53	53	53	53	53	53	53	53	52	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 136b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	94	90	87	81	74	68	62	58	54
	10	85	85	85	85	85	85	85	81	74	68	62	58	54
	20	66	66	66	66	66	66	66	66	65	64	62	58	54
	30	66	66	66	66	66	66	66	66	65	64	62	58	54
	40	58	58	58	58	58	58	58	58	58	58	57	56	54
	50	53	53	53	53	53	53	53	53	53	53	53	52	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	90	85	82	78	73	69	65	58	52	48	44	40	38
	10	85	85	82	78	73	69	65	58	52	48	44	40	38
	20	66	66	66	66	66	66	65	58	52	48	44	40	38
	30	66	66	66	66	66	66	65	58	52	48	44	40	38
	40	58	58	58	58	58	58	58	58	52	48	44	40	38
	50	53	53	53	53	53	53	53	53	52	48	44	40	38
	60	49	49	49	49	49	49	49	49	49	48	44	40	38
	70	45	45	45	45	45	45	45	45	45	45	44	40	38
	80	43	43	43	43	43	43	43	43	43	43	43	40	38
90	40	40	40	40	40	40	40	40	40	40	40	40	38	
Zones 2e & 3	0	98	96	92	88	84	81	78	70	63	57	53	49	45
	10	85	85	85	85	84	81	78	70	63	57	53	49	45
	20	66	66	66	66	66	66	66	66	63	57	53	49	45
	30	66	66	66	66	66	66	66	66	63	57	53	49	45
	40	58	58	58	58	58	58	58	58	58	57	53	49	45
	50	53	53	53	53	53	53	53	53	53	53	53	49	45
	60	49	49	49	49	49	49	49	49	49	49	49	49	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 137a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	95	91	85	80	73	67	62	58
	10	85	85	85	84	83	82	81	79	77	73	67	62	58
	20	66	66	66	66	66	66	65	64	62	61	60	58	57
	30	66	66	66	66	66	66	65	64	62	61	60	58	57
	40	58	58	58	58	58	58	58	58	57	56	55	54	53
	50	53	53	53	53	53	53	53	53	53	52	51	50	49
	60	49	49	49	49	49	49	49	49	49	49	48	47	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	95	90	86	82	79	75	70	63	57	52	47	44	41
	10	85	85	85	82	79	75	70	63	57	52	47	44	41
	20	66	66	66	66	66	66	65	63	57	52	47	44	41
	30	66	66	66	66	66	66	65	63	57	52	47	44	41
	40	58	58	58	58	58	58	58	58	57	52	47	44	41
	50	53	53	53	53	53	53	53	53	53	52	47	44	41
	60	49	49	49	49	49	49	49	49	49	49	47	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	98	98	97	93	89	86	82	76	69	62	57	53	49
	10	85	85	85	84	83	82	81	76	69	62	57	53	49
	20	66	66	66	66	66	66	65	64	62	61	57	53	49
	30	66	66	66	66	66	66	65	64	62	61	57	53	49
	40	58	58	58	58	58	58	58	58	57	56	55	53	49
	50	53	53	53	53	53	53	53	53	53	52	51	50	49
	60	49	49	49	49	49	49	49	49	49	49	48	47	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 137b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	94	90	86	82	79	75	68	62	57	52	49	45
	10	85	85	85	84	82	79	75	68	62	57	52	49	45
	20	66	66	66	66	66	66	65	64	62	57	52	49	45
	30	66	66	66	66	66	66	65	64	62	57	52	49	45
	40	58	58	58	58	58	58	58	58	57	56	52	49	45
	50	53	53	53	53	53	53	53	53	53	52	51	49	45
	60	49	49	49	49	49	49	49	49	49	49	48	47	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	79	74	68	64	60	56	53	48	43	40	36	34	32
	10	79	74	68	64	60	56	53	48	43	40	36	34	32
	20	66	66	66	64	60	56	53	48	43	40	36	34	32
	30	66	66	66	64	60	56	53	48	43	40	36	34	32
	40	58	58	58	58	58	56	53	48	43	40	36	34	32
	50	53	53	53	53	53	53	53	48	43	40	36	34	32
	60	49	49	49	49	49	49	49	48	43	40	36	34	32
	70	45	45	45	45	45	45	45	45	43	40	36	34	32
	80	43	43	43	43	43	43	43	43	43	40	36	34	32
90	40	40	40	40	40	40	40	40	40	40	36	34	32	
Zones 2e & 3	0	89	85	81	77	72	68	64	58	52	48	44	40	38
	10	85	85	81	77	72	68	64	58	52	48	44	40	38
	20	66	66	66	66	66	66	64	58	52	48	44	40	38
	30	66	66	66	66	66	66	64	58	52	48	44	40	38
	40	58	58	58	58	58	58	58	58	52	48	44	40	38
	50	53	53	53	53	53	53	53	53	52	48	44	40	38
	60	49	49	49	49	49	49	49	49	49	48	44	40	38
	70	45	45	45	45	45	45	45	45	45	45	44	40	38
	80	43	43	43	43	43	43	43	43	43	43	43	40	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 138a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	97	93	89	85	80	73	67	61	57	53
	10	85	85	84	83	82	81	80	77	73	67	61	57	53
	20	66	66	66	66	65	65	64	62	61	59	58	56	53
	30	66	66	66	66	65	65	64	62	61	59	58	56	53
	40	58	58	58	58	58	58	58	57	56	55	54	52	51
	50	53	53	53	53	53	53	53	53	52	51	50	49	48
	60	49	49	49	49	49	49	49	49	49	48	47	46	45
	70	45	45	45	45	45	45	45	45	45	45	45	44	43
	80	43	43	43	43	43	43	43	43	43	43	43	42	41
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	89	84	81	77	72	67	63	57	51	47	43	40	37
	10	85	84	81	77	72	67	63	57	51	47	43	40	37
	20	66	66	66	66	65	65	63	57	51	47	43	40	37
	30	66	66	66	66	65	65	63	57	51	47	43	40	37
	40	58	58	58	58	58	58	58	57	51	47	43	40	37
	50	53	53	53	53	53	53	53	53	51	47	43	40	37
	60	49	49	49	49	49	49	49	49	49	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
90	40	40	40	40	40	40	40	40	40	40	40	40	37	
Zones 2e & 3	0	98	95	91	87	83	80	77	69	62	56	52	48	44
	10	85	85	84	83	82	80	77	69	62	56	52	48	44
	20	66	66	66	66	65	65	64	62	61	56	52	48	44
	30	66	66	66	66	65	65	64	62	61	56	52	48	44
	40	58	58	58	58	58	58	58	57	56	55	52	48	44
	50	53	53	53	53	53	53	53	53	52	51	50	48	44
	60	49	49	49	49	49	49	49	49	49	48	47	46	44
	70	45	45	45	45	45	45	45	45	45	45	45	44	43
	80	43	43	43	43	43	43	43	43	43	43	43	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 138b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support X _E = 1.5					
		Exposure Category: D							Roof Type : Hip h/B = ≤ 0.5					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	92	88	84	80	77	72	68	62	56	52	48	45	42
	10	85	85	84	80	77	72	68	62	56	52	48	45	42
	20	66	66	66	66	65	65	64	62	56	52	48	45	42
	30	66	66	66	66	65	65	64	62	56	52	48	45	42
	40	58	58	58	58	58	58	58	57	56	52	48	45	42
	50	53	53	53	53	53	53	53	53	52	51	48	45	42
	60	49	49	49	49	49	49	49	49	49	48	47	45	42
	70	45	45	45	45	45	45	45	45	45	45	45	44	42
	80	43	43	43	43	43	43	43	43	43	43	43	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	72	66	62	58	54	51	48	43	39	36	34	32	30
	10	72	66	62	58	54	51	48	43	39	36	34	32	30
	20	66	66	62	58	54	51	48	43	39	36	34	32	30
	30	66	66	62	58	54	51	48	43	39	36	34	32	30
	40	58	58	58	58	54	51	48	43	39	36	34	32	30
	50	53	53	53	53	53	51	48	43	39	36	34	32	30
	60	49	49	49	49	49	49	48	43	39	36	34	32	30
	70	45	45	45	45	45	45	45	43	39	36	34	32	30
	80	43	43	43	43	43	43	43	43	39	36	34	32	30
	90	40	40	40	40	40	40	40	40	39	36	34	32	30
Zones 2e & 3	0	83	79	75	70	65	61	58	52	47	43	40	37	34
	10	83	79	75	70	65	61	58	52	47	43	40	37	34
	20	66	66	66	66	65	61	58	52	47	43	40	37	34
	30	66	66	66	66	65	61	58	52	47	43	40	37	34
	40	58	58	58	58	58	58	58	52	47	43	40	37	34
	50	53	53	53	53	53	53	53	52	47	43	40	37	34
	60	49	49	49	49	49	49	49	49	47	43	40	37	34
	70	45	45	45	45	45	45	45	45	45	43	40	37	34
	80	43	43	43	43	43	43	43	43	43	43	40	37	34
	90	40	40	40	40	40	40	40	40	40	40	40	37	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 139a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	98	94	88	83	78	73
	10	93	93	93	93	93	93	93	91	89	87	83	78	73
	20	78	78	78	78	78	78	78	77	75	74	72	71	69
	30	67	67	67	67	67	67	67	67	66	65	64	63	62
	40	59	59	59	59	59	59	59	59	59	59	58	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	98	98	98	94	91	84	79	73	66	61	56
	10	93	93	93	93	93	93	91	84	79	73	66	61	56
	20	78	78	78	78	78	78	78	77	75	73	66	61	56
	30	67	67	67	67	67	67	67	67	66	65	64	61	56
	40	59	59	59	59	59	59	59	59	59	59	58	58	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 139b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	97	93	89	83	78	71	65	59	55
	10	93	93	93	93	93	93	89	83	78	71	65	59	55
	20	78	78	78	78	78	78	78	77	75	71	65	59	55
	30	67	67	67	67	67	67	67	67	66	65	64	59	55
	40	59	59	59	59	59	59	59	59	59	59	58	58	55
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	46	46	46	46	46	46	46	46	46	46	46	46	46
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	93	89	85	82	78	75	67	60	55	50	46	43
	10	93	93	89	85	82	78	75	67	60	55	50	46	43
	20	78	78	78	78	78	78	75	67	60	55	50	46	43
	30	67	67	67	67	67	67	67	67	60	55	50	46	43
	40	59	59	59	59	59	59	59	59	59	55	50	46	43
	50	53	53	53	53	53	53	53	53	53	53	50	46	43
	60	49	49	49	49	49	49	49	49	49	49	49	46	43
	70	46	46	46	46	46	46	46	46	46	46	46	46	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 140a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	95	88	82	77	71	65	59
	10	93	93	93	93	92	90	89	87	82	77	71	65	59
	20	78	78	78	78	77	76	75	74	72	70	68	65	59
	30	67	67	67	67	67	67	67	65	64	63	61	60	59
	40	59	59	59	59	59	59	59	59	58	57	56	55	54
	50	53	53	53	53	53	53	53	53	53	53	52	51	50
	60	49	49	49	49	49	49	49	49	49	49	49	48	47
	70	46	46	46	46	46	46	46	46	46	46	46	46	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	98	98	94	90	86	83	80	73	66	59	54	50	46
	10	93	93	93	90	86	83	80	73	66	59	54	50	46
	20	78	78	78	78	77	76	75	73	66	59	54	50	46
	30	67	67	67	67	67	67	67	65	64	59	54	50	46
	40	59	59	59	59	59	59	59	59	58	57	54	50	46
	50	53	53	53	53	53	53	53	53	53	53	52	50	46
	60	49	49	49	49	49	49	49	49	49	49	49	48	46
	70	46	46	46	46	46	46	46	46	46	46	46	46	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 140b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	93	89	85	82	79	71	64	58	53	48	45
	10	93	93	93	89	85	82	79	71	64	58	53	48	45
	20	78	78	78	78	77	76	75	71	64	58	53	48	45
	30	67	67	67	67	67	67	67	65	64	58	53	48	45
	40	59	59	59	59	59	59	59	59	58	57	53	48	45
	50	53	53	53	53	53	53	53	53	53	53	52	48	45
	60	49	49	49	49	49	49	49	49	49	49	49	48	45
	70	46	46	46	46	46	46	46	46	46	46	46	46	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	41	41	41	41	41	41	41	41	41	41	41	41	41
Zones 2e, 2r, & 3	0	86	82	78	74	69	65	61	55	49	45	41	38	35
	10	86	82	78	74	69	65	61	55	49	45	41	38	35
	20	78	78	78	74	69	65	61	55	49	45	41	38	35
	30	67	67	67	67	67	65	61	55	49	45	41	38	35
	40	59	59	59	59	59	59	59	55	49	45	41	38	35
	50	53	53	53	53	53	53	53	53	49	45	41	38	35
	60	49	49	49	49	49	49	49	49	49	45	41	38	35
	70	46	46	46	46	46	46	46	46	46	45	41	38	35
	80	43	43	43	43	43	43	43	43	43	43	41	38	35
	90	41	41	41	41	41	41	41	41	41	41	41	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 141a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1					
		Exposure Category: D							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	96	92	88	82	77	70	63	58	54
	10	93	93	92	91	90	88	87	82	77	70	63	58	54
	20	78	78	77	76	76	75	74	72	70	68	63	58	54
	30	67	67	67	67	67	66	65	64	63	61	60	58	54
	40	59	59	59	59	59	59	59	58	57	56	55	54	52
	50	53	53	53	53	53	53	53	53	53	52	51	50	49
	60	49	49	49	49	49	49	49	49	49	49	48	47	46
	70	46	46	46	46	46	46	46	46	46	46	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	41	41	41	41	41	41	41	41	41	41	41	41	40
Zones 2e, 2r, & 3	0	97	92	88	84	81	77	74	66	59	54	49	45	42
	10	93	92	88	84	81	77	74	66	59	54	49	45	42
	20	78	78	77	76	76	75	74	66	59	54	49	45	42
	30	67	67	67	67	67	66	65	64	59	54	49	45	42
	40	59	59	59	59	59	59	59	58	57	54	49	45	42
	50	53	53	53	53	53	53	53	53	53	52	49	45	42
	60	49	49	49	49	49	49	49	49	49	49	48	45	42
	70	46	46	46	46	46	46	46	46	46	46	45	45	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	41	41	41	41	41	41	41	41	41	41	41	41	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 141b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	96	91	87	83	79	76	72	64	57	52	48	44	41
	10	93	91	87	83	79	76	72	64	57	52	48	44	41
	20	78	78	77	76	76	75	72	64	57	52	48	44	41
	30	67	67	67	67	67	66	65	64	57	52	48	44	41
	40	59	59	59	59	59	59	59	58	57	52	48	44	41
	50	53	53	53	53	53	53	53	53	53	52	48	44	41
	60	49	49	49	49	49	49	49	49	49	49	48	44	41
	70	46	46	46	46	46	46	46	46	46	46	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
	90	41	41	41	41	41	41	41	41	41	41	41	41	40
Zones 2e, 2r, & 3	0	80	77	72	67	62	58	55	49	45	41	37	35	33
	10	80	77	72	67	62	58	55	49	45	41	37	35	33
	20	78	77	72	67	62	58	55	49	45	41	37	35	33
	30	67	67	67	67	62	58	55	49	45	41	37	35	33
	40	59	59	59	59	59	58	55	49	45	41	37	35	33
	50	53	53	53	53	53	53	53	49	45	41	37	35	33
	60	49	49	49	49	49	49	49	49	45	41	37	35	33
	70	46	46	46	46	46	46	46	46	45	41	37	35	33
	80	43	43	43	43	43	43	43	43	43	41	37	35	33
	90	41	41	41	41	41	41	41	41	41	41	37	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 142a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	98	98	98	95	89	84	79	75	70
	10	94	94	94	94	94	94	94	93	89	84	79	75	70
	20	81	81	81	81	81	81	81	79	78	76	75	73	70
	30	70	70	70	70	70	70	70	70	69	68	67	66	65
	40	62	62	62	62	62	62	62	62	62	62	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	98	98	98	95	88	82	77	73	65
	10	94	94	94	94	94	94	94	93	88	82	77	73	65
	20	81	81	81	81	81	81	81	79	78	76	75	73	65
	30	70	70	70	70	70	70	70	70	69	68	67	66	65
	40	62	62	62	62	62	62	62	62	62	62	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	98	98	98	95	91	87	81	76	70	63	57	52
	10	94	94	94	94	94	91	87	81	76	70	63	57	52
	20	81	81	81	81	81	81	81	79	76	70	63	57	52
	30	70	70	70	70	70	70	70	70	69	68	63	57	52
	40	62	62	62	62	62	62	62	62	62	62	61	57	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	98	98	98	96	91	84	78	72	63	57	52
	10	94	94	94	94	94	94	91	84	78	72	63	57	52
	20	81	81	81	81	81	81	81	79	78	72	63	57	52
	30	70	70	70	70	70	70	70	70	69	68	63	57	52
	40	62	62	62	62	62	62	62	62	62	62	61	57	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 142b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	96	92	88	85	79	74	67	61	56	52
	10	94	94	94	94	92	88	85	79	74	67	61	56	52
	20	81	81	81	81	81	81	81	79	74	67	61	56	52
	30	70	70	70	70	70	70	70	70	69	67	61	56	52
	40	62	62	62	62	62	62	62	62	62	62	61	56	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	52	52	52	52	52	52	52	52	52	52	52	52	52
	70	49	49	49	49	49	49	49	49	49	49	49	49	49
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	97	92	88	84	78	71	63	57	51	47
	10	94	94	94	94	92	88	84	78	71	63	57	51	47
	20	81	81	81	81	81	81	81	78	71	63	57	51	47
	30	70	70	70	70	70	70	70	70	69	63	57	51	47
	40	62	62	62	62	62	62	62	62	62	62	57	51	47
	50	56	56	56	56	56	56	56	56	56	56	56	51	47
	60	52	52	52	52	52	52	52	52	52	52	52	51	47
	70	49	49	49	49	49	49	49	49	49	49	49	49	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	46
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	95	90	86	82	79	75	72	63	56	51	46	42	39
	10	94	90	86	82	79	75	72	63	56	51	46	42	39
	20	81	81	81	81	79	75	72	63	56	51	46	42	39
	30	70	70	70	70	70	70	70	63	56	51	46	42	39
	40	62	62	62	62	62	62	62	62	56	51	46	42	39
	50	56	56	56	56	56	56	56	56	56	51	46	42	39
	60	52	52	52	52	52	52	52	52	52	51	46	42	39
	70	49	49	49	49	49	49	49	49	49	49	46	42	39
	80	46	46	46	46	46	46	46	46	46	46	46	42	39
	90	43	43	43	43	43	43	43	43	43	43	43	42	39
Zone 3	0	98	94	89	85	81	77	74	64	56	50	45	41	37
	10	94	94	89	85	81	77	74	64	56	50	45	41	37
	20	81	81	81	81	81	77	74	64	56	50	45	41	37
	30	70	70	70	70	70	70	70	64	56	50	45	41	37
	40	62	62	62	62	62	62	62	62	56	50	45	41	37
	50	56	56	56	56	56	56	56	56	56	50	45	41	37
	60	52	52	52	52	52	52	52	52	52	50	45	41	37
	70	49	49	49	49	49	49	49	49	49	49	45	41	37
	80	46	46	46	46	46	46	46	46	46	46	45	41	37
	90	43	43	43	43	43	43	43	43	43	43	43	41	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 143a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	98	97	93	90	84	78	74	67	61	56
	10	94	94	94	94	94	92	90	84	78	74	67	61	56
	20	81	81	81	80	80	79	78	76	74	73	67	61	56
	30	70	70	70	70	70	70	69	68	67	65	64	61	56
	40	62	62	62	62	62	62	62	62	61	60	59	58	56
	50	56	56	56	56	56	56	56	56	56	56	55	54	53
	60	52	52	52	52	52	52	52	52	52	52	52	51	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	98	98	98	98	93	89	82	77	70	63	57	51
	10	94	94	94	94	94	92	89	82	77	70	63	57	51
	20	81	81	81	80	80	79	78	76	74	70	63	57	51
	30	70	70	70	70	70	70	69	68	67	65	63	57	51
	40	62	62	62	62	62	62	62	62	61	60	59	57	51
	50	56	56	56	56	56	56	56	56	56	56	55	54	51
	60	52	52	52	52	52	52	52	52	52	52	52	51	50
	70	49	49	49	49	49	49	49	49	49	49	49	48	47
	80	46	46	46	46	46	46	46	46	46	46	46	46	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	98	95	91	87	83	80	77	70	62	56	50	46	43
	10	94	94	91	87	83	80	77	70	62	56	50	46	43
	20	81	81	81	80	80	79	77	70	62	56	50	46	43
	30	70	70	70	70	70	70	69	68	62	56	50	46	43
	40	62	62	62	62	62	62	62	62	61	56	50	46	43
	50	56	56	56	56	56	56	56	56	56	56	50	46	43
	60	52	52	52	52	52	52	52	52	52	52	50	46	43
	70	49	49	49	49	49	49	49	49	49	49	49	46	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	98	98	95	90	86	82	79	72	62	55	49	45	41
	10	94	94	94	90	86	82	79	72	62	55	49	45	41
	20	81	81	81	80	80	79	78	72	62	55	49	45	41
	30	70	70	70	70	70	70	69	68	62	55	49	45	41
	40	62	62	62	62	62	62	62	62	61	55	49	45	41
	50	56	56	56	56	56	56	56	56	56	55	49	45	41
	60	52	52	52	52	52	52	52	52	52	52	49	45	41
	70	49	49	49	49	49	49	49	49	49	49	49	45	41
	80	46	46	46	46	46	46	46	46	46	46	46	45	41
	90	43	43	43	43	43	43	43	43	43	43	43	43	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 143b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	92	88	84	81	78	75	68	61	55	50	46	43
	10	94	92	88	84	81	78	75	68	61	55	50	46	43
	20	81	81	81	80	80	78	75	68	61	55	50	46	43
	30	70	70	70	70	70	70	69	68	61	55	50	46	43
	40	62	62	62	62	62	62	62	62	61	55	50	46	43
	50	56	56	56	56	56	56	56	56	56	55	50	46	43
	60	52	52	52	52	52	52	52	52	52	52	50	46	43
	70	49	49	49	49	49	49	49	49	49	49	49	46	43
	80	46	46	46	46	46	46	46	46	46	46	46	46	43
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	98	92	88	83	80	76	73	63	56	50	45	41	38
	10	94	92	88	83	80	76	73	63	56	50	45	41	38
	20	81	81	81	80	80	76	73	63	56	50	45	41	38
	30	70	70	70	70	70	70	69	63	56	50	45	41	38
	40	62	62	62	62	62	62	62	62	56	50	45	41	38
	50	56	56	56	56	56	56	56	56	56	50	45	41	38
	60	52	52	52	52	52	52	52	52	52	50	45	41	38
	70	49	49	49	49	49	49	49	49	49	49	45	41	38
	80	46	46	46	46	46	46	46	46	46	46	45	41	38
	90	43	43	43	43	43	43	43	43	43	43	43	41	38
Zone 2r	0	83	79	75	71	66	61	57	51	46	41	38	35	33
	10	83	79	75	71	66	61	57	51	46	41	38	35	33
	20	81	79	75	71	66	61	57	51	46	41	38	35	33
	30	70	70	70	70	66	61	57	51	46	41	38	35	33
	40	62	62	62	62	62	61	57	51	46	41	38	35	33
	50	56	56	56	56	56	56	56	51	46	41	38	35	33
	60	52	52	52	52	52	52	52	51	46	41	38	35	33
	70	49	49	49	49	49	49	49	49	46	41	38	35	33
	80	46	46	46	46	46	46	46	46	46	41	38	35	33
	90	43	43	43	43	43	43	43	43	43	41	38	35	33
Zone 3	0	86	81	77	73	67	62	57	50	44	40	36	33	31
	10	86	81	77	73	67	62	57	50	44	40	36	33	31
	20	81	81	77	73	67	62	57	50	44	40	36	33	31
	30	70	70	70	70	67	62	57	50	44	40	36	33	31
	40	62	62	62	62	62	62	57	50	44	40	36	33	31
	50	56	56	56	56	56	56	56	50	44	40	36	33	31
	60	52	52	52	52	52	52	52	50	44	40	36	33	31
	70	49	49	49	49	49	49	49	49	44	40	36	33	31
	80	46	46	46	46	46	46	46	46	44	40	36	33	31
	90	43	43	43	43	43	43	43	43	43	40	36	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 144a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	98	98	98	95	91	87	84	78	73	66	60	55	51
	10	94	94	94	93	91	87	84	78	73	66	60	55	51
	20	81	81	80	79	78	77	76	74	73	66	60	55	51
	30	70	70	70	70	70	69	68	67	65	64	60	55	51
	40	62	62	62	62	62	62	62	61	60	59	57	55	51
	50	56	56	56	56	56	56	56	56	56	55	54	53	51
	60	52	52	52	52	52	52	52	52	52	51	51	50	49
	70	49	49	49	49	49	49	49	49	49	49	48	47	46
	80	46	46	46	46	46	46	46	46	46	46	46	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 2e	0	98	98	98	95	91	87	83	77	70	62	55	50	46
	10	94	94	94	93	91	87	83	77	70	62	55	50	46
	20	81	81	80	79	78	77	76	74	70	62	55	50	46
	30	70	70	70	70	70	69	68	67	65	62	55	50	46
	40	62	62	62	62	62	62	62	61	60	59	55	50	46
	50	56	56	56	56	56	56	56	56	56	55	54	50	46
	60	52	52	52	52	52	52	52	52	52	51	51	50	46
	70	49	49	49	49	49	49	49	49	49	49	48	47	46
	80	46	46	46	46	46	46	46	46	46	46	46	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 2r	0	94	89	85	81	78	75	70	62	55	50	45	42	38
	10	94	89	85	81	78	75	70	62	55	50	45	42	38
	20	81	81	80	79	78	75	70	62	55	50	45	42	38
	30	70	70	70	70	70	69	68	62	55	50	45	42	38
	40	62	62	62	62	62	62	62	61	55	50	45	42	38
	50	56	56	56	56	56	56	56	56	55	50	45	42	38
	60	52	52	52	52	52	52	52	52	52	50	45	42	38
	70	49	49	49	49	49	49	49	49	49	49	45	42	38
	80	46	46	46	46	46	46	46	46	46	46	45	42	38
	90	43	43	43	43	43	43	43	43	43	43	43	42	38
Zone 3	0	98	93	88	84	80	76	73	62	55	49	44	40	37
	10	94	93	88	84	80	76	73	62	55	49	44	40	37
	20	81	81	80	79	78	76	73	62	55	49	44	40	37
	30	70	70	70	70	70	69	68	62	55	49	44	40	37
	40	62	62	62	62	62	62	62	61	55	49	44	40	37
	50	56	56	56	56	56	56	56	56	55	49	44	40	37
	60	52	52	52	52	52	52	52	52	52	49	44	40	37
	70	49	49	49	49	49	49	49	49	49	49	44	40	37
	80	46	46	46	46	46	46	46	46	46	46	44	40	37
	90	43	43	43	43	43	43	43	43	43	43	43	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 144b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1.5					
		Exposure Category: D							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	91	86	83	79	76	73	68	61	54	49	45	42	39
	10	91	86	83	79	76	73	68	61	54	49	45	42	39
	20	81	81	80	79	76	73	68	61	54	49	45	42	39
	30	70	70	70	70	70	69	68	61	54	49	45	42	39
	40	62	62	62	62	62	62	62	61	54	49	45	42	39
	50	56	56	56	56	56	56	56	56	54	49	45	42	39
	60	52	52	52	52	52	52	52	52	52	49	45	42	39
	70	49	49	49	49	49	49	49	49	49	49	45	42	39
	80	46	46	46	46	46	46	46	46	46	46	45	42	39
	90	43	43	43	43	43	43	43	43	43	43	43	42	39
Zone 2e	0	90	86	81	78	74	69	64	56	49	44	40	37	34
	10	90	86	81	78	74	69	64	56	49	44	40	37	34
	20	81	81	80	78	74	69	64	56	49	44	40	37	34
	30	70	70	70	70	70	69	64	56	49	44	40	37	34
	40	62	62	62	62	62	62	62	56	49	44	40	37	34
	50	56	56	56	56	56	56	56	56	49	44	40	37	34
	60	52	52	52	52	52	52	52	52	49	44	40	37	34
	70	49	49	49	49	49	49	49	49	49	44	40	37	34
	80	46	46	46	46	46	46	46	46	46	44	40	37	34
	90	43	43	43	43	43	43	43	43	43	43	40	37	34
Zone 2r	0	77	74	68	63	59	55	51	46	41	37	34	32	30
	10	77	74	68	63	59	55	51	46	41	37	34	32	30
	20	77	74	68	63	59	55	51	46	41	37	34	32	30
	30	70	70	68	63	59	55	51	46	41	37	34	32	30
	40	62	62	62	62	59	55	51	46	41	37	34	32	30
	50	56	56	56	56	56	55	51	46	41	37	34	32	30
	60	52	52	52	52	52	52	51	46	41	37	34	32	30
	70	49	49	49	49	49	49	49	46	41	37	34	32	30
	80	46	46	46	46	46	46	46	46	41	37	34	32	30
	90	43	43	43	43	43	43	43	43	41	37	34	32	30
Zone 3	0	80	75	70	64	58	54	50	44	39	35	33	30	28
	10	80	75	70	64	58	54	50	44	39	35	33	30	28
	20	80	75	70	64	58	54	50	44	39	35	33	30	28
	30	70	70	70	64	58	54	50	44	39	35	33	30	28
	40	62	62	62	62	58	54	50	44	39	35	33	30	28
	50	56	56	56	56	56	54	50	44	39	35	33	30	28
	60	52	52	52	52	52	52	50	44	39	35	33	30	28
	70	49	49	49	49	49	49	49	44	39	35	33	30	28
	80	46	46	46	46	46	46	46	44	39	35	33	30	28
	90	43	43	43	43	43	43	43	43	39	35	33	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 80"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 145a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation:		Landscape			
		Roof Angle: $0 < \theta \leq 7$ degrees				North/South Support				$X_E = 1$					
		Exposure Category: B				Roof Type : Gable									
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1'	0	121	121	121	121	121	121	121	121	121	121	121	121	119	
	10	115	115	115	115	115	115	115	115	115	115	114	114	112	
	20	96	96	96	96	96	96	96	96	96	96	96	96	96	
	30	95	95	95	95	95	95	95	95	95	95	95	95	95	
	40	86	86	86	86	86	86	86	86	86	86	86	86	86	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 1	0	121	121	121	121	121	121	121	121	115	108	102	97	92	
	10	115	115	115	115	115	115	115	115	115	108	102	97	92	
	20	96	96	96	96	96	96	96	96	96	96	96	96	92	
	30	95	95	95	95	95	95	95	95	95	95	95	95	92	
	40	86	86	86	86	86	86	86	86	86	86	86	86	86	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 2	0	121	121	121	121	121	119	115	107	100	95	90	85	81	
	10	115	115	115	115	115	115	115	107	100	95	90	85	81	
	20	96	96	96	96	96	96	96	96	96	95	90	85	81	
	30	95	95	95	95	95	95	95	95	95	95	90	85	81	
	40	86	86	86	86	86	86	86	86	86	86	86	85	81	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 3	0	121	121	118	113	108	104	100	93	88	83	78	72	67	
	10	115	115	115	113	108	104	100	93	88	83	78	72	67	
	20	96	96	96	96	96	96	96	93	88	83	78	72	67	
	30	95	95	95	95	95	95	95	93	88	83	78	72	67	
	40	86	86	86	86	86	86	86	86	86	83	78	72	67	
	50	78	78	78	78	78	78	78	78	78	78	78	72	67	
	60	72	72	72	72	72	72	72	72	72	72	72	72	67	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 145b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation:		Landscape			
		Roof Angle: $0 < \theta \leq 7$ degrees				North/South Support				$X_E = 1.5$					
		Exposure Category: B								Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1'	0	121	121	121	121	121	121	121	121	121	116	110	105	100	
	10	115	115	115	115	115	115	115	115	115	115	110	105	100	
	20	96	96	96	96	96	96	96	96	96	96	96	96	96	
	30	95	95	95	95	95	95	95	95	95	95	95	95	95	
	40	86	86	86	86	86	86	86	86	86	86	86	86	86	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 1	0	121	121	121	121	119	114	110	102	96	91	86	82	78	
	10	115	115	115	115	115	114	110	102	96	91	86	82	78	
	20	96	96	96	96	96	96	96	96	96	91	86	82	78	
	30	95	95	95	95	95	95	95	95	95	91	86	82	78	
	40	86	86	86	86	86	86	86	86	86	86	86	82	78	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 2	0	121	118	113	108	104	100	96	90	85	80	74	69	65	
	10	115	115	113	108	104	100	96	90	85	80	74	69	65	
	20	96	96	96	96	96	96	96	90	85	80	74	69	65	
	30	95	95	95	95	95	95	95	90	85	80	74	69	65	
	40	86	86	86	86	86	86	86	86	85	80	74	69	65	
	50	78	78	78	78	78	78	78	78	78	78	74	69	65	
	60	72	72	72	72	72	72	72	72	72	72	72	69	65	
	70	67	67	67	67	67	67	67	67	67	67	67	67	65	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 3	0	108	103	98	94	91	87	84	79	72	66	62	58	55	
	10	108	103	98	94	91	87	84	79	72	66	62	58	55	
	20	96	96	96	94	91	87	84	79	72	66	62	58	55	
	30	95	95	95	94	91	87	84	79	72	66	62	58	55	
	40	86	86	86	86	86	86	84	79	72	66	62	58	55	
	50	78	78	78	78	78	78	78	78	72	66	62	58	55	
	60	72	72	72	72	72	72	72	72	72	66	62	58	55	
	70	67	67	67	67	67	67	67	67	67	66	62	58	55	
	80	63	63	63	63	63	63	63	63	63	63	62	58	55	
	90	59	59	59	59	59	59	59	59	59	59	59	58	55	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 146a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape			Landscape		
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support			$X_E = 1$		
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	121	121	121	121	121	117	110	105	100
	10	115	115	115	115	115	115	115	115	113	112	110	105	100
	20	96	96	96	96	96	96	96	96	96	96	96	96	95
	30	95	95	95	95	95	95	95	95	95	95	95	95	94
	40	86	86	86	86	86	86	86	86	86	86	86	86	86
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	121	121	121	121	119	114	110	103	96	91	86	82	78
	10	115	115	115	115	115	114	110	103	96	91	86	82	78
	20	96	96	96	96	96	96	96	96	96	91	86	82	78
	30	95	95	95	95	95	95	95	95	95	91	86	82	78
	40	86	86	86	86	86	86	86	86	86	86	86	82	78
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 2	0	121	118	113	108	104	100	96	90	85	80	75	69	65
	10	115	115	113	108	104	100	96	90	85	80	75	69	65
	20	96	96	96	96	96	96	96	90	85	80	75	69	65
	30	95	95	95	95	95	95	95	90	85	80	75	69	65
	40	86	86	86	86	86	86	86	86	85	80	75	69	65
	50	78	78	78	78	78	78	78	78	78	78	75	69	65
	60	72	72	72	72	72	72	72	72	72	72	72	69	65
	70	67	67	67	67	67	67	67	67	67	67	67	67	65
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 3	0	108	103	99	95	91	88	85	79	72	66	62	58	55
	10	108	103	99	95	91	88	85	79	72	66	62	58	55
	20	96	96	96	95	91	88	85	79	72	66	62	58	55
	30	95	95	95	95	91	88	85	79	72	66	62	58	55
	40	86	86	86	86	86	86	85	79	72	66	62	58	55
	50	78	78	78	78	78	78	78	78	72	66	62	58	55
	60	72	72	72	72	72	72	72	72	72	66	62	58	55
	70	67	67	67	67	67	67	67	67	67	66	62	58	55
	80	63	63	63	63	63	63	63	63	63	63	62	58	55
	90	59	59	59	59	59	59	59	59	59	59	59	58	55

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 146b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	121	121	119	111	104	99	94	89	85
	10	115	115	115	115	115	115	115	111	104	99	94	89	85
	20	96	96	96	96	96	96	96	96	96	96	94	89	85
	30	95	95	95	95	95	95	95	95	95	95	94	89	85
	40	86	86	86	86	86	86	86	86	86	86	86	86	85
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	119	113	108	104	100	96	92	87	82	76	70	65	62
	10	115	113	108	104	100	96	92	87	82	76	70	65	62
	20	96	96	96	96	96	96	92	87	82	76	70	65	62
	30	95	95	95	95	95	95	92	87	82	76	70	65	62
	40	86	86	86	86	86	86	86	86	82	76	70	65	62
	50	78	78	78	78	78	78	78	78	78	76	70	65	62
	60	72	72	72	72	72	72	72	72	72	72	70	65	62
	70	67	67	67	67	67	67	67	67	67	67	67	65	62
	80	63	63	63	63	63	63	63	63	63	63	63	63	62
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 2	0	104	99	95	91	88	85	82	75	68	64	59	56	53
	10	104	99	95	91	88	85	82	75	68	64	59	56	53
	20	96	96	95	91	88	85	82	75	68	64	59	56	53
	30	95	95	95	91	88	85	82	75	68	64	59	56	53
	40	86	86	86	86	86	85	82	75	68	64	59	56	53
	50	78	78	78	78	78	78	78	75	68	64	59	56	53
	60	72	72	72	72	72	72	72	72	68	64	59	56	53
	70	67	67	67	67	67	67	67	67	67	64	59	56	53
	80	63	63	63	63	63	63	63	63	63	63	59	56	53
	90	59	59	59	59	59	59	59	59	59	59	59	56	53
Zone 3	0	91	87	83	80	75	71	68	62	58	54	50	47	44
	10	91	87	83	80	75	71	68	62	58	54	50	47	44
	20	91	87	83	80	75	71	68	62	58	54	50	47	44
	30	91	87	83	80	75	71	68	62	58	54	50	47	44
	40	86	86	83	80	75	71	68	62	58	54	50	47	44
	50	78	78	78	78	75	71	68	62	58	54	50	47	44
	60	72	72	72	72	72	71	68	62	58	54	50	47	44
	70	67	67	67	67	67	67	67	62	58	54	50	47	44
	80	63	63	63	63	63	63	63	62	58	54	50	47	44
	90	59	59	59	59	59	59	59	59	58	54	50	47	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 147a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation:		Landscape			
		Roof Angle: $0 < \theta \leq 7$ degrees				North/South Support				$X_E = 1$					
		Exposure Category: D				Roof Type : Gable									
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1'	0	121	121	121	121	121	121	121	121	114	108	102	97	93	
	10	115	115	115	115	115	115	114	113	112	108	102	97	93	
	20	96	96	96	96	96	96	96	96	96	96	96	95	93	
	30	95	95	95	95	95	95	95	95	95	95	95	94	93	
	40	86	86	86	86	86	86	86	86	86	86	86	86	86	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 1	0	121	121	119	114	109	105	101	95	89	84	80	74	69	
	10	115	115	115	114	109	105	101	95	89	84	80	74	69	
	20	96	96	96	96	96	96	96	95	89	84	80	74	69	
	30	95	95	95	95	95	95	95	95	89	84	80	74	69	
	40	86	86	86	86	86	86	86	86	86	84	80	74	69	
	50	78	78	78	78	78	78	78	78	78	78	78	74	69	
	60	72	72	72	72	72	72	72	72	72	72	72	72	69	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 2	0	114	109	104	100	96	92	89	83	78	72	66	62	59	
	10	114	109	104	100	96	92	89	83	78	72	66	62	59	
	20	96	96	96	96	96	92	89	83	78	72	66	62	59	
	30	95	95	95	95	95	92	89	83	78	72	66	62	59	
	40	86	86	86	86	86	86	86	83	78	72	66	62	59	
	50	78	78	78	78	78	78	78	78	78	72	66	62	59	
	60	72	72	72	72	72	72	72	72	72	72	66	62	59	
	70	67	67	67	67	67	67	67	67	67	67	66	62	59	
	80	63	63	63	63	63	63	63	63	63	63	63	62	59	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 3	0	99	95	91	87	84	81	77	70	64	60	56	53	50	
	10	99	95	91	87	84	81	77	70	64	60	56	53	50	
	20	96	95	91	87	84	81	77	70	64	60	56	53	50	
	30	95	95	91	87	84	81	77	70	64	60	56	53	50	
	40	86	86	86	86	84	81	77	70	64	60	56	53	50	
	50	78	78	78	78	78	78	77	70	64	60	56	53	50	
	60	72	72	72	72	72	72	72	70	64	60	56	53	50	
	70	67	67	67	67	67	67	67	67	64	60	56	53	50	
	80	63	63	63	63	63	63	63	63	63	60	56	53	50	
	90	59	59	59	59	59	59	59	59	59	59	56	53	50	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 147b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	118	113	109	102	96	91	87	83	79
	10	115	115	115	115	115	113	109	102	96	91	87	83	79
	20	96	96	96	96	96	96	96	96	96	91	87	83	79
	30	95	95	95	95	95	95	95	95	95	91	87	83	79
	40	86	86	86	86	86	86	86	86	86	86	86	83	79
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	109	104	99	95	92	88	85	80	73	67	63	59	56
	10	109	104	99	95	92	88	85	80	73	67	63	59	56
	20	96	96	96	95	92	88	85	80	73	67	63	59	56
	30	95	95	95	95	92	88	85	80	73	67	63	59	56
	40	86	86	86	86	86	86	85	80	73	67	63	59	56
	50	78	78	78	78	78	78	78	78	73	67	63	59	56
	60	72	72	72	72	72	72	72	72	72	67	63	59	56
	70	67	67	67	67	67	67	67	67	67	67	63	59	56
	80	63	63	63	63	63	63	63	63	63	63	63	59	56
	90	59	59	59	59	59	59	59	59	59	59	59	59	56
Zone 2	0	96	91	88	84	81	78	74	67	62	58	54	51	48
	10	96	91	88	84	81	78	74	67	62	58	54	51	48
	20	96	91	88	84	81	78	74	67	62	58	54	51	48
	30	95	91	88	84	81	78	74	67	62	58	54	51	48
	40	86	86	86	84	81	78	74	67	62	58	54	51	48
	50	78	78	78	78	78	78	74	67	62	58	54	51	48
	60	72	72	72	72	72	72	72	67	62	58	54	51	48
	70	67	67	67	67	67	67	67	67	62	58	54	51	48
	80	63	63	63	63	63	63	63	63	62	58	54	51	48
	90	59	59	59	59	59	59	59	59	59	58	54	51	48
Zone 3	0	84	80	75	71	67	64	61	56	52	48	45	43	40
	10	84	80	75	71	67	64	61	56	52	48	45	43	40
	20	84	80	75	71	67	64	61	56	52	48	45	43	40
	30	84	80	75	71	67	64	61	56	52	48	45	43	40
	40	84	80	75	71	67	64	61	56	52	48	45	43	40
	50	78	78	75	71	67	64	61	56	52	48	45	43	40
	60	72	72	72	71	67	64	61	56	52	48	45	43	40
	70	67	67	67	67	67	64	61	56	52	48	45	43	40
	80	63	63	63	63	63	63	61	56	52	48	45	43	40
	90	59	59	59	59	59	59	59	56	52	48	45	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 148a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Landscape		North/South Support $X_E = 1$		
		Exposure Category: B				Roof Type : Gable								
		Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)										
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	121	121	121	121	121	119	111	104	99	94	89	85
	10	115	115	115	115	115	115	115	111	104	99	94	89	85
	20	91	91	91	91	91	91	91	91	91	91	91	89	85
	30	91	91	91	91	91	91	91	91	91	91	91	89	85
	40	81	81	81	81	81	81	81	81	81	81	81	81	81
	50	73	73	73	73	73	73	73	73	73	73	73	73	73
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	121	121	121	118	113	108	104	97	91	86	81	76	70
	10	115	115	115	115	113	108	104	97	91	86	81	76	70
	20	91	91	91	91	91	91	91	91	91	86	81	76	70
	30	91	91	91	91	91	91	91	91	91	86	81	76	70
	40	81	81	81	81	81	81	81	81	81	81	81	76	70
	50	73	73	73	73	73	73	73	73	73	73	73	73	70
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 3r	0	121	119	113	108	104	100	96	90	84	79	73	67	63
	10	115	115	113	108	104	100	96	90	84	79	73	67	63
	20	91	91	91	91	91	91	91	90	84	79	73	67	63
	30	91	91	91	91	91	91	91	90	84	79	73	67	63
	40	81	81	81	81	81	81	81	81	81	79	73	67	63
	50	73	73	73	73	73	73	73	73	73	73	73	67	63
	60	67	67	67	67	67	67	67	67	67	67	67	67	63
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 148b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: B							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	121	121	117	112	108	104	100	94	89	84	80	75	70	
	10	115	115	115	112	108	104	100	94	89	84	80	75	70	
	20	91	91	91	91	91	91	91	91	89	84	80	75	70	
	30	91	91	91	91	91	91	91	91	89	84	80	75	70	
	40	81	81	81	81	81	81	81	81	81	81	80	75	70	
	50	73	73	73	73	73	73	73	73	73	73	73	73	70	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zones 2n, 2r, & 3e	0	112	107	102	98	94	90	87	81	75	68	64	60	56	
	10	112	107	102	98	94	90	87	81	75	68	64	60	56	
	20	91	91	91	91	91	90	87	81	75	68	64	60	56	
	30	91	91	91	91	91	90	87	81	75	68	64	60	56	
	40	81	81	81	81	81	81	81	81	75	68	64	60	56	
	50	73	73	73	73	73	73	73	73	73	68	64	60	56	
	60	67	67	67	67	67	67	67	67	67	67	64	60	56	
	70	63	63	63	63	63	63	63	63	63	63	63	60	56	
	80	59	59	59	59	59	59	59	59	59	59	59	59	56	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zone 3r	0	104	99	94	90	87	84	81	74	67	62	58	55	51	
	10	104	99	94	90	87	84	81	74	67	62	58	55	51	
	20	91	91	91	90	87	84	81	74	67	62	58	55	51	
	30	91	91	91	90	87	84	81	74	67	62	58	55	51	
	40	81	81	81	81	81	81	81	74	67	62	58	55	51	
	50	73	73	73	73	73	73	73	73	67	62	58	55	51	
	60	67	67	67	67	67	67	67	67	67	62	58	55	51	
	70	63	63	63	63	63	63	63	63	63	62	58	55	51	
	80	59	59	59	59	59	59	59	59	59	59	58	55	51	
	90	56	56	56	56	56	56	56	56	56	56	56	55	51	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 149a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$						
		Exposure Category: C							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	121	121	117	112	108	104	100	94	89	84	80	75	70	
	10	115	115	115	112	108	104	100	94	89	84	80	75	70	
	20	91	91	91	91	91	91	91	91	89	84	80	75	70	
	30	91	91	91	91	91	91	91	91	89	84	80	75	70	
	40	81	81	81	81	81	81	81	81	81	81	80	75	70	
	50	73	73	73	73	73	73	73	73	73	73	73	73	70	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zones 2n, 2r, & 3e	0	113	107	102	98	94	91	87	82	76	69	64	60	57	
	10	113	107	102	98	94	91	87	82	76	69	64	60	57	
	20	91	91	91	91	91	91	87	82	76	69	64	60	57	
	30	91	91	91	91	91	91	87	82	76	69	64	60	57	
	40	81	81	81	81	81	81	81	81	76	69	64	60	57	
	50	73	73	73	73	73	73	73	73	73	69	64	60	57	
	60	67	67	67	67	67	67	67	67	67	67	64	60	57	
	70	63	63	63	63	63	63	63	63	63	63	63	60	57	
	80	59	59	59	59	59	59	59	59	59	59	59	59	57	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zone 3r	0	104	99	95	91	87	84	81	74	67	62	58	55	52	
	10	104	99	95	91	87	84	81	74	67	62	58	55	52	
	20	91	91	91	91	87	84	81	74	67	62	58	55	52	
	30	91	91	91	91	87	84	81	74	67	62	58	55	52	
	40	81	81	81	81	81	81	81	74	67	62	58	55	52	
	50	73	73	73	73	73	73	73	73	67	62	58	55	52	
	60	67	67	67	67	67	67	67	67	67	62	58	55	52	
	70	63	63	63	63	63	63	63	63	63	62	58	55	52	
	80	59	59	59	59	59	59	59	59	59	59	58	55	52	
	90	56	56	56	56	56	56	56	56	56	56	56	55	52	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 149b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: C							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	108	103	99	95	92	88	86	80	75	69	64	60	57	
	10	108	103	99	95	92	88	86	80	75	69	64	60	57	
	20	91	91	91	91	91	88	86	80	75	69	64	60	57	
	30	91	91	91	91	91	88	86	80	75	69	64	60	57	
	40	81	81	81	81	81	81	81	80	75	69	64	60	57	
	50	73	73	73	73	73	73	73	73	73	69	64	60	57	
	60	67	67	67	67	67	67	67	67	67	67	64	60	57	
	70	63	63	63	63	63	63	63	63	63	63	63	60	57	
	80	59	59	59	59	59	59	59	59	59	59	59	59	57	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	94	90	86	82	79	75	71	64	60	55	52	49	46	
	10	94	90	86	82	79	75	71	64	60	55	52	49	46	
	20	91	90	86	82	79	75	71	64	60	55	52	49	46	
	30	91	90	86	82	79	75	71	64	60	55	52	49	46	
	40	81	81	81	81	79	75	71	64	60	55	52	49	46	
	50	73	73	73	73	73	73	71	64	60	55	52	49	46	
	60	67	67	67	67	67	67	67	64	60	55	52	49	46	
	70	63	63	63	63	63	63	63	63	60	55	52	49	46	
	80	59	59	59	59	59	59	59	59	59	55	52	49	46	
	90	56	56	56	56	56	56	56	56	56	55	52	49	46	
Zone 3r	0	87	83	79	75	70	67	64	59	54	50	47	44	42	
	10	87	83	79	75	70	67	64	59	54	50	47	44	42	
	20	87	83	79	75	70	67	64	59	54	50	47	44	42	
	30	87	83	79	75	70	67	64	59	54	50	47	44	42	
	40	81	81	79	75	70	67	64	59	54	50	47	44	42	
	50	73	73	73	73	70	67	64	59	54	50	47	44	42	
	60	67	67	67	67	67	67	64	59	54	50	47	44	42	
	70	63	63	63	63	63	63	63	59	54	50	47	44	42	
	80	59	59	59	59	59	59	59	59	54	50	47	44	42	
	90	56	56	56	56	56	56	56	56	54	50	47	44	42	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 150a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Landscape		North/South Support $X_E = 1$		Exposure Category: D		Roof Type : Gable	
		Wind Speed (mph)															
		Roof Wind Zone	Ground Snow Load (psf)	90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	118	113	108	104	100	96	93	87	82	78	72	67	63			
	10	115	113	108	104	100	96	93	87	82	78	72	67	63			
	20	91	91	91	91	91	91	91	87	82	78	72	67	63			
	30	91	91	91	91	91	91	91	87	82	78	72	67	63			
	40	81	81	81	81	81	81	81	81	81	78	72	67	63			
	50	73	73	73	73	73	73	73	73	73	73	72	67	63			
	60	67	67	67	67	67	67	67	67	67	67	67	67	63			
	70	63	63	63	63	63	63	63	63	63	63	63	63	63			
	80	59	59	59	59	59	59	59	59	59	59	59	59	59			
	90	56	56	56	56	56	56	56	56	56	56	56	56	56			
Zones 2n, 2r, & 3e	0	103	98	94	90	87	83	80	73	67	62	58	54	51			
	10	103	98	94	90	87	83	80	73	67	62	58	54	51			
	20	91	91	91	90	87	83	80	73	67	62	58	54	51			
	30	91	91	91	90	87	83	80	73	67	62	58	54	51			
	40	81	81	81	81	81	81	80	73	67	62	58	54	51			
	50	73	73	73	73	73	73	73	73	67	62	58	54	51			
	60	67	67	67	67	67	67	67	67	67	62	58	54	51			
	70	63	63	63	63	63	63	63	63	63	62	58	54	51			
	80	59	59	59	59	59	59	59	59	59	59	58	54	51			
	90	56	56	56	56	56	56	56	56	56	56	56	54	51			
Zone 3r	0	95	91	87	83	80	77	72	65	61	56	53	49	47			
	10	95	91	87	83	80	77	72	65	61	56	53	49	47			
	20	91	91	87	83	80	77	72	65	61	56	53	49	47			
	30	91	91	87	83	80	77	72	65	61	56	53	49	47			
	40	81	81	81	81	80	77	72	65	61	56	53	49	47			
	50	73	73	73	73	73	73	72	65	61	56	53	49	47			
	60	67	67	67	67	67	67	67	65	61	56	53	49	47			
	70	63	63	63	63	63	63	63	63	61	56	53	49	47			
	80	59	59	59	59	59	59	59	59	59	56	53	49	47			
	90	56	56	56	56	56	56	56	56	56	56	53	49	47			

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 150b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: D							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	100	95	92	88	85	82	79	73	67	62	58	54	51	
	10	100	95	92	88	85	82	79	73	67	62	58	54	51	
	20	91	91	91	88	85	82	79	73	67	62	58	54	51	
	30	91	91	91	88	85	82	79	73	67	62	58	54	51	
	40	81	81	81	81	81	81	79	73	67	62	58	54	51	
	50	73	73	73	73	73	73	73	73	67	62	58	54	51	
	60	67	67	67	67	67	67	67	67	67	62	58	54	51	
	70	63	63	63	63	63	63	63	63	63	62	58	54	51	
	80	59	59	59	59	59	59	59	59	59	59	58	54	51	
	90	56	56	56	56	56	56	56	56	56	56	56	54	51	
Zones 2n, 2r, & 3e	0	86	83	79	74	70	66	63	58	54	50	47	44	42	
	10	86	83	79	74	70	66	63	58	54	50	47	44	42	
	20	86	83	79	74	70	66	63	58	54	50	47	44	42	
	30	86	83	79	74	70	66	63	58	54	50	47	44	42	
	40	81	81	79	74	70	66	63	58	54	50	47	44	42	
	50	73	73	73	73	70	66	63	58	54	50	47	44	42	
	60	67	67	67	67	67	66	63	58	54	50	47	44	42	
	70	63	63	63	63	63	63	63	58	54	50	47	44	42	
	80	59	59	59	59	59	59	59	58	54	50	47	44	42	
	90	56	56	56	56	56	56	56	56	54	50	47	44	42	
Zone 3r	0	80	75	70	66	63	60	58	53	49	46	43	40	38	
	10	80	75	70	66	63	60	58	53	49	46	43	40	38	
	20	80	75	70	66	63	60	58	53	49	46	43	40	38	
	30	80	75	70	66	63	60	58	53	49	46	43	40	38	
	40	80	75	70	66	63	60	58	53	49	46	43	40	38	
	50	73	73	70	66	63	60	58	53	49	46	43	40	38	
	60	67	67	67	66	63	60	58	53	49	46	43	40	38	
	70	63	63	63	63	63	60	58	53	49	46	43	40	38	
	80	59	59	59	59	59	59	58	53	49	46	43	40	38	
	90	56	56	56	56	56	56	56	53	49	46	43	40	38	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 151a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$						
		Exposure Category: B							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	121	121	121	121	121	121	121	121	117	111	105	100	95	
	10	121	121	121	121	121	121	121	121	117	111	105	100	95	
	20	107	107	107	107	107	107	107	107	107	107	105	100	95	
	30	92	92	92	92	92	92	92	92	92	92	92	92	92	
	40	81	81	81	81	81	81	81	81	81	81	81	81	81	
	50	74	74	74	74	74	74	74	74	74	74	74	74	74	
	60	68	68	68	68	68	68	68	68	68	68	68	68	68	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	121	121	121	121	121	117	112	104	98	92	87	83	79	
	10	121	121	121	121	121	117	112	104	98	92	87	83	79	
	20	107	107	107	107	107	107	107	104	98	92	87	83	79	
	30	92	92	92	92	92	92	92	92	92	92	87	83	79	
	40	81	81	81	81	81	81	81	81	81	81	81	81	79	
	50	74	74	74	74	74	74	74	74	74	74	74	74	74	
	60	68	68	68	68	68	68	68	68	68	68	68	68	68	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 3r	0	121	121	121	120	114	110	105	98	92	86	82	78	72	
	10	121	121	121	120	114	110	105	98	92	86	82	78	72	
	20	107	107	107	107	107	107	105	98	92	86	82	78	72	
	30	92	92	92	92	92	92	92	92	92	86	82	78	72	
	40	81	81	81	81	81	81	81	81	81	81	81	78	72	
	50	74	74	74	74	74	74	74	74	74	74	74	74	72	
	60	68	68	68	68	68	68	68	68	68	68	68	68	68	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 151b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: B							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	121	121	121	121	121	117	113	105	99	94	89	85	81	
	10	121	121	121	121	121	117	113	105	99	94	89	85	81	
	20	107	107	107	107	107	107	107	105	99	94	89	85	81	
	30	92	92	92	92	92	92	92	92	92	92	89	85	81	
	40	81	81	81	81	81	81	81	81	81	81	81	81	81	
	50	74	74	74	74	74	74	74	74	74	74	74	74	74	
	60	68	68	68	68	68	68	68	68	68	68	68	68	68	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zones 2n, 2r, & 3e	0	121	116	110	105	101	97	94	88	82	78	71	66	62	
	10	121	116	110	105	101	97	94	88	82	78	71	66	62	
	20	107	107	107	105	101	97	94	88	82	78	71	66	62	
	30	92	92	92	92	92	92	92	88	82	78	71	66	62	
	40	81	81	81	81	81	81	81	81	81	78	71	66	62	
	50	74	74	74	74	74	74	74	74	74	74	71	66	62	
	60	68	68	68	68	68	68	68	68	68	68	68	66	62	
	70	63	63	63	63	63	63	63	63	63	63	63	63	62	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zone 3r	0	114	108	103	99	95	91	88	82	77	70	64	60	56	
	10	114	108	103	99	95	91	88	82	77	70	64	60	56	
	20	107	107	103	99	95	91	88	82	77	70	64	60	56	
	30	92	92	92	92	92	91	88	82	77	70	64	60	56	
	40	81	81	81	81	81	81	81	81	77	70	64	60	56	
	50	74	74	74	74	74	74	74	74	74	70	64	60	56	
	60	68	68	68	68	68	68	68	68	68	68	64	60	56	
	70	63	63	63	63	63	63	63	63	63	63	63	60	56	
	80	60	60	60	60	60	60	60	60	60	60	60	60	56	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 152a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $20 < \theta \leq 27$ degrees				Panel Orientation: Landscape		Landscape $X_E = 1$			
		Exposure Category: C				Roof Type : Gable									
		Wind Speed (mph)													
Roof Wind Zone	Ground Snow Load (psf)	90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	121	121	121	121	121	117	113	106	99	94	89	85	82	
	10	121	121	121	121	121	117	113	106	99	94	89	85	82	
	20	107	107	107	107	107	107	107	106	99	94	89	85	82	
	30	92	92	92	92	92	92	92	92	92	91	89	85	82	
	40	81	81	81	81	81	81	81	81	81	81	81	81	79	
	50	74	74	74	74	74	74	74	74	74	74	74	74	74	
	60	68	68	68	68	68	68	68	68	68	68	68	68	68	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	121	116	111	106	101	98	94	88	83	78	72	66	63	
	10	121	116	111	106	101	98	94	88	83	78	72	66	63	
	20	107	107	107	106	101	98	94	88	83	78	72	66	63	
	30	92	92	92	92	92	92	92	88	83	78	72	66	63	
	40	81	81	81	81	81	81	81	81	81	78	72	66	63	
	50	74	74	74	74	74	74	74	74	74	74	72	66	63	
	60	68	68	68	68	68	68	68	68	68	68	68	66	63	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 3r	0	114	109	104	99	95	92	88	82	77	70	64	60	56	
	10	114	109	104	99	95	92	88	82	77	70	64	60	56	
	20	107	107	104	99	95	92	88	82	77	70	64	60	56	
	30	92	92	92	92	92	92	88	82	77	70	64	60	56	
	40	81	81	81	81	81	81	81	81	77	70	64	60	56	
	50	74	74	74	74	74	74	74	74	74	70	64	60	56	
	60	68	68	68	68	68	68	68	68	68	68	64	60	56	
	70	63	63	63	63	63	63	63	63	63	63	63	60	56	
	80	60	60	60	60	60	60	60	60	60	60	60	60	56	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 152b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: C							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	121	116	111	107	103	99	96	90	85	80	76	71	66	
	10	121	116	111	107	103	99	96	90	85	80	76	71	66	
	20	107	107	107	107	103	99	96	90	85	80	76	71	66	
	30	92	92	92	92	92	92	92	90	85	80	76	71	66	
	40	81	81	81	81	81	81	81	81	81	80	76	71	66	
	50	74	74	74	74	74	74	74	74	74	74	74	71	66	
	60	68	68	68	68	68	68	68	68	68	68	68	68	66	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	101	97	92	89	85	82	79	72	66	61	57	54	51	
	10	101	97	92	89	85	82	79	72	66	61	57	54	51	
	20	101	97	92	89	85	82	79	72	66	61	57	54	51	
	30	92	92	92	89	85	82	79	72	66	61	57	54	51	
	40	81	81	81	81	81	81	79	72	66	61	57	54	51	
	50	74	74	74	74	74	74	74	72	66	61	57	54	51	
	60	68	68	68	68	68	68	68	68	66	61	57	54	51	
	70	63	63	63	63	63	63	63	63	63	61	57	54	51	
	80	60	60	60	60	60	60	60	60	60	60	57	54	51	
	90	56	56	56	56	56	56	56	56	56	56	56	54	51	
Zone 3r	0	95	91	87	83	80	77	72	65	59	55	51	47	44	
	10	95	91	87	83	80	77	72	65	59	55	51	47	44	
	20	95	91	87	83	80	77	72	65	59	55	51	47	44	
	30	92	91	87	83	80	77	72	65	59	55	51	47	44	
	40	81	81	81	81	80	77	72	65	59	55	51	47	44	
	50	74	74	74	74	74	74	72	65	59	55	51	47	44	
	60	68	68	68	68	68	68	68	65	59	55	51	47	44	
	70	63	63	63	63	63	63	63	63	59	55	51	47	44	
	80	60	60	60	60	60	60	60	60	59	55	51	47	44	
	90	56	56	56	56	56	56	56	56	56	55	51	47	44	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 153a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$						
		Exposure Category: D							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	121	121	121	117	112	108	104	98	92	87	83	79	75	
	10	121	121	121	117	112	108	104	98	92	87	83	79	75	
	20	107	107	107	107	107	107	104	98	92	87	83	79	75	
	30	92	92	92	92	92	92	92	92	91	87	83	79	75	
	40	81	81	81	81	81	81	81	81	81	81	80	79	75	
	50	74	74	74	74	74	74	74	74	74	74	74	73	72	
	60	68	68	68	68	68	68	68	68	68	68	68	68	68	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zones 2n, 2r, & 3e	0	112	106	101	97	93	90	87	81	75	69	64	60	57	
	10	112	106	101	97	93	90	87	81	75	69	64	60	57	
	20	107	106	101	97	93	90	87	81	75	69	64	60	57	
	30	92	92	92	92	92	90	87	81	75	69	64	60	57	
	40	81	81	81	81	81	81	81	81	75	69	64	60	57	
	50	74	74	74	74	74	74	74	74	74	69	64	60	57	
	60	68	68	68	68	68	68	68	68	68	68	64	60	57	
	70	63	63	63	63	63	63	63	63	63	63	63	60	57	
	80	60	60	60	60	60	60	60	60	60	60	60	60	57	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zone 3r	0	105	100	95	91	87	84	81	75	67	62	57	53	50	
	10	105	100	95	91	87	84	81	75	67	62	57	53	50	
	20	105	100	95	91	87	84	81	75	67	62	57	53	50	
	30	92	92	92	91	87	84	81	75	67	62	57	53	50	
	40	81	81	81	81	81	81	81	75	67	62	57	53	50	
	50	74	74	74	74	74	74	74	74	67	62	57	53	50	
	60	68	68	68	68	68	68	68	68	67	62	57	53	50	
	70	63	63	63	63	63	63	63	63	63	62	57	53	50	
	80	60	60	60	60	60	60	60	60	60	60	57	53	50	
	90	56	56	56	56	56	56	56	56	56	56	56	53	50	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 153b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: D							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	112	107	102	99	95	92	89	83	79	73	68	63	60	
	10	112	107	102	99	95	92	89	83	79	73	68	63	60	
	20	107	107	102	99	95	92	89	83	79	73	68	63	60	
	30	92	92	92	92	92	92	89	83	79	73	68	63	60	
	40	81	81	81	81	81	81	81	81	79	73	68	63	60	
	50	74	74	74	74	74	74	74	74	74	73	68	63	60	
	60	68	68	68	68	68	68	68	68	68	68	68	63	60	
	70	63	63	63	63	63	63	63	63	63	63	63	63	60	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zones 2n, 2r, & 3e	0	93	89	85	82	79	75	71	64	59	55	52	49	46	
	10	93	89	85	82	79	75	71	64	59	55	52	49	46	
	20	93	89	85	82	79	75	71	64	59	55	52	49	46	
	30	92	89	85	82	79	75	71	64	59	55	52	49	46	
	40	81	81	81	81	79	75	71	64	59	55	52	49	46	
	50	74	74	74	74	74	74	71	64	59	55	52	49	46	
	60	68	68	68	68	68	68	68	64	59	55	52	49	46	
	70	63	63	63	63	63	63	63	63	59	55	52	49	46	
	80	60	60	60	60	60	60	60	60	59	55	52	49	46	
90	56	56	56	56	56	56	56	56	56	55	52	49	46		
Zone 3r	0	87	83	80	76	71	67	64	58	53	49	45	42	39	
	10	87	83	80	76	71	67	64	58	53	49	45	42	39	
	20	87	83	80	76	71	67	64	58	53	49	45	42	39	
	30	87	83	80	76	71	67	64	58	53	49	45	42	39	
	40	81	81	80	76	71	67	64	58	53	49	45	42	39	
	50	74	74	74	74	71	67	64	58	53	49	45	42	39	
	60	68	68	68	68	68	67	64	58	53	49	45	42	39	
	70	63	63	63	63	63	63	63	58	53	49	45	42	39	
	80	60	60	60	60	60	60	60	58	53	49	45	42	39	
	90	56	56	56	56	56	56	56	56	53	49	45	42	39	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 154a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Landscape				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	121	121	121	121	121	121	121	121	113	107	101	95	91
	10	121	121	121	121	121	121	121	121	113	107	101	95	91
	20	110	110	110	110	110	110	110	108	106	104	101	95	91
	30	97	97	97	97	97	97	97	96	95	93	91	90	88
	40	86	86	86	86	86	86	86	86	86	85	84	82	81
	50	78	78	78	78	78	78	78	78	78	78	78	77	76
	60	72	72	72	72	72	72	72	72	72	72	72	72	71
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zones 2n & 3r	0	121	121	121	121	121	121	121	114	106	100	95	90	86
	10	121	121	121	121	121	121	121	114	106	100	95	90	86
	20	110	110	110	110	110	110	110	108	106	100	95	90	86
	30	97	97	97	97	97	97	97	96	95	93	91	90	86
	40	86	86	86	86	86	86	86	86	86	85	84	82	81
	50	78	78	78	78	78	78	78	78	78	78	78	77	76
	60	72	72	72	72	72	72	72	72	72	72	72	72	71
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 3e	0	121	121	121	121	120	115	111	103	97	92	87	83	79
	10	121	121	121	121	120	115	111	103	97	92	87	83	79
	20	110	110	110	110	110	110	110	103	97	92	87	83	79
	30	97	97	97	97	97	97	97	96	95	92	87	83	79
	40	86	86	86	86	86	86	86	86	86	85	84	82	79
	50	78	78	78	78	78	78	78	78	78	78	78	77	76
	60	72	72	72	72	72	72	72	72	72	72	72	72	71
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 154b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: B							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	121	121	121	121	118	113	109	101	95	89	84	80	77	
	10	121	121	121	121	118	113	109	101	95	89	84	80	77	
	20	110	110	110	110	110	110	109	101	95	89	84	80	77	
	30	97	97	97	97	97	97	97	96	95	89	84	80	77	
	40	86	86	86	86	86	86	86	86	86	85	84	80	77	
	50	78	78	78	78	78	78	78	78	78	78	78	77	76	
	60	72	72	72	72	72	72	72	72	72	72	72	72	71	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zones 2n & 3r	0	121	121	120	115	110	106	102	95	90	85	80	77	71	
	10	121	121	120	115	110	106	102	95	90	85	80	77	71	
	20	110	110	110	110	110	106	102	95	90	85	80	77	71	
	30	97	97	97	97	97	97	97	95	90	85	80	77	71	
	40	86	86	86	86	86	86	86	86	86	85	80	77	71	
	50	78	78	78	78	78	78	78	78	78	78	78	77	71	
	60	72	72	72	72	72	72	72	72	72	72	72	72	71	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 3e	0	120	114	109	104	100	96	93	87	82	77	72	66	62	
	10	120	114	109	104	100	96	93	87	82	77	72	66	62	
	20	110	110	109	104	100	96	93	87	82	77	72	66	62	
	30	97	97	97	97	97	96	93	87	82	77	72	66	62	
	40	86	86	86	86	86	86	86	86	82	77	72	66	62	
	50	78	78	78	78	78	78	78	78	78	77	72	66	62	
	60	72	72	72	72	72	72	72	72	72	72	72	66	62	
	70	67	67	67	67	67	67	67	67	67	67	67	66	62	
	80	63	63	63	63	63	63	63	63	63	63	63	63	62	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 155a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	121	121	121	121	118	113	109	101	95	89	85	80	77
	10	121	121	121	121	118	113	109	101	95	89	85	80	77
	20	110	110	110	108	107	106	104	101	95	89	85	80	77
	30	97	97	97	97	96	95	94	92	89	87	85	80	77
	40	86	86	86	86	86	86	86	84	82	81	79	77	75
	50	78	78	78	78	78	78	78	78	77	75	74	72	71
	60	72	72	72	72	72	72	72	72	72	71	70	68	67
	70	67	67	67	67	67	67	67	67	67	67	66	65	64
	80	63	63	63	63	63	63	63	63	63	63	63	62	61
	90	60	60	60	60	60	60	60	60	60	60	60	60	59
Zones 2n & 3r	0	121	121	120	115	110	106	102	96	90	85	81	77	71
	10	121	121	120	115	110	106	102	96	90	85	81	77	71
	20	110	110	110	108	107	106	102	96	90	85	81	77	71
	30	97	97	97	97	96	95	94	92	89	85	81	77	71
	40	86	86	86	86	86	86	86	84	82	81	79	77	71
	50	78	78	78	78	78	78	78	78	77	75	74	72	71
	60	72	72	72	72	72	72	72	72	72	71	70	68	67
	70	67	67	67	67	67	67	67	67	67	67	66	65	64
	80	63	63	63	63	63	63	63	63	63	63	63	62	61
	90	60	60	60	60	60	60	60	60	60	60	60	60	59
Zone 3e	0	120	114	109	105	100	97	93	87	82	78	72	66	62
	10	120	114	109	105	100	97	93	87	82	78	72	66	62
	20	110	110	109	105	100	97	93	87	82	78	72	66	62
	30	97	97	97	97	96	95	93	87	82	78	72	66	62
	40	86	86	86	86	86	86	86	84	82	78	72	66	62
	50	78	78	78	78	78	78	78	78	77	75	72	66	62
	60	72	72	72	72	72	72	72	72	72	71	70	66	62
	70	67	67	67	67	67	67	67	67	67	67	66	65	62
	80	63	63	63	63	63	63	63	63	63	63	63	62	61
	90	60	60	60	60	60	60	60	60	60	60	60	60	59

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 155b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	118	112	107	102	98	94	91	85	80	75	68	64	60
	10	118	112	107	102	98	94	91	85	80	75	68	64	60
	20	110	110	107	102	98	94	91	85	80	75	68	64	60
	30	97	97	97	97	96	94	91	85	80	75	68	64	60
	40	86	86	86	86	86	86	86	84	80	75	68	64	60
	50	78	78	78	78	78	78	78	78	77	75	68	64	60
	60	72	72	72	72	72	72	72	72	72	71	68	64	60
	70	67	67	67	67	67	67	67	67	67	67	66	64	60
	80	63	63	63	63	63	63	63	63	63	63	63	62	60
	90	60	60	60	60	60	60	60	60	60	60	60	60	59
Zones 2n & 3r	0	110	105	101	96	93	89	86	81	76	69	64	60	57
	10	110	105	101	96	93	89	86	81	76	69	64	60	57
	20	110	105	101	96	93	89	86	81	76	69	64	60	57
	30	97	97	97	96	93	89	86	81	76	69	64	60	57
	40	86	86	86	86	86	86	86	81	76	69	64	60	57
	50	78	78	78	78	78	78	78	78	76	69	64	60	57
	60	72	72	72	72	72	72	72	72	72	69	64	60	57
	70	67	67	67	67	67	67	67	67	67	67	64	60	57
	80	63	63	63	63	63	63	63	63	63	63	63	60	57
	90	60	60	60	60	60	60	60	60	60	60	60	60	57
Zone 3e	0	100	96	92	88	85	82	79	72	66	61	56	53	49
	10	100	96	92	88	85	82	79	72	66	61	56	53	49
	20	100	96	92	88	85	82	79	72	66	61	56	53	49
	30	97	96	92	88	85	82	79	72	66	61	56	53	49
	40	86	86	86	86	85	82	79	72	66	61	56	53	49
	50	78	78	78	78	78	78	78	72	66	61	56	53	49
	60	72	72	72	72	72	72	72	72	66	61	56	53	49
	70	67	67	67	67	67	67	67	67	66	61	56	53	49
	80	63	63	63	63	63	63	63	63	63	61	56	53	49
	90	60	60	60	60	60	60	60	60	60	60	56	53	49

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 156a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1$						
		Exposure Category: D							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	121	121	118	113	108	104	100	93	87	82	78	73	67	
	10	121	121	118	113	108	104	100	93	87	82	78	73	67	
	20	110	109	107	106	104	103	100	93	87	82	78	73	67	
	30	97	97	96	94	93	92	91	89	86	82	78	73	67	
	40	86	86	86	86	85	85	84	82	80	78	76	73	67	
	50	78	78	78	78	78	78	78	76	75	73	71	70	67	
	60	72	72	72	72	72	72	72	72	70	69	68	66	65	
	70	67	67	67	67	67	67	67	67	67	66	64	63	62	
	80	63	63	63	63	63	63	63	63	63	63	62	61	60	
	90	60	60	60	60	60	60	60	60	60	60	59	58	58	
Zones 2n & 3r	0	121	115	110	106	102	98	94	88	83	79	73	68	64	
	10	121	115	110	106	102	98	94	88	83	79	73	68	64	
	20	110	109	107	106	102	98	94	88	83	79	73	68	64	
	30	97	97	96	94	93	92	91	88	83	79	73	68	64	
	40	86	86	86	86	85	85	84	82	80	78	73	68	64	
	50	78	78	78	78	78	78	78	76	75	73	71	68	64	
	60	72	72	72	72	72	72	72	72	70	69	68	66	64	
	70	67	67	67	67	67	67	67	67	67	66	64	63	62	
	80	63	63	63	63	63	63	63	63	63	63	62	61	60	
	90	60	60	60	60	60	60	60	60	60	60	59	58	58	
Zone 3e	0	110	105	100	96	93	89	86	81	76	69	64	59	56	
	10	110	105	100	96	93	89	86	81	76	69	64	59	56	
	20	110	105	100	96	93	89	86	81	76	69	64	59	56	
	30	97	97	96	94	93	89	86	81	76	69	64	59	56	
	40	86	86	86	86	85	85	84	81	76	69	64	59	56	
	50	78	78	78	78	78	78	78	76	75	69	64	59	56	
	60	72	72	72	72	72	72	72	72	70	69	64	59	56	
	70	67	67	67	67	67	67	67	67	67	66	64	59	56	
	80	63	63	63	63	63	63	63	63	63	63	62	59	56	
	90	60	60	60	60	60	60	60	60	60	60	59	58	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 156b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	108	103	98	94	90	87	84	78	72	66	62	58	54
	10	108	103	98	94	90	87	84	78	72	66	62	58	54
	20	108	103	98	94	90	87	84	78	72	66	62	58	54
	30	97	97	96	94	90	87	84	78	72	66	62	58	54
	40	86	86	86	86	85	85	84	78	72	66	62	58	54
	50	78	78	78	78	78	78	78	76	72	66	62	58	54
	60	72	72	72	72	72	72	72	72	70	66	62	58	54
	70	67	67	67	67	67	67	67	67	67	66	62	58	54
	80	63	63	63	63	63	63	63	63	63	63	62	58	54
	90	60	60	60	60	60	60	60	60	60	60	59	58	54
Zones 2n & 3r	0	101	97	93	89	86	83	80	74	67	62	58	55	51
	10	101	97	93	89	86	83	80	74	67	62	58	55	51
	20	101	97	93	89	86	83	80	74	67	62	58	55	51
	30	97	97	93	89	86	83	80	74	67	62	58	55	51
	40	86	86	86	86	85	83	80	74	67	62	58	55	51
	50	78	78	78	78	78	78	78	74	67	62	58	55	51
	60	72	72	72	72	72	72	72	72	67	62	58	55	51
	70	67	67	67	67	67	67	67	67	67	62	58	55	51
	80	63	63	63	63	63	63	63	63	63	62	58	55	51
	90	60	60	60	60	60	60	60	60	60	60	58	55	51
Zone 3e	0	92	88	85	81	78	75	71	64	59	54	50	47	44
	10	92	88	85	81	78	75	71	64	59	54	50	47	44
	20	92	88	85	81	78	75	71	64	59	54	50	47	44
	30	92	88	85	81	78	75	71	64	59	54	50	47	44
	40	86	86	85	81	78	75	71	64	59	54	50	47	44
	50	78	78	78	78	78	75	71	64	59	54	50	47	44
	60	72	72	72	72	72	72	71	64	59	54	50	47	44
	70	67	67	67	67	67	67	67	64	59	54	50	47	44
	80	63	63	63	63	63	63	63	63	59	54	50	47	44
	90	60	60	60	60	60	60	60	60	59	54	50	47	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 157a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$						
		Exposure Category: B							Roof Type : Hip $h/B = \geq 0.8$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	121	121	116	109	103	98	93	89	
	10	115	115	115	115	114	114	113	111	109	103	98	93	89	
	20	91	91	91	91	91	91	91	91	91	91	91	90	88	
	30	91	91	91	91	91	91	91	91	91	91	91	90	88	
	40	81	81	81	81	81	81	81	81	81	81	81	81	80	
	50	73	73	73	73	73	73	73	73	73	73	73	73	73	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zone 2r	0	121	121	121	121	121	118	114	106	99	93	89	84	80	
	10	115	115	115	115	114	114	113	106	99	93	89	84	80	
	20	91	91	91	91	91	91	91	91	91	91	89	84	80	
	30	91	91	91	91	91	91	91	91	91	91	89	84	80	
	40	81	81	81	81	81	81	81	81	81	81	81	81	80	
	50	73	73	73	73	73	73	73	73	73	73	73	73	73	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zones 2e & 3	0	121	121	121	121	119	114	110	102	96	90	86	81	77	
	10	115	115	115	115	114	114	110	102	96	90	86	81	77	
	20	91	91	91	91	91	91	91	91	91	90	86	81	77	
	30	91	91	91	91	91	91	91	91	91	90	86	81	77	
	40	81	81	81	81	81	81	81	81	81	81	81	81	77	
	50	73	73	73	73	73	73	73	73	73	73	73	73	73	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 157b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: B							Roof Type : Hip $h/B = \geq 0.8$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	117	113	108	105	98	92	87	83	79	75	
	10	115	115	115	115	113	108	105	98	92	87	83	79	75	
	20	91	91	91	91	91	91	91	91	91	87	83	79	75	
	30	91	91	91	91	91	91	91	91	91	87	83	79	75	
	40	81	81	81	81	81	81	81	81	81	81	81	79	75	
	50	73	73	73	73	73	73	73	73	73	73	73	73	73	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zone 2r	0	121	117	112	107	103	99	95	89	84	79	73	67	63	
	10	115	115	112	107	103	99	95	89	84	79	73	67	63	
	20	91	91	91	91	91	91	91	89	84	79	73	67	63	
	30	91	91	91	91	91	91	91	89	84	79	73	67	63	
	40	81	81	81	81	81	81	81	81	81	79	73	67	63	
	50	73	73	73	73	73	73	73	73	73	73	73	67	63	
	60	67	67	67	67	67	67	67	67	67	67	67	67	63	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zones 2e & 3	0	119	113	108	103	99	95	92	86	81	75	69	65	61	
	10	115	113	108	103	99	95	92	86	81	75	69	65	61	
	20	91	91	91	91	91	91	91	86	81	75	69	65	61	
	30	91	91	91	91	91	91	91	86	81	75	69	65	61	
	40	81	81	81	81	81	81	81	81	81	75	69	65	61	
	50	73	73	73	73	73	73	73	73	73	73	69	65	61	
	60	67	67	67	67	67	67	67	67	67	67	67	65	61	
	70	63	63	63	63	63	63	63	63	63	63	63	63	61	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 158a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$						
		Exposure Category: C							Roof Type : Hip $h/B = \geq 0.8$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	117	113	109	105	98	93	88	83	80	75	
	10	114	114	113	112	111	109	105	98	93	88	83	80	75	
	20	91	91	91	91	91	91	91	91	90	88	83	80	75	
	30	91	91	91	91	91	91	91	91	90	88	83	80	75	
	40	81	81	81	81	81	81	81	81	81	80	79	77	75	
	50	73	73	73	73	73	73	73	73	73	73	73	72	71	
	60	67	67	67	67	67	67	67	67	67	67	67	67	66	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	121	117	112	107	103	99	95	89	84	79	73	68	64	
	10	114	114	112	107	103	99	95	89	84	79	73	68	64	
	20	91	91	91	91	91	91	91	89	84	79	73	68	64	
	30	91	91	91	91	91	91	91	89	84	79	73	68	64	
	40	81	81	81	81	81	81	81	81	81	79	73	68	64	
	50	73	73	73	73	73	73	73	73	73	73	73	68	64	
	60	67	67	67	67	67	67	67	67	67	67	67	67	64	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e & 3	0	119	113	108	103	99	96	92	86	81	76	69	65	61	
	10	114	113	108	103	99	96	92	86	81	76	69	65	61	
	20	91	91	91	91	91	91	91	86	81	76	69	65	61	
	30	91	91	91	91	91	91	91	86	81	76	69	65	61	
	40	81	81	81	81	81	81	81	81	81	76	69	65	61	
	50	73	73	73	73	73	73	73	73	73	73	69	65	61	
	60	67	67	67	67	67	67	67	67	67	67	67	65	61	
	70	63	63	63	63	63	63	63	63	63	63	63	63	61	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 158b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: C							Roof Type : Hip $h/B = \geq 0.8$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	113	108	103	99	95	92	89	84	79	73	68	64	60	
	10	113	108	103	99	95	92	89	84	79	73	68	64	60	
	20	91	91	91	91	91	91	89	84	79	73	68	64	60	
	30	91	91	91	91	91	91	89	84	79	73	68	64	60	
	40	81	81	81	81	81	81	81	81	79	73	68	64	60	
	50	73	73	73	73	73	73	73	73	73	73	68	64	60	
	60	67	67	67	67	67	67	67	67	67	67	67	64	60	
	70	63	63	63	63	63	63	63	63	63	63	63	63	60	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	103	98	94	90	86	83	80	74	67	62	58	55	52	
	10	103	98	94	90	86	83	80	74	67	62	58	55	52	
	20	91	91	91	90	86	83	80	74	67	62	58	55	52	
	30	91	91	91	90	86	83	80	74	67	62	58	55	52	
	40	81	81	81	81	81	81	80	74	67	62	58	55	52	
	50	73	73	73	73	73	73	73	73	67	62	58	55	52	
	60	67	67	67	67	67	67	67	67	67	62	58	55	52	
	70	63	63	63	63	63	63	63	63	63	62	58	55	52	
	80	59	59	59	59	59	59	59	59	59	59	58	55	52	
	90	56	56	56	56	56	56	56	56	56	56	56	55	52	
Zones 2e & 3	0	99	95	91	87	84	81	78	70	64	60	56	52	49	
	10	99	95	91	87	84	81	78	70	64	60	56	52	49	
	20	91	91	91	87	84	81	78	70	64	60	56	52	49	
	30	91	91	91	87	84	81	78	70	64	60	56	52	49	
	40	81	81	81	81	81	81	78	70	64	60	56	52	49	
	50	73	73	73	73	73	73	73	70	64	60	56	52	49	
	60	67	67	67	67	67	67	67	67	64	60	56	52	49	
	70	63	63	63	63	63	63	63	63	63	60	56	52	49	
	80	59	59	59	59	59	59	59	59	59	59	56	52	49	
	90	56	56	56	56	56	56	56	56	56	56	56	52	49	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 159a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$						
		Exposure Category: D							Roof Type : Hip $h/B = \geq 0.8$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	118	113	108	104	100	97	91	86	81	77	72	67	
	10	113	112	111	108	104	100	97	91	86	81	77	72	67	
	20	91	91	91	91	91	91	91	89	86	81	77	72	67	
	30	91	91	91	91	91	91	91	89	86	81	77	72	67	
	40	81	81	81	81	81	81	81	81	80	78	77	72	67	
	50	73	73	73	73	73	73	73	73	73	72	71	70	67	
	60	67	67	67	67	67	67	67	67	67	67	67	66	65	
	70	63	63	63	63	63	63	63	63	63	63	63	62	62	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	113	107	103	98	95	91	88	82	77	70	65	61	58	
	10	113	107	103	98	95	91	88	82	77	70	65	61	58	
	20	91	91	91	91	91	91	88	82	77	70	65	61	58	
	30	91	91	91	91	91	91	88	82	77	70	65	61	58	
	40	81	81	81	81	81	81	81	81	77	70	65	61	58	
	50	73	73	73	73	73	73	73	73	73	70	65	61	58	
	60	67	67	67	67	67	67	67	67	67	67	65	61	58	
	70	63	63	63	63	63	63	63	63	63	63	63	61	58	
	80	59	59	59	59	59	59	59	59	59	59	59	59	58	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e & 3	0	109	104	99	95	91	88	85	80	73	67	62	59	55	
	10	109	104	99	95	91	88	85	80	73	67	62	59	55	
	20	91	91	91	91	91	88	85	80	73	67	62	59	55	
	30	91	91	91	91	91	88	85	80	73	67	62	59	55	
	40	81	81	81	81	81	81	81	80	73	67	62	59	55	
	50	73	73	73	73	73	73	73	73	73	67	62	59	55	
	60	67	67	67	67	67	67	67	67	67	67	62	59	55	
	70	63	63	63	63	63	63	63	63	63	63	62	59	55	
	80	59	59	59	59	59	59	59	59	59	59	59	59	55	
	90	56	56	56	56	56	56	56	56	56	56	56	56	55	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 159b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: D							Roof Type : Hip $h/B = \geq 0.8$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	104	99	95	92	88	85	83	77	71	66	61	57	54	
	10	104	99	95	92	88	85	83	77	71	66	61	57	54	
	20	91	91	91	91	88	85	83	77	71	66	61	57	54	
	30	91	91	91	91	88	85	83	77	71	66	61	57	54	
	40	81	81	81	81	81	81	81	77	71	66	61	57	54	
	50	73	73	73	73	73	73	73	73	71	66	61	57	54	
	60	67	67	67	67	67	67	67	67	67	66	61	57	54	
	70	63	63	63	63	63	63	63	63	63	63	61	57	54	
	80	59	59	59	59	59	59	59	59	59	59	59	57	54	
	90	56	56	56	56	56	56	56	56	56	56	56	56	54	
Zone 2r	0	94	90	86	83	80	76	72	65	61	56	53	49	47	
	10	94	90	86	83	80	76	72	65	61	56	53	49	47	
	20	91	90	86	83	80	76	72	65	61	56	53	49	47	
	30	91	90	86	83	80	76	72	65	61	56	53	49	47	
	40	81	81	81	81	80	76	72	65	61	56	53	49	47	
	50	73	73	73	73	73	73	72	65	61	56	53	49	47	
	60	67	67	67	67	67	67	67	65	61	56	53	49	47	
	70	63	63	63	63	63	63	63	63	61	56	53	49	47	
	80	59	59	59	59	59	59	59	59	59	56	53	49	47	
	90	56	56	56	56	56	56	56	56	56	56	53	49	47	
Zones 2e & 3	0	91	87	84	80	77	72	68	63	58	54	51	47	45	
	10	91	87	84	80	77	72	68	63	58	54	51	47	45	
	20	91	87	84	80	77	72	68	63	58	54	51	47	45	
	30	91	87	84	80	77	72	68	63	58	54	51	47	45	
	40	81	81	81	80	77	72	68	63	58	54	51	47	45	
	50	73	73	73	73	73	72	68	63	58	54	51	47	45	
	60	67	67	67	67	67	67	67	63	58	54	51	47	45	
	70	63	63	63	63	63	63	63	63	58	54	51	47	45	
	80	59	59	59	59	59	59	59	59	58	54	51	47	45	
	90	56	56	56	56	56	56	56	56	56	54	51	47	45	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 160a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$						
		Exposure Category: B							Roof Type : Hip $h/B = \leq 0.5$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	121	121	121	121	118	112	106	101	
	10	115	115	115	114	113	112	112	110	108	107	105	103	101	
	20	91	91	91	91	91	91	91	91	91	91	90	89	88	
	30	91	91	91	91	91	91	91	91	91	91	90	89	88	
	40	81	81	81	81	81	81	81	81	81	81	81	81	80	
	50	73	73	73	73	73	73	73	73	73	73	73	73	73	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	121	121	121	121	121	118	114	106	99	93	89	84	80	
	10	115	115	115	114	113	112	112	106	99	93	89	84	80	
	20	91	91	91	91	91	91	91	91	91	91	89	84	80	
	30	91	91	91	91	91	91	91	91	91	91	89	84	80	
	40	81	81	81	81	81	81	81	81	81	81	81	81	80	
	50	73	73	73	73	73	73	73	73	73	73	73	73	73	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e & 3	0	121	121	121	121	121	121	121	120	112	105	100	95	90	
	10	115	115	115	114	113	112	112	110	108	105	100	95	90	
	20	91	91	91	91	91	91	91	91	91	91	90	89	88	
	30	91	91	91	91	91	91	91	91	91	91	90	89	88	
	40	81	81	81	81	81	81	81	81	81	81	81	81	80	
	50	73	73	73	73	73	73	73	73	73	73	73	73	73	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 160b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: B							Roof Type : Hip $h/B = \leq 0.5$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	121	120	112	105	100	95	90	86	
	10	115	115	115	114	113	112	112	110	105	100	95	90	86	
	20	91	91	91	91	91	91	91	91	91	91	90	89	86	
	30	91	91	91	91	91	91	91	91	91	91	90	89	86	
	40	81	81	81	81	81	81	81	81	81	81	81	81	80	
	50	73	73	73	73	73	73	73	73	73	73	73	73	73	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	121	117	112	107	103	99	95	89	84	79	73	67	63	
	10	115	115	112	107	103	99	95	89	84	79	73	67	63	
	20	91	91	91	91	91	91	91	89	84	79	73	67	63	
	30	91	91	91	91	91	91	91	89	84	79	73	67	63	
	40	81	81	81	81	81	81	81	81	81	79	73	67	63	
	50	73	73	73	73	73	73	73	73	73	73	73	67	63	
	60	67	67	67	67	67	67	67	67	67	67	67	67	63	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e & 3	0	121	121	121	121	116	111	107	100	94	89	84	80	75	
	10	115	115	115	114	113	111	107	100	94	89	84	80	75	
	20	91	91	91	91	91	91	91	91	91	89	84	80	75	
	30	91	91	91	91	91	91	91	91	91	89	84	80	75	
	40	81	81	81	81	81	81	81	81	81	81	81	80	75	
	50	73	73	73	73	73	73	73	73	73	73	73	73	73	
	60	67	67	67	67	67	67	67	67	67	67	67	67	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 161a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Landscape		North/South Support $X_E = 1$			Roof Type : Hip $h/B = \leq 0.5$	
		Exposure Category: C														
		Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180		
Zone 1	0	121	121	121	121	121	121	120	112	106	100	95	90	86		
	10	113	112	111	110	109	108	107	105	103	100	95	90	86		
	20	91	91	91	91	91	91	91	90	89	87	85	84	82		
	30	91	91	91	91	91	91	91	90	89	87	85	84	82		
	40	81	81	81	81	81	81	81	81	81	80	78	77	76		
	50	73	73	73	73	73	73	73	73	73	73	73	72	71		
	60	67	67	67	67	67	67	67	67	67	67	67	67	66		
	70	63	63	63	63	63	63	63	63	63	63	63	63	63		
	80	59	59	59	59	59	59	59	59	59	59	59	59	59		
	90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zone 2r	0	121	117	112	107	103	99	95	89	84	79	73	68	64		
	10	113	112	111	107	103	99	95	89	84	79	73	68	64		
	20	91	91	91	91	91	91	91	89	84	79	73	68	64		
	30	91	91	91	91	91	91	91	89	84	79	73	68	64		
	40	81	81	81	81	81	81	81	81	81	79	73	68	64		
	50	73	73	73	73	73	73	73	73	73	73	73	68	64		
	60	67	67	67	67	67	67	67	67	67	67	67	67	64		
	70	63	63	63	63	63	63	63	63	63	63	63	63	63		
	80	59	59	59	59	59	59	59	59	59	59	59	59	59		
	90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zones 2e & 3	0	121	121	121	121	116	112	108	100	94	89	84	80	76		
	10	113	112	111	110	109	108	107	100	94	89	84	80	76		
	20	91	91	91	91	91	91	91	90	89	87	84	80	76		
	30	91	91	91	91	91	91	91	90	89	87	84	80	76		
	40	81	81	81	81	81	81	81	81	81	80	78	77	76		
	50	73	73	73	73	73	73	73	73	73	73	73	72	71		
	60	67	67	67	67	67	67	67	67	67	67	67	67	66		
	70	63	63	63	63	63	63	63	63	63	63	63	63	63		
	80	59	59	59	59	59	59	59	59	59	59	59	59	59		
	90	56	56	56	56	56	56	56	56	56	56	56	56	56		

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 161b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: C							Roof Type : Hip $h/B = \leq 0.5$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	118	113	109	105	101	95	90	85	81	76	71	
	10	113	112	111	110	109	105	101	95	90	85	81	76	71	
	20	91	91	91	91	91	91	91	90	89	85	81	76	71	
	30	91	91	91	91	91	91	91	90	89	85	81	76	71	
	40	81	81	81	81	81	81	81	81	81	80	78	76	71	
	50	73	73	73	73	73	73	73	73	73	73	73	72	71	
	60	67	67	67	67	67	67	67	67	67	67	67	67	66	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	103	98	94	90	86	83	80	74	67	62	58	55	52	
	10	103	98	94	90	86	83	80	74	67	62	58	55	52	
	20	91	91	91	90	86	83	80	74	67	62	58	55	52	
	30	91	91	91	90	86	83	80	74	67	62	58	55	52	
	40	81	81	81	81	81	81	80	74	67	62	58	55	52	
	50	73	73	73	73	73	73	73	73	67	62	58	55	52	
	60	67	67	67	67	67	67	67	67	67	62	58	55	52	
	70	63	63	63	63	63	63	63	63	63	62	58	55	52	
	80	59	59	59	59	59	59	59	59	59	59	58	55	52	
	90	56	56	56	56	56	56	56	56	56	56	56	55	52	
Zones 2e & 3	0	116	111	106	101	97	94	90	85	80	74	68	64	60	
	10	113	111	106	101	97	94	90	85	80	74	68	64	60	
	20	91	91	91	91	91	91	90	85	80	74	68	64	60	
	30	91	91	91	91	91	91	90	85	80	74	68	64	60	
	40	81	81	81	81	81	81	81	81	80	74	68	64	60	
	50	73	73	73	73	73	73	73	73	73	73	68	64	60	
	60	67	67	67	67	67	67	67	67	67	67	67	64	60	
	70	63	63	63	63	63	63	63	63	63	63	63	63	60	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 162a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$						
		Exposure Category: D							Roof Type : Hip $h/B = \leq 0.5$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	119	115	111	104	98	92	88	84	80	
	10	111	110	109	108	107	106	105	102	98	92	88	84	80	
	20	91	91	91	91	91	91	90	88	86	85	83	81	79	
	30	91	91	91	91	91	91	90	88	86	85	83	81	79	
	40	81	81	81	81	81	81	81	81	79	78	76	75	73	
	50	73	73	73	73	73	73	73	73	73	72	71	70	69	
	60	67	67	67	67	67	67	67	67	67	67	67	66	65	
	70	63	63	63	63	63	63	63	63	63	63	63	62	62	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	113	107	103	98	95	91	88	82	77	70	65	61	58	
	10	111	107	103	98	95	91	88	82	77	70	65	61	58	
	20	91	91	91	91	91	91	88	82	77	70	65	61	58	
	30	91	91	91	91	91	91	88	82	77	70	65	61	58	
	40	81	81	81	81	81	81	81	81	77	70	65	61	58	
	50	73	73	73	73	73	73	73	73	73	70	65	61	58	
	60	67	67	67	67	67	67	67	67	67	67	65	61	58	
	70	63	63	63	63	63	63	63	63	63	63	63	61	58	
	80	59	59	59	59	59	59	59	59	59	59	59	59	58	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e & 3	0	121	121	116	111	107	103	99	92	87	82	78	72	67	
	10	111	110	109	108	107	103	99	92	87	82	78	72	67	
	20	91	91	91	91	91	91	90	88	86	82	78	72	67	
	30	91	91	91	91	91	91	90	88	86	82	78	72	67	
	40	81	81	81	81	81	81	81	81	79	78	76	72	67	
	50	73	73	73	73	73	73	73	73	73	72	71	70	67	
	60	67	67	67	67	67	67	67	67	67	67	67	66	65	
	70	63	63	63	63	63	63	63	63	63	63	63	62	62	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 162b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: D							Roof Type : Hip $h/B = \leq 0.5$						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	119	114	109	105	101	97	94	88	83	79	73	68	64	
	10	111	110	109	105	101	97	94	88	83	79	73	68	64	
	20	91	91	91	91	91	91	90	88	83	79	73	68	64	
	30	91	91	91	91	91	91	90	88	83	79	73	68	64	
	40	81	81	81	81	81	81	81	81	79	78	73	68	64	
	50	73	73	73	73	73	73	73	73	73	72	71	68	64	
	60	67	67	67	67	67	67	67	67	67	67	67	66	64	
	70	63	63	63	63	63	63	63	63	63	63	63	62	62	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	94	90	86	83	80	76	72	65	61	56	53	49	47	
	10	94	90	86	83	80	76	72	65	61	56	53	49	47	
	20	91	90	86	83	80	76	72	65	61	56	53	49	47	
	30	91	90	86	83	80	76	72	65	61	56	53	49	47	
	40	81	81	81	81	80	76	72	65	61	56	53	49	47	
	50	73	73	73	73	73	73	72	65	61	56	53	49	47	
	60	67	67	67	67	67	67	67	65	61	56	53	49	47	
	70	63	63	63	63	63	63	63	63	61	56	53	49	47	
	80	59	59	59	59	59	59	59	59	59	56	53	49	47	
	90	56	56	56	56	56	56	56	56	56	56	53	49	47	
Zones 2e & 3	0	107	102	97	93	90	87	84	78	71	66	61	57	54	
	10	107	102	97	93	90	87	84	78	71	66	61	57	54	
	20	91	91	91	91	90	87	84	78	71	66	61	57	54	
	30	91	91	91	91	90	87	84	78	71	66	61	57	54	
	40	81	81	81	81	81	81	81	78	71	66	61	57	54	
	50	73	73	73	73	73	73	73	73	71	66	61	57	54	
	60	67	67	67	67	67	67	67	67	67	66	61	57	54	
	70	63	63	63	63	63	63	63	63	63	63	61	57	54	
	80	59	59	59	59	59	59	59	59	59	59	59	57	54	
	90	56	56	56	56	56	56	56	56	56	56	56	56	54	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 163a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Landscape				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	121	121	121	121	119	112	106	101
	10	121	121	121	121	121	121	121	121	119	117	112	106	101
	20	107	107	107	107	107	107	107	107	107	105	103	101	100
	30	92	92	92	92	92	92	92	92	92	92	91	90	89
	40	81	81	81	81	81	81	81	81	81	81	81	81	81
	50	74	74	74	74	74	74	74	74	74	74	74	74	74
	60	68	68	68	68	68	68	68	68	68	68	68	68	68
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	121	121	121	121	121	121	121	115	107	101	96	91	87
	10	121	121	121	121	121	121	121	115	107	101	96	91	87
	20	107	107	107	107	107	107	107	107	107	101	96	91	87
	30	92	92	92	92	92	92	92	92	92	92	91	90	87
	40	81	81	81	81	81	81	81	81	81	81	81	81	81
	50	74	74	74	74	74	74	74	74	74	74	74	74	74
	60	68	68	68	68	68	68	68	68	68	68	68	68	68
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 163b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: B							Roof Type : Hip						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	121	121	113	106	99	94	89	85	
	10	121	121	121	121	121	121	121	113	106	99	94	89	85	
	20	107	107	107	107	107	107	107	107	106	99	94	89	85	
	30	92	92	92	92	92	92	92	92	92	92	91	89	85	
	40	81	81	81	81	81	81	81	81	81	81	81	81	81	
	50	74	74	74	74	74	74	74	74	74	74	74	74	74	
	60	68	68	68	68	68	68	68	68	68	68	68	68	68	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e, 2r, & 3	0	121	121	121	116	111	107	103	96	90	85	81	76	71	
	10	121	121	121	116	111	107	103	96	90	85	81	76	71	
	20	107	107	107	107	107	107	103	96	90	85	81	76	71	
	30	92	92	92	92	92	92	92	92	90	85	81	76	71	
	40	81	81	81	81	81	81	81	81	81	81	81	76	71	
	50	74	74	74	74	74	74	74	74	74	74	74	74	71	
	60	68	68	68	68	68	68	68	68	68	68	68	68	68	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 164a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$						
		Exposure Category: C							Roof Type : Hip						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	121	121	113	106	100	94	89	85	
	10	121	121	121	121	120	119	118	113	106	100	94	89	85	
	20	107	107	107	107	107	107	106	103	101	99	94	89	85	
	30	92	92	92	92	92	92	92	92	90	88	87	85	83	
	40	81	81	81	81	81	81	81	81	81	81	79	78	76	
	50	74	74	74	74	74	74	74	74	74	74	73	72	71	
	60	68	68	68	68	68	68	68	68	68	68	68	68	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e, 2r, & 3	0	121	121	121	116	112	107	103	96	90	85	81	77	71	
	10	121	121	121	116	112	107	103	96	90	85	81	77	71	
	20	107	107	107	107	107	107	103	96	90	85	81	77	71	
	30	92	92	92	92	92	92	92	92	90	85	81	77	71	
	40	81	81	81	81	81	81	81	81	81	81	79	77	71	
	50	74	74	74	74	74	74	74	74	74	74	73	72	71	
	60	68	68	68	68	68	68	68	68	68	68	68	68	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 164b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: C							Roof Type : Hip						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	120	114	110	105	101	95	89	84	79	74	69	
	10	121	121	120	114	110	105	101	95	89	84	79	74	69	
	20	107	107	107	107	107	105	101	95	89	84	79	74	69	
	30	92	92	92	92	92	92	92	92	89	84	79	74	69	
	40	81	81	81	81	81	81	81	81	81	81	79	74	69	
	50	74	74	74	74	74	74	74	74	74	74	73	72	69	
	60	68	68	68	68	68	68	68	68	68	68	68	68	67	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e, 2r, & 3	0	111	106	101	97	93	90	87	81	76	69	64	60	57	
	10	111	106	101	97	93	90	87	81	76	69	64	60	57	
	20	107	106	101	97	93	90	87	81	76	69	64	60	57	
	30	92	92	92	92	92	90	87	81	76	69	64	60	57	
	40	81	81	81	81	81	81	81	81	76	69	64	60	57	
	50	74	74	74	74	74	74	74	74	74	69	64	60	57	
	60	68	68	68	68	68	68	68	68	68	68	64	60	57	
	70	63	63	63	63	63	63	63	63	63	63	63	60	57	
	80	60	60	60	60	60	60	60	60	60	60	60	60	57	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 165a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$						
		Exposure Category: D							Roof Type : Hip						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	116	112	104	97	92	87	82	79	
	10	121	121	120	119	117	116	112	104	97	92	87	82	79	
	20	107	107	107	107	105	104	103	101	97	92	87	82	79	
	30	92	92	92	92	92	92	91	89	88	86	84	82	79	
	40	81	81	81	81	81	81	81	81	80	78	77	75	74	
	50	74	74	74	74	74	74	74	74	74	73	72	70	69	
	60	68	68	68	68	68	68	68	68	68	68	67	66	65	
	70	63	63	63	63	63	63	63	63	63	63	63	63	62	
	80	60	60	60	60	60	60	60	60	60	60	60	60	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e, 2r, & 3	0	121	117	111	107	102	98	95	89	83	79	73	68	64	
	10	121	117	111	107	102	98	95	89	83	79	73	68	64	
	20	107	107	107	107	102	98	95	89	83	79	73	68	64	
	30	92	92	92	92	92	92	91	89	83	79	73	68	64	
	40	81	81	81	81	81	81	81	81	80	78	73	68	64	
	50	74	74	74	74	74	74	74	74	74	73	72	68	64	
	60	68	68	68	68	68	68	68	68	68	68	67	66	64	
	70	63	63	63	63	63	63	63	63	63	63	63	63	62	
	80	60	60	60	60	60	60	60	60	60	60	60	60	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 165b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	115	110	105	101	97	93	87	82	77	71	66	62
	10	121	115	110	105	101	97	93	87	82	77	71	66	62
	20	107	107	107	105	101	97	93	87	82	77	71	66	62
	30	92	92	92	92	92	92	91	87	82	77	71	66	62
	40	81	81	81	81	81	81	81	81	80	77	71	66	62
	50	74	74	74	74	74	74	74	74	74	73	71	66	62
	60	68	68	68	68	68	68	68	68	68	68	67	66	62
	70	63	63	63	63	63	63	63	63	63	63	63	63	62
	80	60	60	60	60	60	60	60	60	60	60	60	60	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	102	98	93	90	86	83	80	74	67	62	58	55	51
	10	102	98	93	90	86	83	80	74	67	62	58	55	51
	20	102	98	93	90	86	83	80	74	67	62	58	55	51
	30	92	92	92	90	86	83	80	74	67	62	58	55	51
	40	81	81	81	81	81	81	80	74	67	62	58	55	51
	50	74	74	74	74	74	74	74	74	67	62	58	55	51
	60	68	68	68	68	68	68	68	68	67	62	58	55	51
	70	63	63	63	63	63	63	63	63	63	62	58	55	51
	80	60	60	60	60	60	60	60	60	60	60	58	55	51
	90	56	56	56	56	56	56	56	56	56	56	56	55	51

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 166a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Landscape				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	121	121	121	121	113	107	102	97
	10	121	121	121	121	121	121	121	121	121	113	107	102	97
	20	110	110	110	110	110	110	110	110	110	109	107	102	97
	30	97	97	97	97	97	97	97	97	97	97	95	94	93
	40	86	86	86	86	86	86	86	86	86	86	86	86	85
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2e	0	121	121	121	121	121	121	121	121	115	108	101	96	91
	10	121	121	121	121	121	121	121	121	115	108	101	96	91
	20	110	110	110	110	110	110	110	110	110	108	101	96	91
	30	97	97	97	97	97	97	97	97	97	97	95	94	91
	40	86	86	86	86	86	86	86	86	86	86	86	86	85
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2r	0	121	121	121	121	121	121	117	109	102	96	90	86	82
	10	121	121	121	121	121	121	117	109	102	96	90	86	82
	20	110	110	110	110	110	110	110	109	102	96	90	86	82
	30	97	97	97	97	97	97	97	97	97	96	90	86	82
	40	86	86	86	86	86	86	86	86	86	86	86	86	82
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 3	0	121	121	121	121	121	121	117	108	101	94	89	84	80
	10	121	121	121	121	121	121	117	108	101	94	89	84	80
	20	110	110	110	110	110	110	110	108	101	94	89	84	80
	30	97	97	97	97	97	97	97	97	97	94	89	84	80
	40	86	86	86	86	86	86	86	86	86	86	86	84	80
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 166b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation:		Landscape			
		Roof Angle: $27 < \theta \leq 45$ degrees				North/South Support				$X_E = 1.5$					
		Exposure Category: B								Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	120	115	108	101	95	90	86	82	
	10	121	121	121	121	121	120	115	108	101	95	90	86	82	
	20	110	110	110	110	110	110	110	108	101	95	90	86	82	
	30	97	97	97	97	97	97	97	97	97	95	90	86	82	
	40	86	86	86	86	86	86	86	86	86	86	86	86	82	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2e	0	121	121	121	121	120	115	110	102	95	89	84	80	76	
	10	121	121	121	121	120	115	110	102	95	89	84	80	76	
	20	110	110	110	110	110	110	110	102	95	89	84	80	76	
	30	97	97	97	97	97	97	97	97	95	89	84	80	76	
	40	86	86	86	86	86	86	86	86	86	86	84	80	76	
	50	78	78	78	78	78	78	78	78	78	78	78	78	76	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2r	0	121	120	115	110	105	101	97	91	85	80	76	70	65	
	10	121	120	115	110	105	101	97	91	85	80	76	70	65	
	20	110	110	110	110	105	101	97	91	85	80	76	70	65	
	30	97	97	97	97	97	97	97	91	85	80	76	70	65	
	40	86	86	86	86	86	86	86	86	85	80	76	70	65	
	50	78	78	78	78	78	78	78	78	78	78	76	70	65	
	60	72	72	72	72	72	72	72	72	72	72	72	70	65	
	70	67	67	67	67	67	67	67	67	67	67	67	67	65	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 3	0	121	121	115	109	105	100	96	89	84	79	73	66	62	
	10	121	121	115	109	105	100	96	89	84	79	73	66	62	
	20	110	110	110	109	105	100	96	89	84	79	73	66	62	
	30	97	97	97	97	97	97	96	89	84	79	73	66	62	
	40	86	86	86	86	86	86	86	86	84	79	73	66	62	
	50	78	78	78	78	78	78	78	78	78	78	73	66	62	
	60	72	72	72	72	72	72	72	72	72	72	72	66	62	
	70	67	67	67	67	67	67	67	67	67	67	67	66	62	
	80	63	63	63	63	63	63	63	63	63	63	63	63	62	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 167a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Landscape				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	120	116	108	101	95	90	86	82
	10	121	121	121	121	121	120	116	108	101	95	90	86	82
	20	110	110	110	110	110	110	109	107	101	95	90	86	82
	30	97	97	97	97	97	97	97	96	94	92	90	86	82
	40	86	86	86	86	86	86	86	86	86	84	83	82	80
	50	78	78	78	78	78	78	78	78	78	78	77	76	75
	60	72	72	72	72	72	72	72	72	72	72	72	71	70
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2e	0	121	121	121	121	120	115	110	102	95	90	85	80	76
	10	121	121	121	121	120	115	110	102	95	90	85	80	76
	20	110	110	110	110	110	110	109	102	95	90	85	80	76
	30	97	97	97	97	97	97	97	96	94	90	85	80	76
	40	86	86	86	86	86	86	86	86	86	84	83	80	76
	50	78	78	78	78	78	78	78	78	78	78	77	76	75
	60	72	72	72	72	72	72	72	72	72	72	72	71	70
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2r	0	121	121	115	110	105	101	98	91	85	81	76	70	65
	10	121	121	115	110	105	101	98	91	85	81	76	70	65
	20	110	110	110	110	105	101	98	91	85	81	76	70	65
	30	97	97	97	97	97	97	97	91	85	81	76	70	65
	40	86	86	86	86	86	86	86	86	85	81	76	70	65
	50	78	78	78	78	78	78	78	78	78	78	76	70	65
	60	72	72	72	72	72	72	72	72	72	72	72	70	65
	70	67	67	67	67	67	67	67	67	67	67	67	67	65
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 3	0	121	121	115	110	105	100	97	90	84	79	73	67	62
	10	121	121	115	110	105	100	97	90	84	79	73	67	62
	20	110	110	110	110	105	100	97	90	84	79	73	67	62
	30	97	97	97	97	97	97	97	90	84	79	73	67	62
	40	86	86	86	86	86	86	86	86	84	79	73	67	62
	50	78	78	78	78	78	78	78	78	78	78	73	67	62
	60	72	72	72	72	72	72	72	72	72	72	72	67	62
	70	67	67	67	67	67	67	67	67	67	67	67	67	62
	80	63	63	63	63	63	63	63	63	63	63	63	63	62
	90	60	60	60	60	60	60	60	60	60	60	60	60	60

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 167b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Landscape					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	119	114	109	105	101	97	91	85	81	77	71	66
	10	121	119	114	109	105	101	97	91	85	81	77	71	66
	20	110	110	110	109	105	101	97	91	85	81	77	71	66
	30	97	97	97	97	97	97	97	91	85	81	77	71	66
	40	86	86	86	86	86	86	86	86	85	81	77	71	66
	50	78	78	78	78	78	78	78	78	78	78	77	71	66
	60	72	72	72	72	72	72	72	72	72	72	72	71	66
	70	67	67	67	67	67	67	67	67	67	67	67	67	66
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2e	0	120	114	108	103	99	95	91	85	80	74	67	62	58
	10	120	114	108	103	99	95	91	85	80	74	67	62	58
	20	110	110	108	103	99	95	91	85	80	74	67	62	58
	30	97	97	97	97	97	95	91	85	80	74	67	62	58
	40	86	86	86	86	86	86	86	85	80	74	67	62	58
	50	78	78	78	78	78	78	78	78	78	74	67	62	58
	60	72	72	72	72	72	72	72	72	72	72	67	62	58
	70	67	67	67	67	67	67	67	67	67	67	67	62	58
	80	63	63	63	63	63	63	63	63	63	63	63	62	58
	90	60	60	60	60	60	60	60	60	60	60	60	60	58
Zone 2r	0	105	100	96	92	88	85	82	77	69	64	59	55	51
	10	105	100	96	92	88	85	82	77	69	64	59	55	51
	20	105	100	96	92	88	85	82	77	69	64	59	55	51
	30	97	97	96	92	88	85	82	77	69	64	59	55	51
	40	86	86	86	86	86	85	82	77	69	64	59	55	51
	50	78	78	78	78	78	78	78	77	69	64	59	55	51
	60	72	72	72	72	72	72	72	72	69	64	59	55	51
	70	67	67	67	67	67	67	67	67	67	64	59	55	51
	80	63	63	63	63	63	63	63	63	63	63	59	55	51
	90	60	60	60	60	60	60	60	60	60	60	59	55	51
Zone 3	0	105	99	95	91	87	83	80	74	66	60	55	51	48
	10	105	99	95	91	87	83	80	74	66	60	55	51	48
	20	105	99	95	91	87	83	80	74	66	60	55	51	48
	30	97	97	95	91	87	83	80	74	66	60	55	51	48
	40	86	86	86	86	86	83	80	74	66	60	55	51	48
	50	78	78	78	78	78	78	78	74	66	60	55	51	48
	60	72	72	72	72	72	72	72	72	66	60	55	51	48
	70	67	67	67	67	67	67	67	67	66	60	55	51	48
	80	63	63	63	63	63	63	63	63	63	60	55	51	48
	90	60	60	60	60	60	60	60	60	60	60	55	51	48

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 168a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation:		Landscape			
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support		$X_E = 1$			
		Exposure Category: D								Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	120	115	110	106	99	93	88	83	79	76	
	10	121	121	121	120	115	110	106	99	93	88	83	79	76	
	20	110	110	110	110	109	108	106	99	93	88	83	79	76	
	30	97	97	97	97	97	96	95	93	91	88	83	79	76	
	40	86	86	86	86	86	86	86	85	84	82	81	79	76	
	50	78	78	78	78	78	78	78	78	78	77	75	74	72	
	60	72	72	72	72	72	72	72	72	72	72	71	70	68	
	70	67	67	67	67	67	67	67	67	67	67	67	66	65	
	80	63	63	63	63	63	63	63	63	63	63	63	63	62	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2e	0	121	121	120	114	109	105	101	94	88	82	78	72	67	
	10	121	121	120	114	109	105	101	94	88	82	78	72	67	
	20	110	110	110	110	109	105	101	94	88	82	78	72	67	
	30	97	97	97	97	97	96	95	93	88	82	78	72	67	
	40	86	86	86	86	86	86	86	85	84	82	78	72	67	
	50	78	78	78	78	78	78	78	78	78	77	75	72	67	
	60	72	72	72	72	72	72	72	72	72	72	71	70	67	
	70	67	67	67	67	67	67	67	67	67	67	67	66	65	
	80	63	63	63	63	63	63	63	63	63	63	63	63	62	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2r	0	116	110	105	101	97	93	90	84	79	73	67	62	58	
	10	116	110	105	101	97	93	90	84	79	73	67	62	58	
	20	110	110	105	101	97	93	90	84	79	73	67	62	58	
	30	97	97	97	97	97	93	90	84	79	73	67	62	58	
	40	86	86	86	86	86	86	86	84	79	73	67	62	58	
	50	78	78	78	78	78	78	78	78	78	73	67	62	58	
	60	72	72	72	72	72	72	72	72	72	72	67	62	58	
	70	67	67	67	67	67	67	67	67	67	67	67	62	58	
	80	63	63	63	63	63	63	63	63	63	63	63	62	58	
	90	60	60	60	60	60	60	60	60	60	60	60	60	58	
Zone 3	0	116	110	105	100	96	92	88	82	77	70	64	59	55	
	10	116	110	105	100	96	92	88	82	77	70	64	59	55	
	20	110	110	105	100	96	92	88	82	77	70	64	59	55	
	30	97	97	97	97	96	92	88	82	77	70	64	59	55	
	40	86	86	86	86	86	86	86	82	77	70	64	59	55	
	50	78	78	78	78	78	78	78	78	77	70	64	59	55	
	60	72	72	72	72	72	72	72	72	72	70	64	59	55	
	70	67	67	67	67	67	67	67	67	67	67	64	59	55	
	80	63	63	63	63	63	63	63	63	63	63	63	59	55	
	90	60	60	60	60	60	60	60	60	60	60	60	59	55	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 168b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Landscape				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	115	109	104	100	96	93	90	84	79	74	68	63	60
	10	115	109	104	100	96	93	90	84	79	74	68	63	60
	20	110	109	104	100	96	93	90	84	79	74	68	63	60
	30	97	97	97	97	96	93	90	84	79	74	68	63	60
	40	86	86	86	86	86	86	86	84	79	74	68	63	60
	50	78	78	78	78	78	78	78	78	78	74	68	63	60
	60	72	72	72	72	72	72	72	72	72	72	68	63	60
	70	67	67	67	67	67	67	67	67	67	67	67	63	60
	80	63	63	63	63	63	63	63	63	63	63	63	63	60
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2e	0	109	104	99	95	91	87	84	78	71	65	60	55	51
	10	109	104	99	95	91	87	84	78	71	65	60	55	51
	20	109	104	99	95	91	87	84	78	71	65	60	55	51
	30	97	97	97	95	91	87	84	78	71	65	60	55	51
	40	86	86	86	86	86	86	84	78	71	65	60	55	51
	50	78	78	78	78	78	78	78	78	71	65	60	55	51
	60	72	72	72	72	72	72	72	72	71	65	60	55	51
	70	67	67	67	67	67	67	67	67	67	65	60	55	51
	80	63	63	63	63	63	63	63	63	63	63	60	55	51
	90	60	60	60	60	60	60	60	60	60	60	60	55	51
Zone 2r	0	97	92	88	85	81	78	75	67	62	57	52	49	46
	10	97	92	88	85	81	78	75	67	62	57	52	49	46
	20	97	92	88	85	81	78	75	67	62	57	52	49	46
	30	97	92	88	85	81	78	75	67	62	57	52	49	46
	40	86	86	86	85	81	78	75	67	62	57	52	49	46
	50	78	78	78	78	78	78	75	67	62	57	52	49	46
	60	72	72	72	72	72	72	72	67	62	57	52	49	46
	70	67	67	67	67	67	67	67	67	62	57	52	49	46
	80	63	63	63	63	63	63	63	63	62	57	52	49	46
	90	60	60	60	60	60	60	60	60	60	57	52	49	46
Zone 3	0	96	91	87	83	80	77	72	64	58	53	49	45	35
	10	96	91	87	83	80	77	72	64	58	53	49	45	35
	20	96	91	87	83	80	77	72	64	58	53	49	45	35
	30	96	91	87	83	80	77	72	64	58	53	49	45	35
	40	86	86	86	83	80	77	72	64	58	53	49	45	35
	50	78	78	78	78	78	77	72	64	58	53	49	45	35
	60	72	72	72	72	72	72	72	64	58	53	49	45	35
	70	67	67	67	67	67	67	67	64	58	53	49	45	35
	80	63	63	63	63	63	63	63	63	58	53	49	45	35
	90	60	60	60	60	60	60	60	60	58	53	49	45	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 169a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape		
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support		X _E = 1		
		Exposure Category: B								Roof Type :		Gable		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	121	121	121	121	121	121	120	114	109
	10	115	115	115	115	115	115	115	115	115	114	113	112	109
	20	96	96	96	96	96	96	96	96	96	96	96	96	96
	30	95	95	95	95	95	95	95	95	95	95	95	95	95
	40	86	86	86	86	86	86	86	86	86	86	86	86	86
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	121	121	121	121	121	121	120	112	105	99	93	89	85
	10	115	115	115	115	115	115	115	112	105	99	93	89	85
	20	96	96	96	96	96	96	96	96	96	96	93	89	85
	30	95	95	95	95	95	95	95	95	95	95	93	89	85
	40	86	86	86	86	86	86	86	86	86	86	86	86	85
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 2	0	121	121	121	118	113	109	105	98	92	87	82	78	73
	10	115	115	115	115	113	109	105	98	92	87	82	78	73
	20	96	96	96	96	96	96	96	96	92	87	82	78	73
	30	95	95	95	95	95	95	95	95	92	87	82	78	73
	40	86	86	86	86	86	86	86	86	86	86	82	78	73
	50	78	78	78	78	78	78	78	78	78	78	78	78	73
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 3	0	118	112	107	103	99	95	92	86	81	74	68	64	60
	10	115	112	107	103	99	95	92	86	81	74	68	64	60
	20	96	96	96	96	96	95	92	86	81	74	68	64	60
	30	95	95	95	95	95	95	92	86	81	74	68	64	60
	40	86	86	86	86	86	86	86	86	81	74	68	64	60
	50	78	78	78	78	78	78	78	78	78	74	68	64	60
	60	72	72	72	72	72	72	72	72	72	72	68	64	60
	70	67	67	67	67	67	67	67	67	67	67	67	64	60
	80	63	63	63	63	63	63	63	63	63	63	63	63	60
	90	59	59	59	59	59	59	59	59	59	59	59	59	59

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 169b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support		X _E = 1.5			
		Exposure Category: B								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1'	0	121	121	121	121	121	121	121	121	113	107	101	96	92	
	10	115	115	115	115	115	115	115	115	113	107	101	96	92	
	20	96	96	96	96	96	96	96	96	96	96	96	96	92	
	30	95	95	95	95	95	95	95	95	95	95	95	95	92	
	40	86	86	86	86	86	86	86	86	86	86	86	86	86	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 1	0	121	121	118	113	108	104	100	94	88	83	79	73	68	
	10	115	115	115	113	108	104	100	94	88	83	79	73	68	
	20	96	96	96	96	96	96	96	94	88	83	79	73	68	
	30	95	95	95	95	95	95	95	94	88	83	79	73	68	
	40	86	86	86	86	86	86	86	86	86	83	79	73	68	
	50	78	78	78	78	78	78	78	78	78	78	78	73	68	
	60	72	72	72	72	72	72	72	72	72	72	72	72	68	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 2	0	113	108	103	99	95	92	88	83	77	71	66	62	58	
	10	113	108	103	99	95	92	88	83	77	71	66	62	58	
	20	96	96	96	96	95	92	88	83	77	71	66	62	58	
	30	95	95	95	95	95	92	88	83	77	71	66	62	58	
	40	86	86	86	86	86	86	86	83	77	71	66	62	58	
	50	78	78	78	78	78	78	78	78	77	71	66	62	58	
	60	72	72	72	72	72	72	72	72	72	71	66	62	58	
	70	67	67	67	67	67	67	67	67	67	67	66	62	58	
	80	63	63	63	63	63	63	63	63	63	63	63	62	58	
	90	59	59	59	59	59	59	59	59	59	59	59	59	58	
Zone 3	0	99	94	90	87	83	80	76	69	64	59	55	52	49	
	10	99	94	90	87	83	80	76	69	64	59	55	52	49	
	20	96	94	90	87	83	80	76	69	64	59	55	52	49	
	30	95	94	90	87	83	80	76	69	64	59	55	52	49	
	40	86	86	86	86	83	80	76	69	64	59	55	52	49	
	50	78	78	78	78	78	78	76	69	64	59	55	52	49	
	60	72	72	72	72	72	72	72	69	64	59	55	52	49	
	70	67	67	67	67	67	67	67	67	64	59	55	52	49	
	80	63	63	63	63	63	63	63	63	63	59	55	52	49	
	90	59	59	59	59	59	59	59	59	59	59	55	52	49	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 170a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support		X _E = 1			
		Exposure Category: C								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1'	0	121	121	121	121	121	121	121	121	117	110	104	99	95	
	10	115	115	115	115	115	115	115	113	112	110	104	99	95	
	20	96	96	96	96	96	96	96	96	96	96	96	95	94	
	30	95	95	95	95	95	95	95	95	95	95	95	94	93	
	40	86	86	86	86	86	86	86	86	86	86	86	86	86	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 1	0	121	121	121	116	112	107	103	97	91	86	81	77	71	
	10	115	115	115	115	112	107	103	97	91	86	81	77	71	
	20	96	96	96	96	96	96	96	96	91	86	81	77	71	
	30	95	95	95	95	95	95	95	95	91	86	81	77	71	
	40	86	86	86	86	86	86	86	86	86	86	81	77	71	
	50	78	78	78	78	78	78	78	78	78	78	78	77	71	
	60	72	72	72	72	72	72	72	72	72	72	72	72	71	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 2	0	117	111	106	102	98	94	91	85	80	74	68	64	60	
	10	115	111	106	102	98	94	91	85	80	74	68	64	60	
	20	96	96	96	96	96	94	91	85	80	74	68	64	60	
	30	95	95	95	95	95	94	91	85	80	74	68	64	60	
	40	86	86	86	86	86	86	86	85	80	74	68	64	60	
	50	78	78	78	78	78	78	78	78	78	74	68	64	60	
	60	72	72	72	72	72	72	72	72	72	72	68	64	60	
	70	67	67	67	67	67	67	67	67	67	67	67	64	60	
	80	63	63	63	63	63	63	63	63	63	63	63	63	60	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 3	0	102	97	93	89	86	83	80	72	66	61	57	54	51	
	10	102	97	93	89	86	83	80	72	66	61	57	54	51	
	20	96	96	93	89	86	83	80	72	66	61	57	54	51	
	30	95	95	93	89	86	83	80	72	66	61	57	54	51	
	40	86	86	86	86	86	83	80	72	66	61	57	54	51	
	50	78	78	78	78	78	78	78	72	66	61	57	54	51	
	60	72	72	72	72	72	72	72	72	66	61	57	54	51	
	70	67	67	67	67	67	67	67	67	66	61	57	54	51	
	80	63	63	63	63	63	63	63	63	63	61	57	54	51	
	90	59	59	59	59	59	59	59	59	59	59	57	54	51	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 170b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	121	116	112	104	98	93	88	84	81
	10	115	115	115	115	115	115	112	104	98	93	88	84	81
	20	96	96	96	96	96	96	96	96	96	93	88	84	81
	30	95	95	95	95	95	95	95	95	95	93	88	84	81
	40	86	86	86	86	86	86	86	86	86	86	86	84	81
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	111	106	102	97	94	90	87	82	76	69	65	61	57
	10	111	106	102	97	94	90	87	82	76	69	65	61	57
	20	96	96	96	96	94	90	87	82	76	69	65	61	57
	30	95	95	95	95	94	90	87	82	76	69	65	61	57
	40	86	86	86	86	86	86	86	82	76	69	65	61	57
	50	78	78	78	78	78	78	78	78	76	69	65	61	57
	60	72	72	72	72	72	72	72	72	72	69	65	61	57
	70	67	67	67	67	67	67	67	67	67	67	65	61	57
	80	63	63	63	63	63	63	63	63	63	63	63	61	57
	90	59	59	59	59	59	59	59	59	59	59	59	59	57
Zone 2	0	98	93	89	86	83	80	76	69	63	59	55	52	49
	10	98	93	89	86	83	80	76	69	63	59	55	52	49
	20	96	93	89	86	83	80	76	69	63	59	55	52	49
	30	95	93	89	86	83	80	76	69	63	59	55	52	49
	40	86	86	86	86	83	80	76	69	63	59	55	52	49
	50	78	78	78	78	78	78	76	69	63	59	55	52	49
	60	72	72	72	72	72	72	72	69	63	59	55	52	49
	70	67	67	67	67	67	67	67	67	63	59	55	52	49
	80	63	63	63	63	63	63	63	63	63	59	55	52	49
	90	59	59	59	59	59	59	59	59	59	59	55	52	49
Zone 3	0	86	82	78	73	69	66	63	58	53	50	47	44	41
	10	86	82	78	73	69	66	63	58	53	50	47	44	41
	20	86	82	78	73	69	66	63	58	53	50	47	44	41
	30	86	82	78	73	69	66	63	58	53	50	47	44	41
	40	86	82	78	73	69	66	63	58	53	50	47	44	41
	50	78	78	78	73	69	66	63	58	53	50	47	44	41
	60	72	72	72	72	69	66	63	58	53	50	47	44	41
	70	67	67	67	67	67	66	63	58	53	50	47	44	41
	80	63	63	63	63	63	63	63	58	53	50	47	44	41
	90	59	59	59	59	59	59	59	58	53	50	47	44	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 171a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape		
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support		X _E = 1		
		Exposure Category: D								Roof Type :		Gable		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	121	121	121	116	108	102	97	93	88
	10	115	115	115	115	115	114	113	112	108	102	97	93	88
	20	96	96	96	96	96	96	96	96	96	96	95	93	88
	30	95	95	95	95	95	95	95	95	95	95	94	93	88
	40	86	86	86	86	86	86	86	86	86	86	86	86	86
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	121	118	113	108	104	100	96	90	85	80	74	69	65
	10	115	115	113	108	104	100	96	90	85	80	74	69	65
	20	96	96	96	96	96	96	96	90	85	80	74	69	65
	30	95	95	95	95	95	95	95	90	85	80	74	69	65
	40	86	86	86	86	86	86	86	86	85	80	74	69	65
	50	78	78	78	78	78	78	78	78	78	78	74	69	65
	60	72	72	72	72	72	72	72	72	72	72	72	69	65
	70	67	67	67	67	67	67	67	67	67	67	67	67	65
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 2	0	108	103	99	95	91	88	85	80	73	67	62	59	55
	10	108	103	99	95	91	88	85	80	73	67	62	59	55
	20	96	96	96	95	91	88	85	80	73	67	62	59	55
	30	95	95	95	95	91	88	85	80	73	67	62	59	55
	40	86	86	86	86	86	86	85	80	73	67	62	59	55
	50	78	78	78	78	78	78	78	78	73	67	62	59	55
	60	72	72	72	72	72	72	72	72	72	67	62	59	55
	70	67	67	67	67	67	67	67	67	67	67	62	59	55
	80	63	63	63	63	63	63	63	63	63	63	62	59	55
	90	59	59	59	59	59	59	59	59	59	59	59	59	55
Zone 3	0	94	90	86	83	80	76	72	65	60	56	53	49	47
	10	94	90	86	83	80	76	72	65	60	56	53	49	47
	20	94	90	86	83	80	76	72	65	60	56	53	49	47
	30	94	90	86	83	80	76	72	65	60	56	53	49	47
	40	86	86	86	83	80	76	72	65	60	56	53	49	47
	50	78	78	78	78	78	76	72	65	60	56	53	49	47
	60	72	72	72	72	72	72	72	65	60	56	53	49	47
	70	67	67	67	67	67	67	67	65	60	56	53	49	47
	80	63	63	63	63	63	63	63	63	60	56	53	49	47
	90	59	59	59	59	59	59	59	59	59	56	53	49	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 171b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support		X _E = 1.5			
		Exposure Category: D								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1'	0	121	121	121	117	112	108	104	98	92	87	83	79	74	
	10	115	115	115	115	112	108	104	98	92	87	83	79	74	
	20	96	96	96	96	96	96	96	96	92	87	83	79	74	
	30	95	95	95	95	95	95	95	95	92	87	83	79	74	
	40	86	86	86	86	86	86	86	86	86	86	83	79	74	
	50	78	78	78	78	78	78	78	78	78	78	78	78	74	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 1	0	103	99	95	91	87	84	81	75	68	63	59	56	52	
	10	103	99	95	91	87	84	81	75	68	63	59	56	52	
	20	96	96	95	91	87	84	81	75	68	63	59	56	52	
	30	95	95	95	91	87	84	81	75	68	63	59	56	52	
	40	86	86	86	86	86	84	81	75	68	63	59	56	52	
	50	78	78	78	78	78	78	78	75	68	63	59	56	52	
	60	72	72	72	72	72	72	72	72	68	63	59	56	52	
	70	67	67	67	67	67	67	67	67	67	63	59	56	52	
	80	63	63	63	63	63	63	63	63	63	63	59	56	52	
	90	59	59	59	59	59	59	59	59	59	59	59	56	52	
Zone 2	0	91	87	83	80	76	72	68	63	58	54	51	48	45	
	10	91	87	83	80	76	72	68	63	58	54	51	48	45	
	20	91	87	83	80	76	72	68	63	58	54	51	48	45	
	30	91	87	83	80	76	72	68	63	58	54	51	48	45	
	40	86	86	83	80	76	72	68	63	58	54	51	48	45	
	50	78	78	78	78	76	72	68	63	58	54	51	48	45	
	60	72	72	72	72	72	72	68	63	58	54	51	48	45	
	70	67	67	67	67	67	67	67	63	58	54	51	48	45	
	80	63	63	63	63	63	63	63	63	58	54	51	48	45	
	90	59	59	59	59	59	59	59	59	58	54	51	48	45	
Zone 3	0	80	75	70	66	63	60	57	53	49	46	43	40	38	
	10	80	75	70	66	63	60	57	53	49	46	43	40	38	
	20	80	75	70	66	63	60	57	53	49	46	43	40	38	
	30	80	75	70	66	63	60	57	53	49	46	43	40	38	
	40	80	75	70	66	63	60	57	53	49	46	43	40	38	
	50	78	75	70	66	63	60	57	53	49	46	43	40	38	
	60	72	72	70	66	63	60	57	53	49	46	43	40	38	
	70	67	67	67	66	63	60	57	53	49	46	43	40	38	
	80	63	63	63	63	63	60	57	53	49	46	43	40	38	
	90	59	59	59	59	59	59	57	53	49	46	43	40	38	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 172a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	121	121	121	117	113	109	102	96	91	86	82	79
	10	115	115	115	115	115	113	109	102	96	91	86	82	79
	20	91	91	91	91	91	91	91	91	91	91	86	82	79
	30	91	91	91	91	91	91	91	91	91	91	86	82	79
	40	81	81	81	81	81	81	81	81	81	81	81	81	79
	50	73	73	73	73	73	73	73	73	73	73	73	73	73
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	121	118	112	107	103	99	95	89	83	78	72	67	63
	10	115	115	112	107	103	99	95	89	83	78	72	67	63
	20	91	91	91	91	91	91	91	89	83	78	72	67	63
	30	91	91	91	91	91	91	91	89	83	78	72	67	63
	40	81	81	81	81	81	81	81	81	81	78	72	67	63
	50	73	73	73	73	73	73	73	73	73	73	72	67	63
	60	67	67	67	67	67	67	67	67	67	67	67	67	63
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 3r	0	114	108	103	99	95	91	88	82	76	69	64	61	57
	10	114	108	103	99	95	91	88	82	76	69	64	61	57
	20	91	91	91	91	91	91	88	82	76	69	64	61	57
	30	91	91	91	91	91	91	88	82	76	69	64	61	57
	40	81	81	81	81	81	81	81	81	76	69	64	61	57
	50	73	73	73	73	73	73	73	73	73	69	64	61	57
	60	67	67	67	67	67	67	67	67	67	67	64	61	57
	70	63	63	63	63	63	63	63	63	63	63	63	61	57
	80	59	59	59	59	59	59	59	59	59	59	59	59	57
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 172b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	117	112	107	103	99	95	92	87	82	77	71	67	63
	10	115	112	107	103	99	95	92	87	82	77	71	67	63
	20	91	91	91	91	91	91	91	87	82	77	71	67	63
	30	91	91	91	91	91	91	91	87	82	77	71	67	63
	40	81	81	81	81	81	81	81	81	81	77	71	67	63
	50	73	73	73	73	73	73	73	73	73	73	71	67	63
	60	67	67	67	67	67	67	67	67	67	67	67	67	63
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	102	98	93	89	86	83	80	72	66	61	57	54	51
	10	102	98	93	89	86	83	80	72	66	61	57	54	51
	20	91	91	91	89	86	83	80	72	66	61	57	54	51
	30	91	91	91	89	86	83	80	72	66	61	57	54	51
	40	81	81	81	81	81	81	80	72	66	61	57	54	51
	50	73	73	73	73	73	73	73	72	66	61	57	54	51
	60	67	67	67	67	67	67	67	67	66	61	57	54	51
	70	63	63	63	63	63	63	63	63	63	61	57	54	51
	80	59	59	59	59	59	59	59	59	59	59	57	54	51
	90	56	56	56	56	56	56	56	56	56	56	56	54	51
Zone 3r	0	95	90	86	83	80	76	71	65	60	56	52	49	46
	10	95	90	86	83	80	76	71	65	60	56	52	49	46
	20	91	90	86	83	80	76	71	65	60	56	52	49	46
	30	91	90	86	83	80	76	71	65	60	56	52	49	46
	40	81	81	81	81	80	76	71	65	60	56	52	49	46
	50	73	73	73	73	73	73	71	65	60	56	52	49	46
	60	67	67	67	67	67	67	67	65	60	56	52	49	46
	70	63	63	63	63	63	63	63	63	60	56	52	49	46
	80	59	59	59	59	59	59	59	59	59	56	52	49	46
	90	56	56	56	56	56	56	56	56	56	56	52	49	46

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 173a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	115	110	106	102	98	95	89	84	80	74	69	65
	10	115	114	110	106	102	98	95	89	84	80	74	69	65
	20	91	91	91	91	91	91	91	89	84	80	74	69	65
	30	91	91	91	91	91	91	91	89	84	80	74	69	65
	40	81	81	81	81	81	81	81	81	81	80	74	69	65
	50	73	73	73	73	73	73	73	73	73	73	73	69	65
	60	67	67	67	67	67	67	67	67	67	67	67	67	65
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	106	101	96	92	88	85	82	76	69	64	59	56	53
	10	106	101	96	92	88	85	82	76	69	64	59	56	53
	20	91	91	91	91	88	85	82	76	69	64	59	56	53
	30	91	91	91	91	88	85	82	76	69	64	59	56	53
	40	81	81	81	81	81	81	81	76	69	64	59	56	53
	50	73	73	73	73	73	73	73	73	69	64	59	56	53
	60	67	67	67	67	67	67	67	67	67	64	59	56	53
	70	63	63	63	63	63	63	63	63	63	63	59	56	53
	80	59	59	59	59	59	59	59	59	59	59	59	56	53
	90	56	56	56	56	56	56	56	56	56	56	56	56	53
Zone 3r	0	97	93	89	85	82	79	75	67	62	58	54	51	48
	10	97	93	89	85	82	79	75	67	62	58	54	51	48
	20	91	91	89	85	82	79	75	67	62	58	54	51	48
	30	91	91	89	85	82	79	75	67	62	58	54	51	48
	40	81	81	81	81	81	79	75	67	62	58	54	51	48
	50	73	73	73	73	73	73	73	67	62	58	54	51	48
	60	67	67	67	67	67	67	67	67	62	58	54	51	48
	70	63	63	63	63	63	63	63	63	62	58	54	51	48
	80	59	59	59	59	59	59	59	59	59	58	54	51	48
	90	56	56	56	56	56	56	56	56	56	56	54	51	48

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 173b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	102	97	93	90	87	84	81	75	68	64	59	56	53
	10	102	97	93	90	87	84	81	75	68	64	59	56	53
	20	91	91	91	90	87	84	81	75	68	64	59	56	53
	30	91	91	91	90	87	84	81	75	68	64	59	56	53
	40	81	81	81	81	81	81	81	75	68	64	59	56	53
	50	73	73	73	73	73	73	73	73	68	64	59	56	53
	60	67	67	67	67	67	67	67	67	67	64	59	56	53
	70	63	63	63	63	63	63	63	63	63	63	59	56	53
	80	59	59	59	59	59	59	59	59	59	59	59	56	53
	90	56	56	56	56	56	56	56	56	56	56	56	56	53
Zones 2n, 2r, & 3e	0	88	84	81	77	72	68	65	60	55	52	48	45	43
	10	88	84	81	77	72	68	65	60	55	52	48	45	43
	20	88	84	81	77	72	68	65	60	55	52	48	45	43
	30	88	84	81	77	72	68	65	60	55	52	48	45	43
	40	81	81	81	77	72	68	65	60	55	52	48	45	43
	50	73	73	73	73	72	68	65	60	55	52	48	45	43
	60	67	67	67	67	67	67	65	60	55	52	48	45	43
	70	63	63	63	63	63	63	63	60	55	52	48	45	43
	80	59	59	59	59	59	59	59	59	55	52	48	45	43
	90	56	56	56	56	56	56	56	56	55	52	48	45	43
Zone 3r	0	82	78	73	68	65	62	59	54	50	47	44	41	39
	10	82	78	73	68	65	62	59	54	50	47	44	41	39
	20	82	78	73	68	65	62	59	54	50	47	44	41	39
	30	82	78	73	68	65	62	59	54	50	47	44	41	39
	40	81	78	73	68	65	62	59	54	50	47	44	41	39
	50	73	73	73	68	65	62	59	54	50	47	44	41	39
	60	67	67	67	67	65	62	59	54	50	47	44	41	39
	70	63	63	63	63	63	62	59	54	50	47	44	41	39
	80	59	59	59	59	59	59	59	54	50	47	44	41	39
	90	56	56	56	56	56	56	56	54	50	47	44	41	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 174a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support X _E = 1					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	112	107	103	99	95	92	89	83	79	73	67	63	60
	10	112	107	103	99	95	92	89	83	79	73	67	63	60
	20	91	91	91	91	91	91	89	83	79	73	67	63	60
	30	91	91	91	91	91	91	89	83	79	73	67	63	60
	40	81	81	81	81	81	81	81	81	79	73	67	63	60
	50	73	73	73	73	73	73	73	73	73	73	67	63	60
	60	67	67	67	67	67	67	67	67	67	67	67	63	60
	70	63	63	63	63	63	63	63	63	63	63	63	63	60
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	98	93	89	86	82	79	75	68	63	58	54	51	48
	10	98	93	89	86	82	79	75	68	63	58	54	51	48
	20	91	91	89	86	82	79	75	68	63	58	54	51	48
	30	91	91	89	86	82	79	75	68	63	58	54	51	48
	40	81	81	81	81	81	79	75	68	63	58	54	51	48
	50	73	73	73	73	73	73	73	68	63	58	54	51	48
	60	67	67	67	67	67	67	67	67	63	58	54	51	48
	70	63	63	63	63	63	63	63	63	63	58	54	51	48
	80	59	59	59	59	59	59	59	59	59	58	54	51	48
	90	56	56	56	56	56	56	56	56	56	56	54	51	48
Zone 3r	0	91	86	83	79	75	71	67	62	57	53	50	47	44
	10	91	86	83	79	75	71	67	62	57	53	50	47	44
	20	91	86	83	79	75	71	67	62	57	53	50	47	44
	30	91	86	83	79	75	71	67	62	57	53	50	47	44
	40	81	81	81	79	75	71	67	62	57	53	50	47	44
	50	73	73	73	73	73	71	67	62	57	53	50	47	44
	60	67	67	67	67	67	67	67	62	57	53	50	47	44
	70	63	63	63	63	63	63	63	62	57	53	50	47	44
	80	59	59	59	59	59	59	59	59	57	53	50	47	44
	90	56	56	56	56	56	56	56	56	56	53	50	47	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 174b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	95	91	87	84	81	78	74	68	63	58	54	51	48
	10	95	91	87	84	81	78	74	68	63	58	54	51	48
	20	91	91	87	84	81	78	74	68	63	58	54	51	48
	30	91	91	87	84	81	78	74	68	63	58	54	51	48
	40	81	81	81	81	81	78	74	68	63	58	54	51	48
	50	73	73	73	73	73	73	73	68	63	58	54	51	48
	60	67	67	67	67	67	67	67	67	63	58	54	51	48
	70	63	63	63	63	63	63	63	63	63	58	54	51	48
	80	59	59	59	59	59	59	59	59	59	58	54	51	48
	90	56	56	56	56	56	56	56	56	56	56	54	51	48
Zones 2n, 2r, & 3e	0	82	79	73	69	65	62	60	55	51	47	44	41	39
	10	82	79	73	69	65	62	60	55	51	47	44	41	39
	20	82	79	73	69	65	62	60	55	51	47	44	41	39
	30	82	79	73	69	65	62	60	55	51	47	44	41	39
	40	81	79	73	69	65	62	60	55	51	47	44	41	39
	50	73	73	73	69	65	62	60	55	51	47	44	41	39
	60	67	67	67	67	65	62	60	55	51	47	44	41	39
	70	63	63	63	63	63	62	60	55	51	47	44	41	39
	80	59	59	59	59	59	59	59	55	51	47	44	41	39
	90	56	56	56	56	56	56	56	55	51	47	44	41	39
Zone 3r	0	75	69	65	62	59	57	54	50	46	43	40	38	36
	10	75	69	65	62	59	57	54	50	46	43	40	38	36
	20	75	69	65	62	59	57	54	50	46	43	40	38	36
	30	75	69	65	62	59	57	54	50	46	43	40	38	36
	40	75	69	65	62	59	57	54	50	46	43	40	38	36
	50	73	69	65	62	59	57	54	50	46	43	40	38	36
	60	67	67	65	62	59	57	54	50	46	43	40	38	36
	70	63	63	63	62	59	57	54	50	46	43	40	38	36
	80	59	59	59	59	59	57	54	50	46	43	40	38	36
	90	56	56	56	56	56	56	54	50	46	43	40	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 175a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	121	121	121	121	121	121	115	108	102	97	92	88
	10	121	121	121	121	121	121	121	115	108	102	97	92	88
	20	107	107	107	107	107	107	107	107	107	102	97	92	88
	30	92	92	92	92	92	92	92	92	92	92	92	91	88
	40	81	81	81	81	81	81	81	81	81	81	81	81	81
	50	74	74	74	74	74	74	74	74	74	74	74	74	74
	60	68	68	68	68	68	68	68	68	68	68	68	68	68
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	121	121	121	116	111	106	102	95	90	84	80	75	70
	10	121	121	121	116	111	106	102	95	90	84	80	75	70
	20	107	107	107	107	107	106	102	95	90	84	80	75	70
	30	92	92	92	92	92	92	92	92	90	84	80	75	70
	40	81	81	81	81	81	81	81	81	81	81	80	75	70
	50	74	74	74	74	74	74	74	74	74	74	74	74	70
	60	68	68	68	68	68	68	68	68	68	68	68	68	68
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 3r	0	121	119	114	108	104	100	96	89	84	79	73	67	63
	10	121	119	114	108	104	100	96	89	84	79	73	67	63
	20	107	107	107	107	104	100	96	89	84	79	73	67	63
	30	92	92	92	92	92	92	92	89	84	79	73	67	63
	40	81	81	81	81	81	81	81	81	81	79	73	67	63
	50	74	74	74	74	74	74	74	74	74	74	73	67	63
	60	68	68	68	68	68	68	68	68	68	68	68	67	63
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 175b		Mean Roof Height:		15 < h ≤ 30 ft		Panel Orientation:		Landscape						
		Roof Angle:		20 < θ ≤ 27 degrees		North/South Support		X _E = 1.5						
		Exposure Category:		B		Roof Type :		Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	121	121	116	111	107	103	97	91	87	82	79	74
	10	121	121	121	116	111	107	103	97	91	87	82	79	74
	20	107	107	107	107	107	107	103	97	91	87	82	79	74
	30	92	92	92	92	92	92	92	92	91	87	82	79	74
	40	81	81	81	81	81	81	81	81	81	81	81	79	74
	50	74	74	74	74	74	74	74	74	74	74	74	74	74
	60	68	68	68	68	68	68	68	68	68	68	68	68	68
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	111	105	101	96	93	89	86	80	74	68	63	59	56
	10	111	105	101	96	93	89	86	80	74	68	63	59	56
	20	107	105	101	96	93	89	86	80	74	68	63	59	56
	30	92	92	92	92	92	89	86	80	74	68	63	59	56
	40	81	81	81	81	81	81	81	80	74	68	63	59	56
	50	74	74	74	74	74	74	74	74	74	68	63	59	56
	60	68	68	68	68	68	68	68	68	68	68	63	59	56
	70	63	63	63	63	63	63	63	63	63	63	63	59	56
	80	60	60	60	60	60	60	60	60	60	60	60	59	56
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 3r	0	104	99	94	90	87	84	81	74	67	61	57	53	49
	10	104	99	94	90	87	84	81	74	67	61	57	53	49
	20	104	99	94	90	87	84	81	74	67	61	57	53	49
	30	92	92	92	90	87	84	81	74	67	61	57	53	49
	40	81	81	81	81	81	81	81	74	67	61	57	53	49
	50	74	74	74	74	74	74	74	74	67	61	57	53	49
	60	68	68	68	68	68	68	68	68	67	61	57	53	49
	70	63	63	63	63	63	63	63	63	63	61	57	53	49
	80	60	60	60	60	60	60	60	60	60	60	57	53	49
	90	56	56	56	56	56	56	56	56	56	56	56	53	49

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 176a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support Y _E = 1					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	121	121	119	114	110	106	100	94	89	85	81	77
	10	121	121	121	119	114	110	106	100	94	89	85	81	77
	20	107	107	107	107	107	107	106	100	94	89	85	81	77
	30	92	92	92	92	92	92	92	92	91	89	85	81	77
	40	81	81	81	81	81	81	81	81	81	81	80	79	77
	50	74	74	74	74	74	74	74	74	74	74	74	73	72
	60	68	68	68	68	68	68	68	68	68	68	68	68	68
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	114	109	104	99	95	92	89	83	78	71	66	62	58
	10	114	109	104	99	95	92	89	83	78	71	66	62	58
	20	107	107	104	99	95	92	89	83	78	71	66	62	58
	30	92	92	92	92	92	92	89	83	78	71	66	62	58
	40	81	81	81	81	81	81	81	81	78	71	66	62	58
	50	74	74	74	74	74	74	74	74	74	71	66	62	58
	60	68	68	68	68	68	68	68	68	68	68	66	62	58
	70	63	63	63	63	63	63	63	63	63	63	63	62	58
	80	60	60	60	60	60	60	60	60	60	60	60	60	58
90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 3r	0	107	102	97	93	89	86	83	78	70	64	59	55	51
	10	107	102	97	93	89	86	83	78	70	64	59	55	51
	20	107	102	97	93	89	86	83	78	70	64	59	55	51
	30	92	92	92	92	89	86	83	78	70	64	59	55	51
	40	81	81	81	81	81	81	81	78	70	64	59	55	51
	50	74	74	74	74	74	74	74	74	70	64	59	55	51
	60	68	68	68	68	68	68	68	68	68	64	59	55	51
	70	63	63	63	63	63	63	63	63	63	63	59	55	51
	80	60	60	60	60	60	60	60	60	60	60	59	55	51
	90	56	56	56	56	56	56	56	56	56	56	56	55	51

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 176b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape						
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5						
		Exposure Category: C							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	114	109	105	101	97	93	90	85	80	75	70	65	61	
	10	114	109	105	101	97	93	90	85	80	75	70	65	61	
	20	107	107	105	101	97	93	90	85	80	75	70	65	61	
	30	92	92	92	92	92	92	90	85	80	75	70	65	61	
	40	81	81	81	81	81	81	81	81	80	75	70	65	61	
	50	74	74	74	74	74	74	74	74	74	74	70	65	61	
	60	68	68	68	68	68	68	68	68	68	68	68	65	61	
	70	63	63	63	63	63	63	63	63	63	63	63	63	61	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
90	56	56	56	56	56	56	56	56	56	56	56	56	56		
Zones 2n, 2r, & 3e	0	95	91	87	83	80	77	73	66	61	57	53	50	47	
	10	95	91	87	83	80	77	73	66	61	57	53	50	47	
	20	95	91	87	83	80	77	73	66	61	57	53	50	47	
	30	92	91	87	83	80	77	73	66	61	57	53	50	47	
	40	81	81	81	81	80	77	73	66	61	57	53	50	47	
	50	74	74	74	74	74	74	73	66	61	57	53	50	47	
	60	68	68	68	68	68	68	68	66	61	57	53	50	47	
	70	63	63	63	63	63	63	63	63	61	57	53	50	47	
	80	60	60	60	60	60	60	60	60	60	57	53	50	47	
90	56	56	56	56	56	56	56	56	56	56	53	50	47		
Zone 3r	0	89	85	82	78	74	69	66	60	55	50	47	43	41	
	10	89	85	82	78	74	69	66	60	55	50	47	43	41	
	20	89	85	82	78	74	69	66	60	55	50	47	43	41	
	30	89	85	82	78	74	69	66	60	55	50	47	43	41	
	40	81	81	81	78	74	69	66	60	55	50	47	43	41	
	50	74	74	74	74	74	69	66	60	55	50	47	43	41	
	60	68	68	68	68	68	68	66	60	55	50	47	43	41	
	70	63	63	63	63	63	63	63	60	55	50	47	43	41	
	80	60	60	60	60	60	60	60	60	55	50	47	43	41	
	90	56	56	56	56	56	56	56	56	55	50	47	43	41	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 177a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support		X _E = 1			
		Exposure Category: D								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	121	121	115	111	107	103	99	93	88	83	79	75	70	
	10	121	121	115	111	107	103	99	93	88	83	79	75	70	
	20	107	107	107	107	107	103	99	93	88	83	79	75	70	
	30	92	92	92	92	92	92	92	91	88	83	79	75	70	
	40	81	81	81	81	81	81	81	81	81	80	79	75	70	
	50	74	74	74	74	74	74	74	74	74	74	73	72	70	
	60	68	68	68	68	68	68	68	68	68	68	68	67	66	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	106	101	96	92	89	85	82	77	70	64	60	56	53	
	10	106	101	96	92	89	85	82	77	70	64	60	56	53	
	20	106	101	96	92	89	85	82	77	70	64	60	56	53	
	30	92	92	92	92	89	85	82	77	70	64	60	56	53	
	40	81	81	81	81	81	81	81	77	70	64	60	56	53	
	50	74	74	74	74	74	74	74	74	70	64	60	56	53	
	60	68	68	68	68	68	68	68	68	68	64	60	56	53	
	70	63	63	63	63	63	63	63	63	63	63	60	56	53	
	80	60	60	60	60	60	60	60	60	60	60	60	56	53	
	90	56	56	56	56	56	56	56	56	56	56	56	56	53	
Zone 3r	0	99	94	90	87	83	80	77	69	63	58	54	50	47	
	10	99	94	90	87	83	80	77	69	63	58	54	50	47	
	20	99	94	90	87	83	80	77	69	63	58	54	50	47	
	30	92	92	90	87	83	80	77	69	63	58	54	50	47	
	40	81	81	81	81	81	80	77	69	63	58	54	50	47	
	50	74	74	74	74	74	74	74	69	63	58	54	50	47	
	60	68	68	68	68	68	68	68	68	63	58	54	50	47	
	70	63	63	63	63	63	63	63	63	63	58	54	50	47	
	80	60	60	60	60	60	60	60	60	60	58	54	50	47	
	90	56	56	56	56	56	56	56	56	56	56	54	50	47	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 177b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support		X _E = 1.5			
		Exposure Category: D								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	106	102	98	94	91	87	85	80	74	68	64	60	56	
	10	106	102	98	94	91	87	85	80	74	68	64	60	56	
	20	106	102	98	94	91	87	85	80	74	68	64	60	56	
	30	92	92	92	92	91	87	85	80	74	68	64	60	56	
	40	81	81	81	81	81	81	81	80	74	68	64	60	56	
	50	74	74	74	74	74	74	74	74	74	68	64	60	56	
	60	68	68	68	68	68	68	68	68	68	68	64	60	56	
	70	63	63	63	63	63	63	63	63	63	63	63	60	56	
	80	60	60	60	60	60	60	60	60	60	60	60	60	56	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	89	85	81	78	73	69	66	60	56	52	49	46	43	
	10	89	85	81	78	73	69	66	60	56	52	49	46	43	
	20	89	85	81	78	73	69	66	60	56	52	49	46	43	
	30	89	85	81	78	73	69	66	60	56	52	49	46	43	
	40	81	81	81	78	73	69	66	60	56	52	49	46	43	
	50	74	74	74	74	73	69	66	60	56	52	49	46	43	
	60	68	68	68	68	68	68	66	60	56	52	49	46	43	
	70	63	63	63	63	63	63	63	60	56	52	49	46	43	
	80	60	60	60	60	60	60	60	60	56	52	49	46	43	
	90	56	56	56	56	56	56	56	56	56	52	49	46	43	
Zone 3r	0	83	79	75	70	66	62	59	54	49	46	42	39	37	
	10	83	79	75	70	66	62	59	54	49	46	42	39	37	
	20	83	79	75	70	66	62	59	54	49	46	42	39	37	
	30	83	79	75	70	66	62	59	54	49	46	42	39	37	
	40	81	79	75	70	66	62	59	54	49	46	42	39	37	
	50	74	74	74	70	66	62	59	54	49	46	42	39	37	
	60	68	68	68	68	66	62	59	54	49	46	42	39	37	
	70	63	63	63	63	63	62	59	54	49	46	42	39	37	
	80	60	60	60	60	60	60	59	54	49	46	42	39	37	
	90	56	56	56	56	56	56	56	54	49	46	42	39	37	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 178a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape						
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1						
		Exposure Category: B							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	121	121	121	121	121	121	119	111	103	97	92	87	83	
	10	121	121	121	121	121	121	119	111	103	97	92	87	83	
	20	110	110	110	110	110	109	107	105	102	97	92	87	83	
	30	97	97	97	97	97	97	96	94	92	90	88	86	83	
	40	86	86	86	86	86	86	86	86	84	83	81	80	78	
	50	78	78	78	78	78	78	78	78	78	77	76	75	73	
	60	72	72	72	72	72	72	72	72	72	72	71	70	69	
	70	67	67	67	67	67	67	67	67	67	67	67	67	66	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zones 2n & 3r	0	121	121	121	121	120	116	111	104	97	92	87	83	79	
	10	121	121	121	121	120	116	111	104	97	92	87	83	79	
	20	110	110	110	110	110	109	107	104	97	92	87	83	79	
	30	97	97	97	97	97	97	96	94	92	90	87	83	79	
	40	86	86	86	86	86	86	86	86	84	83	81	80	78	
	50	78	78	78	78	78	78	78	78	78	77	76	75	73	
	60	72	72	72	72	72	72	72	72	72	72	71	70	69	
	70	67	67	67	67	67	67	67	67	67	67	67	67	66	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 3e	0	121	121	119	114	109	105	101	95	89	84	80	76	70	
	10	121	121	119	114	109	105	101	95	89	84	80	76	70	
	20	110	110	110	110	109	105	101	95	89	84	80	76	70	
	30	97	97	97	97	97	97	96	94	89	84	80	76	70	
	40	86	86	86	86	86	86	86	86	84	83	80	76	70	
	50	78	78	78	78	78	78	78	78	78	77	76	75	70	
	60	72	72	72	72	72	72	72	72	72	72	71	70	69	
	70	67	67	67	67	67	67	67	67	67	67	67	67	66	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 178b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape						
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1.5						
		Exposure Category: B							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	121	121	117	112	107	103	99	92	87	82	77	72	67	
	10	121	121	117	112	107	103	99	92	87	82	77	72	67	
	20	110	110	110	110	107	103	99	92	87	82	77	72	67	
	30	97	97	97	97	97	97	96	92	87	82	77	72	67	
	40	86	86	86	86	86	86	86	86	84	82	77	72	67	
	50	78	78	78	78	78	78	78	78	78	77	76	72	67	
	60	72	72	72	72	72	72	72	72	72	72	71	70	67	
	70	67	67	67	67	67	67	67	67	67	67	67	67	66	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zones 2n & 3r	0	120	114	109	105	101	97	94	88	82	78	72	67	63	
	10	120	114	109	105	101	97	94	88	82	78	72	67	63	
	20	110	110	109	105	101	97	94	88	82	78	72	67	63	
	30	97	97	97	97	97	97	94	88	82	78	72	67	63	
	40	86	86	86	86	86	86	86	86	82	78	72	67	63	
	50	78	78	78	78	78	78	78	78	78	77	72	67	63	
	60	72	72	72	72	72	72	72	72	72	72	71	67	63	
	70	67	67	67	67	67	67	67	67	67	67	67	67	63	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 3e	0	109	104	100	96	92	89	85	80	75	68	63	59	55	
	10	109	104	100	96	92	89	85	80	75	68	63	59	55	
	20	109	104	100	96	92	89	85	80	75	68	63	59	55	
	30	97	97	97	96	92	89	85	80	75	68	63	59	55	
	40	86	86	86	86	86	86	85	80	75	68	63	59	55	
	50	78	78	78	78	78	78	78	78	75	68	63	59	55	
	60	72	72	72	72	72	72	72	72	72	68	63	59	55	
	70	67	67	67	67	67	67	67	67	67	67	63	59	55	
	80	63	63	63	63	63	63	63	63	63	63	63	59	55	
	90	60	60	60	60	60	60	60	60	60	60	60	59	55	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 179a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	121	121	121	115	110	106	102	95	89	84	80	75	70
	10	121	121	121	115	110	106	102	95	89	84	80	75	70
	20	110	109	108	106	105	103	102	95	89	84	80	75	70
	30	97	97	96	95	94	93	92	89	87	84	80	75	70
	40	86	86	86	86	86	85	84	82	80	79	77	75	70
	50	78	78	78	78	78	78	78	77	75	74	72	70	69
	60	72	72	72	72	72	72	72	72	71	69	68	67	65
	70	67	67	67	67	67	67	67	67	67	66	65	64	63
	80	63	63	63	63	63	63	63	63	63	63	62	61	60
	90	60	60	60	60	60	60	60	60	60	60	60	59	58
Zones 2n & 3r	0	121	118	113	108	104	100	96	90	85	80	76	70	65
	10	121	118	113	108	104	100	96	90	85	80	76	70	65
	20	110	109	108	106	104	100	96	90	85	80	76	70	65
	30	97	97	96	95	94	93	92	89	85	80	76	70	65
	40	86	86	86	86	86	85	84	82	80	79	76	70	65
	50	78	78	78	78	78	78	78	77	75	74	72	70	65
	60	72	72	72	72	72	72	72	72	71	69	68	67	65
	70	67	67	67	67	67	67	67	67	67	66	65	64	63
	80	63	63	63	63	63	63	63	63	63	63	62	61	60
	90	60	60	60	60	60	60	60	60	60	60	60	59	58
Zone 3e	0	112	107	103	98	95	91	88	82	78	71	66	61	57
	10	112	107	103	98	95	91	88	82	78	71	66	61	57
	20	110	107	103	98	95	91	88	82	78	71	66	61	57
	30	97	97	96	95	94	91	88	82	78	71	66	61	57
	40	86	86	86	86	86	85	84	82	78	71	66	61	57
	50	78	78	78	78	78	78	78	77	75	71	66	61	57
	60	72	72	72	72	72	72	72	72	71	69	66	61	57
	70	67	67	67	67	67	67	67	67	67	66	65	61	57
	80	63	63	63	63	63	63	63	63	63	63	62	61	57
	90	60	60	60	60	60	60	60	60	60	60	60	59	57

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 179b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	110	105	100	96	92	89	86	80	74	68	63	59	56
	10	110	105	100	96	92	89	86	80	74	68	63	59	56
	20	110	105	100	96	92	89	86	80	74	68	63	59	56
	30	97	97	96	95	92	89	86	80	74	68	63	59	56
	40	86	86	86	86	86	85	84	80	74	68	63	59	56
	50	78	78	78	78	78	78	78	77	74	68	63	59	56
	60	72	72	72	72	72	72	72	72	71	68	63	59	56
	70	67	67	67	67	67	67	67	67	67	66	63	59	56
	80	63	63	63	63	63	63	63	63	63	63	62	59	56
	90	60	60	60	60	60	60	60	60	60	60	60	59	56
Zones 2n & 3r	0	104	99	95	91	87	84	81	76	69	64	60	56	53
	10	104	99	95	91	87	84	81	76	69	64	60	56	53
	20	104	99	95	91	87	84	81	76	69	64	60	56	53
	30	97	97	95	91	87	84	81	76	69	64	60	56	53
	40	86	86	86	86	86	84	81	76	69	64	60	56	53
	50	78	78	78	78	78	78	78	76	69	64	60	56	53
	60	72	72	72	72	72	72	72	72	69	64	60	56	53
	70	67	67	67	67	67	67	67	67	67	64	60	56	53
	80	63	63	63	63	63	63	63	63	63	63	60	56	53
	90	60	60	60	60	60	60	60	60	60	60	60	56	53
Zone 3e	0	94	90	86	83	80	77	73	66	61	56	52	48	45
	10	94	90	86	83	80	77	73	66	61	56	52	48	45
	20	94	90	86	83	80	77	73	66	61	56	52	48	45
	30	94	90	86	83	80	77	73	66	61	56	52	48	45
	40	86	86	86	83	80	77	73	66	61	56	52	48	45
	50	78	78	78	78	78	77	73	66	61	56	52	48	45
	60	72	72	72	72	72	72	72	66	61	56	52	48	45
	70	67	67	67	67	67	67	67	66	61	56	52	48	45
	80	63	63	63	63	63	63	63	63	61	56	52	48	45
	90	60	60	60	60	60	60	60	60	60	56	52	48	45

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 180a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape						
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1						
		Exposure Category: D							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	121	117	112	107	102	98	95	88	83	78	73	67	63	
	10	121	117	112	107	102	98	95	88	83	78	73	67	63	
	20	108	107	105	104	102	98	95	88	83	78	73	67	63	
	30	96	95	94	93	92	91	89	87	83	78	73	67	63	
	40	86	86	86	85	84	83	82	80	78	76	73	67	63	
	50	78	78	78	78	78	77	77	75	73	71	70	67	63	
	60	72	72	72	72	72	72	72	71	69	68	66	65	63	
	70	67	67	67	67	67	67	67	67	66	65	63	62	61	
	80	63	63	63	63	63	63	63	63	63	62	61	60	59	
	90	60	60	60	60	60	60	60	60	60	59	58	58	57	
Zones 2n & 3r	0	115	109	105	100	97	93	90	84	79	74	68	64	60	
	10	115	109	105	100	97	93	90	84	79	74	68	64	60	
	20	108	107	105	100	97	93	90	84	79	74	68	64	60	
	30	96	95	94	93	92	91	89	84	79	74	68	64	60	
	40	86	86	86	85	84	83	82	80	78	74	68	64	60	
	50	78	78	78	78	78	77	77	75	73	71	68	64	60	
	60	72	72	72	72	72	72	72	71	69	68	66	64	60	
	70	67	67	67	67	67	67	67	67	66	65	63	62	60	
	80	63	63	63	63	63	63	63	63	63	62	61	60	59	
	90	60	60	60	60	60	60	60	60	60	59	58	58	57	
Zone 3e	0	104	100	95	92	88	85	82	77	70	64	60	56	52	
	10	104	100	95	92	88	85	82	77	70	64	60	56	52	
	20	104	100	95	92	88	85	82	77	70	64	60	56	52	
	30	96	95	94	92	88	85	82	77	70	64	60	56	52	
	40	86	86	86	85	84	83	82	77	70	64	60	56	52	
	50	78	78	78	78	78	77	77	75	70	64	60	56	52	
	60	72	72	72	72	72	72	72	71	69	64	60	56	52	
	70	67	67	67	67	67	67	67	67	66	64	60	56	52	
	80	63	63	63	63	63	63	63	63	63	62	60	56	52	
	90	60	60	60	60	60	60	60	60	60	59	58	56	52	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 180b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape						
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1.5						
		Exposure Category: D							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	102	97	93	89	86	83	80	73	67	62	58	54	51	
	10	102	97	93	89	86	83	80	73	67	62	58	54	51	
	20	102	97	93	89	86	83	80	73	67	62	58	54	51	
	30	96	95	93	89	86	83	80	73	67	62	58	54	51	
	40	86	86	86	85	84	83	80	73	67	62	58	54	51	
	50	78	78	78	78	78	77	77	73	67	62	58	54	51	
	60	72	72	72	72	72	72	72	71	67	62	58	54	51	
	70	67	67	67	67	67	67	67	67	66	62	58	54	51	
	80	63	63	63	63	63	63	63	63	63	62	58	54	51	
	90	60	60	60	60	60	60	60	60	60	59	58	54	51	
Zones 2n & 3r	0	96	92	88	85	82	79	76	68	63	59	55	51	48	
	10	96	92	88	85	82	79	76	68	63	59	55	51	48	
	20	96	92	88	85	82	79	76	68	63	59	55	51	48	
	30	96	92	88	85	82	79	76	68	63	59	55	51	48	
	40	86	86	86	85	82	79	76	68	63	59	55	51	48	
	50	78	78	78	78	78	77	76	68	63	59	55	51	48	
	60	72	72	72	72	72	72	72	68	63	59	55	51	48	
	70	67	67	67	67	67	67	67	67	63	59	55	51	48	
	80	63	63	63	63	63	63	63	63	63	59	55	51	48	
	90	60	60	60	60	60	60	60	60	60	59	55	51	48	
Zone 3e	0	88	84	81	78	74	69	66	60	55	51	47	44	41	
	10	88	84	81	78	74	69	66	60	55	51	47	44	41	
	20	88	84	81	78	74	69	66	60	55	51	47	44	41	
	30	88	84	81	78	74	69	66	60	55	51	47	44	41	
	40	86	84	81	78	74	69	66	60	55	51	47	44	41	
	50	78	78	78	78	74	69	66	60	55	51	47	44	41	
	60	72	72	72	72	72	69	66	60	55	51	47	44	41	
	70	67	67	67	67	67	67	66	60	55	51	47	44	41	
	80	63	63	63	63	63	63	63	60	55	51	47	44	41	
	90	60	60	60	60	60	60	60	60	55	51	47	44	41	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 181a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation:			Landscape		
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support			Y _E = 1		
		Exposure Category: B							Roof Type : Hip			h/B = ≥ 0.8		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	118	114	106	100	95	90	86	82
	10	115	115	114	113	113	112	111	106	100	95	90	86	82
	20	91	91	91	91	91	91	91	91	91	90	89	86	82
	30	91	91	91	91	91	91	91	91	91	90	89	86	82
	40	81	81	81	81	81	81	81	81	81	81	81	80	78
	50	73	73	73	73	73	73	73	73	73	73	73	73	73
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	121	121	121	117	112	108	104	97	91	86	81	77	71
	10	115	115	114	113	112	108	104	97	91	86	81	77	71
	20	91	91	91	91	91	91	91	91	91	86	81	77	71
	30	91	91	91	91	91	91	91	91	91	86	81	77	71
	40	81	81	81	81	81	81	81	81	81	81	81	77	71
	50	73	73	73	73	73	73	73	73	73	73	73	73	71
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e & 3	0	121	121	118	113	108	104	100	93	88	83	79	73	68
	10	115	115	114	113	108	104	100	93	88	83	79	73	68
	20	91	91	91	91	91	91	91	91	88	83	79	73	68
	30	91	91	91	91	91	91	91	91	88	83	79	73	68
	40	81	81	81	81	81	81	81	81	81	81	79	73	68
	50	73	73	73	73	73	73	73	73	73	73	73	73	68
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 181b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation:			Landscape		
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support			Y _E = 1.5		
		Exposure Category: B							Roof Type : Hip			h/B = ≥ 0.8		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	117	112	107	103	100	96	90	85	81	76	71	66
	10	115	115	112	107	103	100	96	90	85	81	76	71	66
	20	91	91	91	91	91	91	91	90	85	81	76	71	66
	30	91	91	91	91	91	91	91	90	85	81	76	71	66
	40	81	81	81	81	81	81	81	81	81	81	76	71	66
	50	73	73	73	73	73	73	73	73	73	73	73	71	66
	60	67	67	67	67	67	67	67	67	67	67	67	67	66
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	112	107	102	98	94	90	87	82	76	69	64	61	57
	10	112	107	102	98	94	90	87	82	76	69	64	61	57
	20	91	91	91	91	91	90	87	82	76	69	64	61	57
	30	91	91	91	91	91	90	87	82	76	69	64	61	57
	40	81	81	81	81	81	81	81	81	76	69	64	61	57
	50	73	73	73	73	73	73	73	73	73	69	64	61	57
	60	67	67	67	67	67	67	67	67	67	67	64	61	57
	70	63	63	63	63	63	63	63	63	63	63	63	61	57
	80	59	59	59	59	59	59	59	59	59	59	59	59	57
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e & 3	0	108	103	98	94	91	87	84	79	72	66	62	58	55
	10	108	103	98	94	91	87	84	79	72	66	62	58	55
	20	91	91	91	91	91	87	84	79	72	66	62	58	55
	30	91	91	91	91	91	87	84	79	72	66	62	58	55
	40	81	81	81	81	81	81	81	79	72	66	62	58	55
	50	73	73	73	73	73	73	73	73	72	66	62	58	55
	60	67	67	67	67	67	67	67	67	67	66	62	58	55
	70	63	63	63	63	63	63	63	63	63	63	62	58	55
	80	59	59	59	59	59	59	59	59	59	59	59	58	55
	90	56	56	56	56	56	56	56	56	56	56	56	56	55

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 182a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape						
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1						
		Exposure Category: C							Roof Type : Hip h/B = ≥ 0.8						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	120	115	110	106	102	99	93	88	83	79	74	69	
	10	113	112	111	110	106	102	99	93	88	83	79	74	69	
	20	91	91	91	91	91	91	91	90	88	83	79	74	69	
	30	91	91	91	91	91	91	91	90	88	83	79	74	69	
	40	81	81	81	81	81	81	81	81	80	79	77	74	69	
	50	73	73	73	73	73	73	73	73	73	73	72	70	69	
	60	67	67	67	67	67	67	67	67	67	67	67	66	65	
	70	63	63	63	63	63	63	63	63	63	63	63	63	62	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	115	110	105	101	97	93	90	84	79	72	67	63	59	
	10	113	110	105	101	97	93	90	84	79	72	67	63	59	
	20	91	91	91	91	91	91	90	84	79	72	67	63	59	
	30	91	91	91	91	91	91	90	84	79	72	67	63	59	
	40	81	81	81	81	81	81	81	81	79	72	67	63	59	
	50	73	73	73	73	73	73	73	73	73	72	67	63	59	
	60	67	67	67	67	67	67	67	67	67	67	67	63	59	
	70	63	63	63	63	63	63	63	63	63	63	63	63	59	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e & 3	0	111	106	101	97	93	90	87	81	75	69	64	60	57	
	10	111	106	101	97	93	90	87	81	75	69	64	60	57	
	20	91	91	91	91	91	90	87	81	75	69	64	60	57	
	30	91	91	91	91	91	90	87	81	75	69	64	60	57	
	40	81	81	81	81	81	81	81	81	75	69	64	60	57	
	50	73	73	73	73	73	73	73	73	73	69	64	60	57	
	60	67	67	67	67	67	67	67	67	67	67	64	60	57	
	70	63	63	63	63	63	63	63	63	63	63	63	60	57	
	80	59	59	59	59	59	59	59	59	59	59	59	59	57	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 182b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		Y _E = 1.5			
		Exposure Category: C								Roof Type : Hip		h/B = ≥ 0.8			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	106	101	97	94	90	87	84	79	73	67	63	59	56	
	10	106	101	97	94	90	87	84	79	73	67	63	59	56	
	20	91	91	91	91	90	87	84	79	73	67	63	59	56	
	30	91	91	91	91	90	87	84	79	73	67	63	59	56	
	40	81	81	81	81	81	81	81	79	73	67	63	59	56	
	50	73	73	73	73	73	73	73	73	73	67	63	59	56	
	60	67	67	67	67	67	67	67	67	67	67	63	59	56	
	70	63	63	63	63	63	63	63	63	63	63	63	59	56	
	80	59	59	59	59	59	59	59	59	59	59	59	59	56	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	96	92	88	85	82	79	74	67	62	58	54	51	48	
	10	96	92	88	85	82	79	74	67	62	58	54	51	48	
	20	91	91	88	85	82	79	74	67	62	58	54	51	48	
	30	91	91	88	85	82	79	74	67	62	58	54	51	48	
	40	81	81	81	81	81	79	74	67	62	58	54	51	48	
	50	73	73	73	73	73	73	73	67	62	58	54	51	48	
	60	67	67	67	67	67	67	67	67	62	58	54	51	48	
	70	63	63	63	63	63	63	63	63	62	58	54	51	48	
	80	59	59	59	59	59	59	59	59	59	58	54	51	48	
	90	56	56	56	56	56	56	56	56	56	56	54	51	48	
Zones 2e & 3	0	93	89	85	82	79	75	71	64	60	55	52	49	46	
	10	93	89	85	82	79	75	71	64	60	55	52	49	46	
	20	91	89	85	82	79	75	71	64	60	55	52	49	46	
	30	91	89	85	82	79	75	71	64	60	55	52	49	46	
	40	81	81	81	81	79	75	71	64	60	55	52	49	46	
	50	73	73	73	73	73	73	71	64	60	55	52	49	46	
	60	67	67	67	67	67	67	67	64	60	55	52	49	46	
	70	63	63	63	63	63	63	63	63	60	55	52	49	46	
	80	59	59	59	59	59	59	59	59	59	55	52	49	46	
	90	56	56	56	56	56	56	56	56	56	55	52	49	46	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 183a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	117	112	107	103	99	96	92	87	82	77	72	67	63
	10	112	110	107	103	99	96	92	87	82	77	72	67	63
	20	91	91	91	91	91	91	90	87	82	77	72	67	63
	30	91	91	91	91	91	91	90	87	82	77	72	67	63
	40	81	81	81	81	81	81	81	80	78	77	72	67	63
	50	73	73	73	73	73	73	73	73	73	71	70	67	63
	60	67	67	67	67	67	67	67	67	67	67	66	65	63
	70	63	63	63	63	63	63	63	63	63	63	63	62	61
	80	59	59	59	59	59	59	59	59	59	59	59	59	58
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	107	102	98	94	90	87	84	78	71	65	61	57	54
	10	107	102	98	94	90	87	84	78	71	65	61	57	54
	20	91	91	91	91	90	87	84	78	71	65	61	57	54
	30	91	91	91	91	90	87	84	78	71	65	61	57	54
	40	81	81	81	81	81	81	81	78	71	65	61	57	54
	50	73	73	73	73	73	73	73	73	71	65	61	57	54
	60	67	67	67	67	67	67	67	67	67	65	61	57	54
	70	63	63	63	63	63	63	63	63	63	63	61	57	54
	80	59	59	59	59	59	59	59	59	59	59	59	57	54
	90	56	56	56	56	56	56	56	56	56	56	56	56	54
Zones 2e & 3	0	103	99	94	90	87	84	81	74	68	63	59	55	52
	10	103	99	94	90	87	84	81	74	68	63	59	55	52
	20	91	91	91	90	87	84	81	74	68	63	59	55	52
	30	91	91	91	90	87	84	81	74	68	63	59	55	52
	40	81	81	81	81	81	81	81	74	68	63	59	55	52
	50	73	73	73	73	73	73	73	73	68	63	59	55	52
	60	67	67	67	67	67	67	67	67	67	63	59	55	52
	70	63	63	63	63	63	63	63	63	63	63	59	55	52
	80	59	59	59	59	59	59	59	59	59	59	59	55	52
	90	56	56	56	56	56	56	56	56	56	56	56	55	52

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 183b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		Y _E = 1.5			
		Exposure Category: D								Roof Type : Hip		h/B = ≥ 0.8			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	99	95	91	88	84	82	79	72	66	62	58	54	51	
	10	99	95	91	88	84	82	79	72	66	62	58	54	51	
	20	91	91	91	88	84	82	79	72	66	62	58	54	51	
	30	91	91	91	88	84	82	79	72	66	62	58	54	51	
	40	81	81	81	81	81	81	79	72	66	62	58	54	51	
	50	73	73	73	73	73	73	73	72	66	62	58	54	51	
	60	67	67	67	67	67	67	67	67	66	62	58	54	51	
	70	63	63	63	63	63	63	63	63	63	62	58	54	51	
	80	59	59	59	59	59	59	59	59	59	59	58	54	51	
	90	56	56	56	56	56	56	56	56	56	56	56	54	51	
Zone 2r	0	90	86	82	79	75	70	67	62	57	53	50	47	44	
	10	90	86	82	79	75	70	67	62	57	53	50	47	44	
	20	90	86	82	79	75	70	67	62	57	53	50	47	44	
	30	90	86	82	79	75	70	67	62	57	53	50	47	44	
	40	81	81	81	79	75	70	67	62	57	53	50	47	44	
	50	73	73	73	73	73	70	67	62	57	53	50	47	44	
	60	67	67	67	67	67	67	67	62	57	53	50	47	44	
	70	63	63	63	63	63	63	63	62	57	53	50	47	44	
	80	59	59	59	59	59	59	59	59	57	53	50	47	44	
	90	56	56	56	56	56	56	56	56	56	53	50	47	44	
Zones 2e & 3	0	87	83	80	75	71	67	64	59	55	51	48	45	42	
	10	87	83	80	75	71	67	64	59	55	51	48	45	42	
	20	87	83	80	75	71	67	64	59	55	51	48	45	42	
	30	87	83	80	75	71	67	64	59	55	51	48	45	42	
	40	81	81	80	75	71	67	64	59	55	51	48	45	42	
	50	73	73	73	73	71	67	64	59	55	51	48	45	42	
	60	67	67	67	67	67	67	64	59	55	51	48	45	42	
	70	63	63	63	63	63	63	63	59	55	51	48	45	42	
	80	59	59	59	59	59	59	59	59	55	51	48	45	42	
	90	56	56	56	56	56	56	56	56	55	51	48	45	42	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 184a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation:			Landscape		
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support			Y _E = 1		
		Exposure Category: B							Roof Type : Hip			h/B = ≤ 0.5		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	121	121	121	115	108	102	98	93
	10	115	114	113	112	111	110	109	108	106	104	102	98	93
	20	91	91	91	91	91	91	91	91	91	89	88	86	85
	30	91	91	91	91	91	91	91	91	91	89	88	86	85
	40	81	81	81	81	81	81	81	81	81	81	80	79	78
	50	73	73	73	73	73	73	73	73	73	73	73	73	72
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	121	121	121	117	112	108	104	97	91	86	81	77	71
	10	115	114	113	112	111	108	104	97	91	86	81	77	71
	20	91	91	91	91	91	91	91	91	91	86	81	77	71
	30	91	91	91	91	91	91	91	91	91	86	81	77	71
	40	81	81	81	81	81	81	81	81	81	81	80	77	71
	50	73	73	73	73	73	73	73	73	73	73	73	73	71
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e & 3	0	121	121	121	121	121	121	117	109	102	96	91	87	83
	10	115	114	113	112	111	110	109	108	102	96	91	87	83
	20	91	91	91	91	91	91	91	91	91	89	88	86	83
	30	91	91	91	91	91	91	91	91	91	89	88	86	83
	40	81	81	81	81	81	81	81	81	81	81	80	79	78
	50	73	73	73	73	73	73	73	73	73	73	73	73	72
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 184b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	118	114	110	103	97	92	87	83	80
	10	115	114	113	112	111	110	109	103	97	92	87	83	80
	20	91	91	91	91	91	91	91	91	91	89	87	83	80
	30	91	91	91	91	91	91	91	91	91	89	87	83	80
	40	81	81	81	81	81	81	81	81	81	81	80	79	78
	50	73	73	73	73	73	73	73	73	73	73	73	73	72
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	112	107	102	98	94	90	87	82	76	69	64	61	57
	10	112	107	102	98	94	90	87	82	76	69	64	61	57
	20	91	91	91	91	91	90	87	82	76	69	64	61	57
	30	91	91	91	91	91	90	87	82	76	69	64	61	57
	40	81	81	81	81	81	81	81	81	76	69	64	61	57
	50	73	73	73	73	73	73	73	73	73	69	64	61	57
	60	67	67	67	67	67	67	67	67	67	67	64	61	57
	70	63	63	63	63	63	63	63	63	63	63	63	61	57
	80	59	59	59	59	59	59	59	59	59	59	59	59	57
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e & 3	0	121	121	115	110	106	102	98	92	86	82	77	71	66
	10	115	114	113	110	106	102	98	92	86	82	77	71	66
	20	91	91	91	91	91	91	91	91	86	82	77	71	66
	30	91	91	91	91	91	91	91	91	86	82	77	71	66
	40	81	81	81	81	81	81	81	81	81	81	77	71	66
	50	73	73	73	73	73	73	73	73	73	73	73	71	66
	60	67	67	67	67	67	67	67	67	67	67	67	67	66
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 185a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		Y _E = 1			
		Exposure Category: C								Roof Type : Hip		h/B = ≤ 0.5			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	117	113	106	100	94	90	85	82	
	10	112	111	110	109	108	106	105	103	100	94	90	85	82	
	20	91	91	91	91	91	91	91	89	87	85	83	82	80	
	30	91	91	91	91	91	91	91	89	87	85	83	82	80	
	40	81	81	81	81	81	81	81	81	80	78	77	75	74	
	50	73	73	73	73	73	73	73	73	73	73	72	70	69	
	60	67	67	67	67	67	67	67	67	67	67	67	66	65	
	70	63	63	63	63	63	63	63	63	63	63	63	63	62	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	115	110	105	101	97	93	90	84	79	72	67	63	59	
	10	112	110	105	101	97	93	90	84	79	72	67	63	59	
	20	91	91	91	91	91	91	90	84	79	72	67	63	59	
	30	91	91	91	91	91	91	90	84	79	72	67	63	59	
	40	81	81	81	81	81	81	81	81	79	72	67	63	59	
	50	73	73	73	73	73	73	73	73	73	72	67	63	59	
	60	67	67	67	67	67	67	67	67	67	67	67	63	59	
	70	63	63	63	63	63	63	63	63	63	63	63	63	59	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e & 3	0	121	121	119	114	109	105	101	94	89	84	80	74	69	
	10	112	111	110	109	108	105	101	94	89	84	80	74	69	
	20	91	91	91	91	91	91	91	89	87	84	80	74	69	
	30	91	91	91	91	91	91	91	89	87	84	80	74	69	
	40	81	81	81	81	81	81	81	81	80	78	77	74	69	
	50	73	73	73	73	73	73	73	73	73	73	72	70	69	
	60	67	67	67	67	67	67	67	67	67	67	67	66	65	
	70	63	63	63	63	63	63	63	63	63	63	63	63	62	
	80	59	59	59	59	59	59	59	59	59	59	59	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 185b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation:			Landscape		
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support			Y _E = 1.5		
		Exposure Category: C							Roof Type : Hip			h/B = ≤ 0.5		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	116	111	107	103	99	96	90	85	80	76	70	66
	10	112	111	110	107	103	99	96	90	85	80	76	70	66
	20	91	91	91	91	91	91	91	89	85	80	76	70	66
	30	91	91	91	91	91	91	91	89	85	80	76	70	66
	40	81	81	81	81	81	81	81	81	80	78	76	70	66
	50	73	73	73	73	73	73	73	73	73	73	72	70	66
	60	67	67	67	67	67	67	67	67	67	67	67	66	65
	70	63	63	63	63	63	63	63	63	63	63	63	63	62
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	96	92	88	85	82	79	74	67	62	58	54	51	48
	10	96	92	88	85	82	79	74	67	62	58	54	51	48
	20	91	91	88	85	82	79	74	67	62	58	54	51	48
	30	91	91	88	85	82	79	74	67	62	58	54	51	48
	40	81	81	81	81	81	79	74	67	62	58	54	51	48
	50	73	73	73	73	73	73	73	67	62	58	54	51	48
	60	67	67	67	67	67	67	67	67	62	58	54	51	48
	70	63	63	63	63	63	63	63	63	62	58	54	51	48
	80	59	59	59	59	59	59	59	59	59	58	54	51	48
	90	56	56	56	56	56	56	56	56	56	56	54	51	48
Zones 2e & 3	0	109	104	99	95	92	88	85	80	73	67	63	59	56
	10	109	104	99	95	92	88	85	80	73	67	63	59	56
	20	91	91	91	91	91	88	85	80	73	67	63	59	56
	30	91	91	91	91	91	88	85	80	73	67	63	59	56
	40	81	81	81	81	81	81	81	80	73	67	63	59	56
	50	73	73	73	73	73	73	73	73	73	67	63	59	56
	60	67	67	67	67	67	67	67	67	67	67	63	59	56
	70	63	63	63	63	63	63	63	63	63	63	63	59	56
	80	59	59	59	59	59	59	59	59	59	59	59	59	56
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 186a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape		
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		Y _E = 1		
		Exposure Category: D								Roof Type : Hip		h/B = ≤ 0.5		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	118	113	109	105	99	93	88	84	80	76
	10	110	109	108	107	105	104	103	99	93	88	84	80	76
	20	91	91	91	91	91	90	89	87	85	83	81	79	76
	30	91	91	91	91	91	90	89	87	85	83	81	79	76
	40	81	81	81	81	81	81	81	79	78	76	75	73	71
	50	73	73	73	73	73	73	73	73	72	71	70	68	67
	60	67	67	67	67	67	67	67	67	67	67	66	65	64
	70	63	63	63	63	63	63	63	63	63	63	63	62	61
	80	59	59	59	59	59	59	59	59	59	59	59	59	58
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	107	102	98	94	90	87	84	78	71	65	61	57	54
	10	107	102	98	94	90	87	84	78	71	65	61	57	54
	20	91	91	91	91	90	87	84	78	71	65	61	57	54
	30	91	91	91	91	90	87	84	78	71	65	61	57	54
	40	81	81	81	81	81	81	81	78	71	65	61	57	54
	50	73	73	73	73	73	73	73	73	71	65	61	57	54
	60	67	67	67	67	67	67	67	67	67	65	61	57	54
	70	63	63	63	63	63	63	63	63	63	63	61	57	54
	80	59	59	59	59	59	59	59	59	59	59	59	57	54
	90	56	56	56	56	56	56	56	56	56	56	56	56	54
Zones 2e & 3	0	121	115	110	105	101	98	94	88	83	78	72	67	63
	10	110	109	108	105	101	98	94	88	83	78	72	67	63
	20	91	91	91	91	91	90	89	87	83	78	72	67	63
	30	91	91	91	91	91	90	89	87	83	78	72	67	63
	40	81	81	81	81	81	81	81	79	78	76	72	67	63
	50	73	73	73	73	73	73	73	73	72	71	70	67	63
	60	67	67	67	67	67	67	67	67	67	67	66	65	63
	70	63	63	63	63	63	63	63	63	63	63	63	62	61
	80	59	59	59	59	59	59	59	59	59	59	59	59	58
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 186b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape						
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support X _E = 1.5						
		Exposure Category: D							Roof Type : Hip h/B = ≤ 0.5						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	113	108	104	100	96	93	90	84	80	74	68	64	60	
	10	110	108	104	100	96	93	90	84	80	74	68	64	60	
	20	91	91	91	91	91	90	89	84	80	74	68	64	60	
	30	91	91	91	91	91	90	89	84	80	74	68	64	60	
	40	81	81	81	81	81	81	81	79	78	74	68	64	60	
	50	73	73	73	73	73	73	73	73	72	71	68	64	60	
	60	67	67	67	67	67	67	67	67	67	67	66	64	60	
	70	63	63	63	63	63	63	63	63	63	63	63	62	60	
	80	59	59	59	59	59	59	59	59	59	59	59	59	58	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	90	86	82	79	75	70	67	62	57	53	50	47	44	
	10	90	86	82	79	75	70	67	62	57	53	50	47	44	
	20	90	86	82	79	75	70	67	62	57	53	50	47	44	
	30	90	86	82	79	75	70	67	62	57	53	50	47	44	
	40	81	81	81	79	75	70	67	62	57	53	50	47	44	
	50	73	73	73	73	73	70	67	62	57	53	50	47	44	
	60	67	67	67	67	67	67	67	62	57	53	50	47	44	
	70	63	63	63	63	63	63	63	62	57	53	50	47	44	
	80	59	59	59	59	59	59	59	59	57	53	50	47	44	
	90	56	56	56	56	56	56	56	56	56	53	50	47	44	
Zones 2e & 3	0	101	97	92	89	85	82	80	72	66	62	58	54	51	
	10	101	97	92	89	85	82	80	72	66	62	58	54	51	
	20	91	91	91	89	85	82	80	72	66	62	58	54	51	
	30	91	91	91	89	85	82	80	72	66	62	58	54	51	
	40	81	81	81	81	81	81	80	72	66	62	58	54	51	
	50	73	73	73	73	73	73	73	72	66	62	58	54	51	
	60	67	67	67	67	67	67	67	67	66	62	58	54	51	
	70	63	63	63	63	63	63	63	63	63	62	58	54	51	
	80	59	59	59	59	59	59	59	59	59	59	58	54	51	
	90	56	56	56	56	56	56	56	56	56	56	56	54	51	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 187a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	121	121	121	116	109	102	97	92
	10	121	121	121	121	121	121	121	118	116	109	102	97	92
	20	107	107	107	107	107	107	107	106	104	102	100	97	92
	30	92	92	92	92	92	92	92	92	92	91	89	88	86
	40	81	81	81	81	81	81	81	81	81	81	81	80	79
	50	74	74	74	74	74	74	74	74	74	74	74	74	73
	60	68	68	68	68	68	68	68	68	68	68	68	68	68
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	121	121	121	121	121	117	113	105	98	93	88	83	80
	10	121	121	121	121	121	117	113	105	98	93	88	83	80
	20	107	107	107	107	107	107	107	105	98	93	88	83	80
	30	92	92	92	92	92	92	92	92	92	91	88	83	80
	40	81	81	81	81	81	81	81	81	81	81	81	80	79
	50	74	74	74	74	74	74	74	74	74	74	74	74	73
	60	68	68	68	68	68	68	68	68	68	68	68	68	68
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 187b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape						
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5						
		Exposure Category: B							Roof Type : Hip						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	120	115	111	103	96	91	86	82	78	
	10	121	121	121	121	120	115	111	103	96	91	86	82	78	
	20	107	107	107	107	107	107	107	103	96	91	86	82	78	
	30	92	92	92	92	92	92	92	92	92	91	86	82	78	
	40	81	81	81	81	81	81	81	81	81	81	81	80	78	
	50	74	74	74	74	74	74	74	74	74	74	74	74	73	
	60	68	68	68	68	68	68	68	68	68	68	68	68	68	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e, 2r, & 3	0	121	116	110	106	102	98	94	88	83	78	72	67	63	
	10	121	116	110	106	102	98	94	88	83	78	72	67	63	
	20	107	107	107	106	102	98	94	88	83	78	72	67	63	
	30	92	92	92	92	92	92	92	88	83	78	72	67	63	
	40	81	81	81	81	81	81	81	81	81	78	72	67	63	
	50	74	74	74	74	74	74	74	74	74	74	72	67	63	
	60	68	68	68	68	68	68	68	68	68	68	68	67	63	
	70	63	63	63	63	63	63	63	63	63	63	63	63	63	
	80	60	60	60	60	60	60	60	60	60	60	60	60	60	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 188a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	119	114	106	99	94	89	84	80
	10	121	121	121	120	118	117	114	106	99	94	89	84	80
	20	107	107	107	107	106	105	104	101	99	94	89	84	80
	30	92	92	92	92	92	92	92	90	88	86	84	83	80
	40	81	81	81	81	81	81	81	81	80	79	78	76	74
	50	74	74	74	74	74	74	74	74	74	73	72	71	70
	60	68	68	68	68	68	68	68	68	68	68	68	67	66
	70	63	63	63	63	63	63	63	63	63	63	63	63	62
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	121	120	114	109	105	101	97	91	85	80	76	70	65
	10	121	120	114	109	105	101	97	91	85	80	76	70	65
	20	107	107	107	107	105	101	97	91	85	80	76	70	65
	30	92	92	92	92	92	92	92	90	85	80	76	70	65
	40	81	81	81	81	81	81	81	81	80	79	76	70	65
	50	74	74	74	74	74	74	74	74	74	73	72	70	65
	60	68	68	68	68	68	68	68	68	68	68	68	67	65
	70	63	63	63	63	63	63	63	63	63	63	63	63	62
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 188b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	118	112	107	103	99	95	89	84	79	73	68	64
	10	121	118	112	107	103	99	95	89	84	79	73	68	64
	20	107	107	107	107	103	99	95	89	84	79	73	68	64
	30	92	92	92	92	92	92	92	89	84	79	73	68	64
	40	81	81	81	81	81	81	81	81	80	79	73	68	64
	50	74	74	74	74	74	74	74	74	74	73	72	68	64
	60	68	68	68	68	68	68	68	68	68	68	68	67	64
	70	63	63	63	63	63	63	63	63	63	63	63	63	62
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	104	100	95	91	88	85	82	76	69	64	60	56	53
	10	104	100	95	91	88	85	82	76	69	64	60	56	53
	20	104	100	95	91	88	85	82	76	69	64	60	56	53
	30	92	92	92	91	88	85	82	76	69	64	60	56	53
	40	81	81	81	81	81	81	81	76	69	64	60	56	53
	50	74	74	74	74	74	74	74	74	69	64	60	56	53
	60	68	68	68	68	68	68	68	68	68	64	60	56	53
	70	63	63	63	63	63	63	63	63	63	63	60	56	53
	80	60	60	60	60	60	60	60	60	60	60	60	56	53
	90	56	56	56	56	56	56	56	56	56	56	56	56	53

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 189a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	120	114	110	106	98	92	87	83	79	73
	10	121	120	119	117	114	110	106	98	92	87	83	79	73
	20	107	107	106	105	104	103	101	98	92	87	83	79	73
	30	92	92	92	92	92	91	90	88	86	84	82	79	73
	40	81	81	81	81	81	81	81	80	79	77	75	74	72
	50	74	74	74	74	74	74	74	74	73	72	70	69	67
	60	68	68	68	68	68	68	68	68	68	67	66	65	64
	70	63	63	63	63	63	63	63	63	63	63	63	62	61
	80	60	60	60	60	60	60	60	60	60	60	60	59	58
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	116	111	106	101	97	94	90	84	79	74	68	63	60
	10	116	111	106	101	97	94	90	84	79	74	68	63	60
	20	107	107	106	101	97	94	90	84	79	74	68	63	60
	30	92	92	92	92	92	91	90	84	79	74	68	63	60
	40	81	81	81	81	81	81	81	80	79	74	68	63	60
	50	74	74	74	74	74	74	74	74	73	72	68	63	60
	60	68	68	68	68	68	68	68	68	68	67	66	63	60
	70	63	63	63	63	63	63	63	63	63	63	63	62	60
	80	60	60	60	60	60	60	60	60	60	60	60	59	58
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 189b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	114	109	104	99	95	92	89	83	78	71	66	62	58
	10	114	109	104	99	95	92	89	83	78	71	66	62	58
	20	107	107	104	99	95	92	89	83	78	71	66	62	58
	30	92	92	92	92	92	91	89	83	78	71	66	62	58
	40	81	81	81	81	81	81	81	80	78	71	66	62	58
	50	74	74	74	74	74	74	74	74	73	71	66	62	58
	60	68	68	68	68	68	68	68	68	68	67	66	62	58
	70	63	63	63	63	63	63	63	63	63	63	63	62	58
	80	60	60	60	60	60	60	60	60	60	60	60	59	58
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	97	93	89	85	82	79	76	68	63	58	55	51	48
	10	97	93	89	85	82	79	76	68	63	58	55	51	48
	20	97	93	89	85	82	79	76	68	63	58	55	51	48
	30	92	92	89	85	82	79	76	68	63	58	55	51	48
	40	81	81	81	81	81	79	76	68	63	58	55	51	48
	50	74	74	74	74	74	74	74	68	63	58	55	51	48
	60	68	68	68	68	68	68	68	68	63	58	55	51	48
	70	63	63	63	63	63	63	63	63	63	58	55	51	48
	80	60	60	60	60	60	60	60	60	60	58	55	51	48
	90	56	56	56	56	56	56	56	56	56	56	55	51	48

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 190a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support		X _E = 1			
		Exposure Category: B								Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	121	121	121	121	113	107	102	97	
	10	121	121	121	121	121	121	121	121	121	113	107	102	97	
	20	110	110	110	110	110	110	110	110	110	109	107	102	97	
	30	97	97	97	97	97	97	97	97	97	97	95	94	93	
	40	86	86	86	86	86	86	86	86	86	86	86	86	85	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2e	0	121	121	121	121	121	121	121	121	115	108	101	96	91	
	10	121	121	121	121	121	121	121	121	115	108	101	96	91	
	20	110	110	110	110	110	110	110	110	110	108	101	96	91	
	30	97	97	97	97	97	97	97	97	97	97	95	94	91	
	40	86	86	86	86	86	86	86	86	86	86	86	86	85	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2r	0	121	121	121	121	121	121	117	109	102	96	90	86	82	
	10	121	121	121	121	121	121	117	109	102	96	90	86	82	
	20	110	110	110	110	110	110	110	109	102	96	90	86	82	
	30	97	97	97	97	97	97	97	97	97	96	90	86	82	
	40	86	86	86	86	86	86	86	86	86	86	86	86	82	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 3	0	121	121	121	121	121	121	117	108	101	94	89	84	80	
	10	121	121	121	121	121	121	117	108	101	94	89	84	80	
	20	110	110	110	110	110	110	110	108	101	94	89	84	80	
	30	97	97	97	97	97	97	97	97	97	94	89	84	80	
	40	86	86	86	86	86	86	86	86	86	86	86	84	80	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 190b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support		X _E = 1.5			
		Exposure Category: B								Roof Type :		Hip			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	121	121	120	115	108	101	95	90	86	82	
	10	121	121	121	121	121	120	115	108	101	95	90	86	82	
	20	110	110	110	110	110	110	110	108	101	95	90	86	82	
	30	97	97	97	97	97	97	97	97	97	95	90	86	82	
	40	86	86	86	86	86	86	86	86	86	86	86	86	82	
	50	78	78	78	78	78	78	78	78	78	78	78	78	78	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2e	0	121	121	121	121	120	115	110	102	95	89	84	80	76	
	10	121	121	121	121	120	115	110	102	95	89	84	80	76	
	20	110	110	110	110	110	110	110	102	95	89	84	80	76	
	30	97	97	97	97	97	97	97	97	95	89	84	80	76	
	40	86	86	86	86	86	86	86	86	86	86	84	80	76	
	50	78	78	78	78	78	78	78	78	78	78	78	78	76	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2r	0	121	120	115	110	105	101	97	91	85	80	76	70	65	
	10	121	120	115	110	105	101	97	91	85	80	76	70	65	
	20	110	110	110	110	105	101	97	91	85	80	76	70	65	
	30	97	97	97	97	97	97	97	91	85	80	76	70	65	
	40	86	86	86	86	86	86	86	86	85	80	76	70	65	
	50	78	78	78	78	78	78	78	78	78	78	76	70	65	
	60	72	72	72	72	72	72	72	72	72	72	72	70	65	
	70	67	67	67	67	67	67	67	67	67	67	67	67	65	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 3	0	121	121	115	109	105	100	96	89	84	79	73	66	62	
	10	121	121	115	109	105	100	96	89	84	79	73	66	62	
	20	110	110	110	109	105	100	96	89	84	79	73	66	62	
	30	97	97	97	97	97	97	96	89	84	79	73	66	62	
	40	86	86	86	86	86	86	86	86	84	79	73	66	62	
	50	78	78	78	78	78	78	78	78	78	78	73	66	62	
	60	72	72	72	72	72	72	72	72	72	72	72	66	62	
	70	67	67	67	67	67	67	67	67	67	67	67	66	62	
	80	63	63	63	63	63	63	63	63	63	63	63	63	62	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 191a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Landscape				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	120	116	108	101	95	90	86	82
	10	121	121	121	121	121	120	116	108	101	95	90	86	82
	20	110	110	110	110	110	110	109	107	101	95	90	86	82
	30	97	97	97	97	97	97	97	96	94	92	90	86	82
	40	86	86	86	86	86	86	86	86	86	84	83	82	80
	50	78	78	78	78	78	78	78	78	78	78	77	76	75
	60	72	72	72	72	72	72	72	72	72	72	72	71	70
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2e	0	121	121	121	121	120	115	110	102	95	90	85	80	76
	10	121	121	121	121	120	115	110	102	95	90	85	80	76
	20	110	110	110	110	110	110	109	102	95	90	85	80	76
	30	97	97	97	97	97	97	97	96	94	90	85	80	76
	40	86	86	86	86	86	86	86	86	86	84	83	80	76
	50	78	78	78	78	78	78	78	78	78	78	77	76	75
	60	72	72	72	72	72	72	72	72	72	72	72	71	70
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2r	0	121	121	115	110	105	101	98	91	85	81	76	70	65
	10	121	121	115	110	105	101	98	91	85	81	76	70	65
	20	110	110	110	110	105	101	98	91	85	81	76	70	65
	30	97	97	97	97	97	97	97	91	85	81	76	70	65
	40	86	86	86	86	86	86	86	86	85	81	76	70	65
	50	78	78	78	78	78	78	78	78	78	78	76	70	65
	60	72	72	72	72	72	72	72	72	72	72	72	70	65
	70	67	67	67	67	67	67	67	67	67	67	67	67	65
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 3	0	121	121	115	110	105	100	97	90	84	79	73	67	62
	10	121	121	115	110	105	100	97	90	84	79	73	67	62
	20	110	110	110	110	105	100	97	90	84	79	73	67	62
	30	97	97	97	97	97	97	97	90	84	79	73	67	62
	40	86	86	86	86	86	86	86	86	84	79	73	67	62
	50	78	78	78	78	78	78	78	78	78	78	73	67	62
	60	72	72	72	72	72	72	72	72	72	72	72	67	62
	70	67	67	67	67	67	67	67	67	67	67	67	67	62
	80	63	63	63	63	63	63	63	63	63	63	63	63	62
	90	60	60	60	60	60	60	60	60	60	60	60	60	60

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 191b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Landscape					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1.5					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	119	114	109	105	101	97	91	85	81	77	71	66
	10	121	119	114	109	105	101	97	91	85	81	77	71	66
	20	110	110	110	109	105	101	97	91	85	81	77	71	66
	30	97	97	97	97	97	97	97	91	85	81	77	71	66
	40	86	86	86	86	86	86	86	86	85	81	77	71	66
	50	78	78	78	78	78	78	78	78	78	78	77	71	66
	60	72	72	72	72	72	72	72	72	72	72	72	71	66
	70	67	67	67	67	67	67	67	67	67	67	67	67	66
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2e	0	120	114	108	103	99	95	91	85	80	74	67	62	58
	10	120	114	108	103	99	95	91	85	80	74	67	62	58
	20	110	110	108	103	99	95	91	85	80	74	67	62	58
	30	97	97	97	97	97	95	91	85	80	74	67	62	58
	40	86	86	86	86	86	86	86	85	80	74	67	62	58
	50	78	78	78	78	78	78	78	78	78	74	67	62	58
	60	72	72	72	72	72	72	72	72	72	72	67	62	58
	70	67	67	67	67	67	67	67	67	67	67	67	62	58
	80	63	63	63	63	63	63	63	63	63	63	63	62	58
	90	60	60	60	60	60	60	60	60	60	60	60	60	58
Zone 2r	0	105	100	96	92	88	85	82	77	69	64	59	55	51
	10	105	100	96	92	88	85	82	77	69	64	59	55	51
	20	105	100	96	92	88	85	82	77	69	64	59	55	51
	30	97	97	96	92	88	85	82	77	69	64	59	55	51
	40	86	86	86	86	86	85	82	77	69	64	59	55	51
	50	78	78	78	78	78	78	78	77	69	64	59	55	51
	60	72	72	72	72	72	72	72	72	69	64	59	55	51
	70	67	67	67	67	67	67	67	67	67	64	59	55	51
	80	63	63	63	63	63	63	63	63	63	63	59	55	51
	90	60	60	60	60	60	60	60	60	60	60	59	55	51
Zone 3	0	105	99	95	91	87	83	80	74	66	60	55	51	48
	10	105	99	95	91	87	83	80	74	66	60	55	51	48
	20	105	99	95	91	87	83	80	74	66	60	55	51	48
	30	97	97	95	91	87	83	80	74	66	60	55	51	48
	40	86	86	86	86	86	83	80	74	66	60	55	51	48
	50	78	78	78	78	78	78	78	74	66	60	55	51	48
	60	72	72	72	72	72	72	72	72	66	60	55	51	48
	70	67	67	67	67	67	67	67	67	66	60	55	51	48
	80	63	63	63	63	63	63	63	63	63	60	55	51	48
	90	60	60	60	60	60	60	60	60	60	60	55	51	48

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 192a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support		X _E = 1			
		Exposure Category: D								Roof Type :		Hip			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	120	115	110	106	99	93	88	83	79	76	
	10	121	121	121	120	115	110	106	99	93	88	83	79	76	
	20	110	110	110	110	109	108	106	99	93	88	83	79	76	
	30	97	97	97	97	97	96	95	93	91	88	83	79	76	
	40	86	86	86	86	86	86	86	85	84	82	81	79	76	
	50	78	78	78	78	78	78	78	78	78	77	75	74	72	
	60	72	72	72	72	72	72	72	72	72	72	71	70	68	
	70	67	67	67	67	67	67	67	67	67	67	67	66	65	
	80	63	63	63	63	63	63	63	63	63	63	63	63	62	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2e	0	121	121	120	114	109	105	101	94	88	82	78	72	67	
	10	121	121	120	114	109	105	101	94	88	82	78	72	67	
	20	110	110	110	110	109	105	101	94	88	82	78	72	67	
	30	97	97	97	97	97	96	95	93	88	82	78	72	67	
	40	86	86	86	86	86	86	86	85	84	82	78	72	67	
	50	78	78	78	78	78	78	78	78	78	77	75	72	67	
	60	72	72	72	72	72	72	72	72	72	72	71	70	67	
	70	67	67	67	67	67	67	67	67	67	67	67	66	65	
	80	63	63	63	63	63	63	63	63	63	63	63	63	62	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2r	0	116	110	105	101	97	93	90	84	79	73	67	62	58	
	10	116	110	105	101	97	93	90	84	79	73	67	62	58	
	20	110	110	105	101	97	93	90	84	79	73	67	62	58	
	30	97	97	97	97	97	93	90	84	79	73	67	62	58	
	40	86	86	86	86	86	86	86	84	79	73	67	62	58	
	50	78	78	78	78	78	78	78	78	78	73	67	62	58	
	60	72	72	72	72	72	72	72	72	72	72	67	62	58	
	70	67	67	67	67	67	67	67	67	67	67	67	62	58	
	80	63	63	63	63	63	63	63	63	63	63	63	62	58	
	90	60	60	60	60	60	60	60	60	60	60	60	60	58	
Zone 3	0	116	110	105	100	96	92	88	82	77	70	64	59	55	
	10	116	110	105	100	96	92	88	82	77	70	64	59	55	
	20	110	110	105	100	96	92	88	82	77	70	64	59	55	
	30	97	97	97	97	96	92	88	82	77	70	64	59	55	
	40	86	86	86	86	86	86	86	82	77	70	64	59	55	
	50	78	78	78	78	78	78	78	78	77	70	64	59	55	
	60	72	72	72	72	72	72	72	72	72	70	64	59	55	
	70	67	67	67	67	67	67	67	67	67	67	64	59	55	
	80	63	63	63	63	63	63	63	63	63	63	63	59	55	
	90	60	60	60	60	60	60	60	60	60	60	60	59	55	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 192b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation:		Landscape			
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support		X _E = 1.5			
		Exposure Category: D								Roof Type :		Hip			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	115	109	104	100	96	93	90	84	79	74	68	63	60	
	10	115	109	104	100	96	93	90	84	79	74	68	63	60	
	20	110	109	104	100	96	93	90	84	79	74	68	63	60	
	30	97	97	97	97	96	93	90	84	79	74	68	63	60	
	40	86	86	86	86	86	86	86	84	79	74	68	63	60	
	50	78	78	78	78	78	78	78	78	78	74	68	63	60	
	60	72	72	72	72	72	72	72	72	72	72	68	63	60	
	70	67	67	67	67	67	67	67	67	67	67	67	63	60	
	80	63	63	63	63	63	63	63	63	63	63	63	63	60	
	90	60	60	60	60	60	60	60	60	60	60	60	60	60	
Zone 2e	0	109	104	99	95	91	87	84	78	71	65	60	55	51	
	10	109	104	99	95	91	87	84	78	71	65	60	55	51	
	20	109	104	99	95	91	87	84	78	71	65	60	55	51	
	30	97	97	97	95	91	87	84	78	71	65	60	55	51	
	40	86	86	86	86	86	86	84	78	71	65	60	55	51	
	50	78	78	78	78	78	78	78	78	71	65	60	55	51	
	60	72	72	72	72	72	72	72	72	71	65	60	55	51	
	70	67	67	67	67	67	67	67	67	67	65	60	55	51	
	80	63	63	63	63	63	63	63	63	63	63	60	55	51	
	90	60	60	60	60	60	60	60	60	60	60	60	55	51	
Zone 2r	0	97	92	88	85	81	78	75	67	62	57	52	49	46	
	10	97	92	88	85	81	78	75	67	62	57	52	49	46	
	20	97	92	88	85	81	78	75	67	62	57	52	49	46	
	30	97	92	88	85	81	78	75	67	62	57	52	49	46	
	40	86	86	86	85	81	78	75	67	62	57	52	49	46	
	50	78	78	78	78	78	78	75	67	62	57	52	49	46	
	60	72	72	72	72	72	72	72	67	62	57	52	49	46	
	70	67	67	67	67	67	67	67	67	62	57	52	49	46	
	80	63	63	63	63	63	63	63	63	62	57	52	49	46	
	90	60	60	60	60	60	60	60	60	60	57	52	49	46	
Zone 3	0	96	91	87	83	80	77	72	64	58	53	49	45	35	
	10	96	91	87	83	80	77	72	64	58	53	49	45	35	
	20	96	91	87	83	80	77	72	64	58	53	49	45	35	
	30	96	91	87	83	80	77	72	64	58	53	49	45	35	
	40	86	86	86	83	80	77	72	64	58	53	49	45	35	
	50	78	78	78	78	78	77	72	64	58	53	49	45	35	
	60	72	72	72	72	72	72	72	64	58	53	49	45	35	
	70	67	67	67	67	67	67	67	64	58	53	49	45	35	
	80	63	63	63	63	63	63	63	63	58	53	49	45	35	
	90	60	60	60	60	60	60	60	60	58	53	49	45	35	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 193a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	121	121	121	121	121	117	110	105	100
	10	115	115	115	115	115	115	115	115	113	112	110	105	100
	20	96	96	96	96	96	96	96	96	96	96	96	96	95
	30	95	95	95	95	95	95	95	95	95	95	95	95	94
	40	86	86	86	86	86	86	86	86	86	86	86	86	86
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	121	121	121	121	119	114	110	103	96	91	86	82	78
	10	115	115	115	115	115	114	110	103	96	91	86	82	78
	20	96	96	96	96	96	96	96	96	96	91	86	82	78
	30	95	95	95	95	95	95	95	95	95	91	86	82	78
	40	86	86	86	86	86	86	86	86	86	86	86	82	78
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 2	0	121	118	113	108	104	100	96	90	85	80	75	69	65
	10	115	115	113	108	104	100	96	90	85	80	75	69	65
	20	96	96	96	96	96	96	96	90	85	80	75	69	65
	30	95	95	95	95	95	95	95	90	85	80	75	69	65
	40	86	86	86	86	86	86	86	86	85	80	75	69	65
	50	78	78	78	78	78	78	78	78	78	78	75	69	65
	60	72	72	72	72	72	72	72	72	72	72	72	69	65
	70	67	67	67	67	67	67	67	67	67	67	67	67	65
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 3	0	108	103	99	95	91	88	85	79	72	66	62	58	55
	10	108	103	99	95	91	88	85	79	72	66	62	58	55
	20	96	96	96	95	91	88	85	79	72	66	62	58	55
	30	95	95	95	95	91	88	85	79	72	66	62	58	55
	40	86	86	86	86	86	86	85	79	72	66	62	58	55
	50	78	78	78	78	78	78	78	78	72	66	62	58	55
	60	72	72	72	72	72	72	72	72	72	66	62	58	55
	70	67	67	67	67	67	67	67	67	67	66	62	58	55
	80	63	63	63	63	63	63	63	63	63	63	62	58	55
	90	59	59	59	59	59	59	59	59	59	59	59	58	55

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 193b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape		
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support		Y _E = 1.5		
		Exposure Category: B								Roof Type :		Gable		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	121	121	119	111	104	99	94	89	85
	10	115	115	115	115	115	115	115	111	104	99	94	89	85
	20	96	96	96	96	96	96	96	96	96	96	94	89	85
	30	95	95	95	95	95	95	95	95	95	95	94	89	85
	40	86	86	86	86	86	86	86	86	86	86	86	86	85
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	119	113	108	104	100	96	92	87	82	76	70	65	62
	10	115	113	108	104	100	96	92	87	82	76	70	65	62
	20	96	96	96	96	96	96	92	87	82	76	70	65	62
	30	95	95	95	95	95	95	92	87	82	76	70	65	62
	40	86	86	86	86	86	86	86	86	82	76	70	65	62
	50	78	78	78	78	78	78	78	78	78	76	70	65	62
	60	72	72	72	72	72	72	72	72	72	72	70	65	62
	70	67	67	67	67	67	67	67	67	67	67	67	65	62
	80	63	63	63	63	63	63	63	63	63	63	63	63	62
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 2	0	104	99	95	91	88	85	82	75	68	64	59	56	53
	10	104	99	95	91	88	85	82	75	68	64	59	56	53
	20	96	96	95	91	88	85	82	75	68	64	59	56	53
	30	95	95	95	91	88	85	82	75	68	64	59	56	53
	40	86	86	86	86	86	85	82	75	68	64	59	56	53
	50	78	78	78	78	78	78	78	75	68	64	59	56	53
	60	72	72	72	72	72	72	72	72	68	64	59	56	53
	70	67	67	67	67	67	67	67	67	67	64	59	56	53
	80	63	63	63	63	63	63	63	63	63	63	59	56	53
	90	59	59	59	59	59	59	59	59	59	59	59	56	53
Zone 3	0	91	87	83	80	75	71	68	62	58	54	50	47	44
	10	91	87	83	80	75	71	68	62	58	54	50	47	44
	20	91	87	83	80	75	71	68	62	58	54	50	47	44
	30	91	87	83	80	75	71	68	62	58	54	50	47	44
	40	86	86	83	80	75	71	68	62	58	54	50	47	44
	50	78	78	78	78	75	71	68	62	58	54	50	47	44
	60	72	72	72	72	72	71	68	62	58	54	50	47	44
	70	67	67	67	67	67	67	67	62	58	54	50	47	44
	80	63	63	63	63	63	63	63	62	58	54	50	47	44
	90	59	59	59	59	59	59	59	59	58	54	50	47	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 194a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	121	121	121	117	110	103	98	93	89
	10	115	115	115	115	115	114	114	112	110	103	98	93	89
	20	96	96	96	96	96	96	96	96	96	96	95	93	89
	30	95	95	95	95	95	95	95	95	95	95	94	93	89
	40	86	86	86	86	86	86	86	86	86	86	86	86	86
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	121	120	114	109	105	101	97	91	86	81	75	70	66
	10	115	115	114	109	105	101	97	91	86	81	75	70	66
	20	96	96	96	96	96	96	96	91	86	81	75	70	66
	30	95	95	95	95	95	95	95	91	86	81	75	70	66
	40	86	86	86	86	86	86	86	86	86	81	75	70	66
	50	78	78	78	78	78	78	78	78	78	78	75	70	66
	60	72	72	72	72	72	72	72	72	72	72	72	70	66
	70	67	67	67	67	67	67	67	67	67	67	67	67	66
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 2	0	109	104	100	96	92	89	86	80	74	68	63	59	56
	10	109	104	100	96	92	89	86	80	74	68	63	59	56
	20	96	96	96	96	92	89	86	80	74	68	63	59	56
	30	95	95	95	95	92	89	86	80	74	68	63	59	56
	40	86	86	86	86	86	86	86	80	74	68	63	59	56
	50	78	78	78	78	78	78	78	78	74	68	63	59	56
	60	72	72	72	72	72	72	72	72	72	68	63	59	56
	70	67	67	67	67	67	67	67	67	67	67	63	59	56
	80	63	63	63	63	63	63	63	63	63	63	63	59	56
	90	59	59	59	59	59	59	59	59	59	59	59	59	56
Zone 3	0	96	91	87	84	81	77	73	66	61	57	53	50	47
	10	96	91	87	84	81	77	73	66	61	57	53	50	47
	20	96	91	87	84	81	77	73	66	61	57	53	50	47
	30	95	91	87	84	81	77	73	66	61	57	53	50	47
	40	86	86	86	84	81	77	73	66	61	57	53	50	47
	50	78	78	78	78	78	77	73	66	61	57	53	50	47
	60	72	72	72	72	72	72	72	66	61	57	53	50	47
	70	67	67	67	67	67	67	67	66	61	57	53	50	47
	80	63	63	63	63	63	63	63	63	61	57	53	50	47
	90	59	59	59	59	59	59	59	59	59	57	53	50	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 194b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape			
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support		X _E = 1.5			
		Exposure Category: C								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1'	0	121	121	121	118	113	109	105	99	93	88	84	80	75	
	10	115	115	115	115	113	109	105	99	93	88	84	80	75	
	20	96	96	96	96	96	96	96	96	93	88	84	80	75	
	30	95	95	95	95	95	95	95	95	93	88	84	80	75	
	40	86	86	86	86	86	86	86	86	86	86	84	80	75	
	50	78	78	78	78	78	78	78	78	78	78	78	78	75	
	60	72	72	72	72	72	72	72	72	72	72	72	72	72	
	70	67	67	67	67	67	67	67	67	67	67	67	67	67	
	80	63	63	63	63	63	63	63	63	63	63	63	63	63	
	90	59	59	59	59	59	59	59	59	59	59	59	59	59	
Zone 1	0	105	100	96	92	88	85	82	76	69	64	60	56	53	
	10	105	100	96	92	88	85	82	76	69	64	60	56	53	
	20	96	96	96	92	88	85	82	76	69	64	60	56	53	
	30	95	95	95	92	88	85	82	76	69	64	60	56	53	
	40	86	86	86	86	86	85	82	76	69	64	60	56	53	
	50	78	78	78	78	78	78	78	76	69	64	60	56	53	
	60	72	72	72	72	72	72	72	72	69	64	60	56	53	
	70	67	67	67	67	67	67	67	67	67	64	60	56	53	
	80	63	63	63	63	63	63	63	63	63	63	60	56	53	
	90	59	59	59	59	59	59	59	59	59	59	59	56	53	
Zone 2	0	92	88	84	81	77	73	69	64	59	55	51	48	45	
	10	92	88	84	81	77	73	69	64	59	55	51	48	45	
	20	92	88	84	81	77	73	69	64	59	55	51	48	45	
	30	92	88	84	81	77	73	69	64	59	55	51	48	45	
	40	86	86	84	81	77	73	69	64	59	55	51	48	45	
	50	78	78	78	78	77	73	69	64	59	55	51	48	45	
	60	72	72	72	72	72	72	69	64	59	55	51	48	45	
	70	67	67	67	67	67	67	67	64	59	55	51	48	45	
	80	63	63	63	63	63	63	63	63	59	55	51	48	45	
	90	59	59	59	59	59	59	59	59	59	55	51	48	45	
Zone 3	0	81	76	71	67	64	61	58	54	50	46	43	41	38	
	10	81	76	71	67	64	61	58	54	50	46	43	41	38	
	20	81	76	71	67	64	61	58	54	50	46	43	41	38	
	30	81	76	71	67	64	61	58	54	50	46	43	41	38	
	40	81	76	71	67	64	61	58	54	50	46	43	41	38	
	50	78	76	71	67	64	61	58	54	50	46	43	41	38	
	60	72	72	71	67	64	61	58	54	50	46	43	41	38	
	70	67	67	67	67	64	61	58	54	50	46	43	41	38	
	80	63	63	63	63	63	61	58	54	50	46	43	41	38	
	90	59	59	59	59	59	59	58	54	50	46	43	41	38	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 195a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape					
		Roof Angle: 0 < θ ≤ 7 degrees							North/South Support Y _E = 1					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	121	121	121	121	117	110	103	97	93	88	84
	10	115	115	115	115	114	113	112	110	103	97	93	88	84
	20	96	96	96	96	96	96	96	96	96	95	93	88	84
	30	95	95	95	95	95	95	95	95	95	94	93	88	84
	40	86	86	86	86	86	86	86	86	86	86	86	86	84
	50	78	78	78	78	78	78	78	78	78	78	78	78	78
	60	72	72	72	72	72	72	72	72	72	72	72	72	72
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	117	112	107	102	98	95	91	86	81	75	69	64	61
	10	115	112	107	102	98	95	91	86	81	75	69	64	61
	20	96	96	96	96	96	95	91	86	81	75	69	64	61
	30	95	95	95	95	95	95	91	86	81	75	69	64	61
	40	86	86	86	86	86	86	86	86	81	75	69	64	61
	50	78	78	78	78	78	78	78	78	78	75	69	64	61
	60	72	72	72	72	72	72	72	72	72	72	69	64	61
	70	67	67	67	67	67	67	67	67	67	67	67	64	61
	80	63	63	63	63	63	63	63	63	63	63	63	63	61
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 2	0	103	98	94	90	87	84	81	74	67	63	59	55	52
	10	103	98	94	90	87	84	81	74	67	63	59	55	52
	20	96	96	94	90	87	84	81	74	67	63	59	55	52
	30	95	95	94	90	87	84	81	74	67	63	59	55	52
	40	86	86	86	86	86	84	81	74	67	63	59	55	52
	50	78	78	78	78	78	78	78	74	67	63	59	55	52
	60	72	72	72	72	72	72	72	72	67	63	59	55	52
	70	67	67	67	67	67	67	67	67	67	63	59	55	52
	80	63	63	63	63	63	63	63	63	63	63	59	55	52
	90	59	59	59	59	59	59	59	59	59	59	59	55	52
Zone 3	0	90	86	82	79	74	70	67	61	57	53	49	46	44
	10	90	86	82	79	74	70	67	61	57	53	49	46	44
	20	90	86	82	79	74	70	67	61	57	53	49	46	44
	30	90	86	82	79	74	70	67	61	57	53	49	46	44
	40	86	86	82	79	74	70	67	61	57	53	49	46	44
	50	78	78	78	78	74	70	67	61	57	53	49	46	44
	60	72	72	72	72	72	70	67	61	57	53	49	46	44
	70	67	67	67	67	67	67	67	61	57	53	49	46	44
	80	63	63	63	63	63	63	63	61	57	53	49	46	44
	90	59	59	59	59	59	59	59	59	57	53	49	46	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 195b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	121	121	115	111	106	103	99	93	88	83	79	73	68
	10	115	115	115	111	106	103	99	93	88	83	79	73	68
	20	96	96	96	96	96	96	96	93	88	83	79	73	68
	30	95	95	95	95	95	95	95	93	88	83	79	73	68
	40	86	86	86	86	86	86	86	86	86	83	79	73	68
	50	78	78	78	78	78	78	78	78	78	78	78	73	68
	60	72	72	72	72	72	72	72	72	72	72	72	72	68
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	59	59	59	59	59	59	59	59	59	59	59	59	59
Zone 1	0	98	94	90	86	83	80	77	69	64	59	56	52	49
	10	98	94	90	86	83	80	77	69	64	59	56	52	49
	20	96	94	90	86	83	80	77	69	64	59	56	52	49
	30	95	94	90	86	83	80	77	69	64	59	56	52	49
	40	86	86	86	86	83	80	77	69	64	59	56	52	49
	50	78	78	78	78	78	78	77	69	64	59	56	52	49
	60	72	72	72	72	72	72	72	69	64	59	56	52	49
	70	67	67	67	67	67	67	67	67	64	59	56	52	49
	80	63	63	63	63	63	63	63	63	63	59	56	52	49
	90	59	59	59	59	59	59	59	59	59	59	56	52	49
Zone 2	0	87	83	79	75	71	67	64	59	55	51	48	45	42
	10	87	83	79	75	71	67	64	59	55	51	48	45	42
	20	87	83	79	75	71	67	64	59	55	51	48	45	42
	30	87	83	79	75	71	67	64	59	55	51	48	45	42
	40	86	83	79	75	71	67	64	59	55	51	48	45	42
	50	78	78	78	75	71	67	64	59	55	51	48	45	42
	60	72	72	72	72	71	67	64	59	55	51	48	45	42
	70	67	67	67	67	67	67	64	59	55	51	48	45	42
	80	63	63	63	63	63	63	63	59	55	51	48	45	42
	90	59	59	59	59	59	59	59	59	55	51	48	45	42
Zone 3	0	74	69	65	62	59	56	54	50	46	43	40	38	36
	10	74	69	65	62	59	56	54	50	46	43	40	38	36
	20	74	69	65	62	59	56	54	50	46	43	40	38	36
	30	74	69	65	62	59	56	54	50	46	43	40	38	36
	40	74	69	65	62	59	56	54	50	46	43	40	38	36
	50	74	69	65	62	59	56	54	50	46	43	40	38	36
	60	72	69	65	62	59	56	54	50	46	43	40	38	36
	70	67	67	65	62	59	56	54	50	46	43	40	38	36
	80	63	63	63	62	59	56	54	50	46	43	40	38	36
	90	59	59	59	59	59	56	54	50	46	43	40	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 196a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support X _E = 1					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	121	117	112	108	104	100	94	89	84	80	75	70
	10	115	115	115	112	108	104	100	94	89	84	80	75	70
	20	91	91	91	91	91	91	91	91	89	84	80	75	70
	30	91	91	91	91	91	91	91	91	89	84	80	75	70
	40	81	81	81	81	81	81	81	81	81	81	80	75	70
	50	73	73	73	73	73	73	73	73	73	73	73	73	70
	60	67	67	67	67	67	67	67	67	67	67	67	67	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	113	107	102	98	94	91	87	82	76	69	64	60	57
	10	113	107	102	98	94	91	87	82	76	69	64	60	57
	20	91	91	91	91	91	91	87	82	76	69	64	60	57
	30	91	91	91	91	91	91	87	82	76	69	64	60	57
	40	81	81	81	81	81	81	81	81	76	69	64	60	57
	50	73	73	73	73	73	73	73	73	73	69	64	60	57
	60	67	67	67	67	67	67	67	67	67	67	64	60	57
	70	63	63	63	63	63	63	63	63	63	63	63	60	57
	80	59	59	59	59	59	59	59	59	59	59	59	59	57
90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 3r	0	104	99	95	91	87	84	81	74	67	62	58	55	52
	10	104	99	95	91	87	84	81	74	67	62	58	55	52
	20	91	91	91	91	87	84	81	74	67	62	58	55	52
	30	91	91	91	91	87	84	81	74	67	62	58	55	52
	40	81	81	81	81	81	81	81	74	67	62	58	55	52
	50	73	73	73	73	73	73	73	73	67	62	58	55	52
	60	67	67	67	67	67	67	67	67	67	62	58	55	52
	70	63	63	63	63	63	63	63	63	63	62	58	55	52
	80	59	59	59	59	59	59	59	59	59	59	58	55	52
	90	56	56	56	56	56	56	56	56	56	56	56	55	52

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 196b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	108	103	99	95	92	88	86	80	75	69	64	60	57
	10	108	103	99	95	92	88	86	80	75	69	64	60	57
	20	91	91	91	91	91	88	86	80	75	69	64	60	57
	30	91	91	91	91	91	88	86	80	75	69	64	60	57
	40	81	81	81	81	81	81	81	80	75	69	64	60	57
	50	73	73	73	73	73	73	73	73	73	69	64	60	57
	60	67	67	67	67	67	67	67	67	67	67	64	60	57
	70	63	63	63	63	63	63	63	63	63	63	63	60	57
	80	59	59	59	59	59	59	59	59	59	59	59	59	57
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	94	90	86	82	79	75	71	64	60	55	52	49	46
	10	94	90	86	82	79	75	71	64	60	55	52	49	46
	20	91	90	86	82	79	75	71	64	60	55	52	49	46
	30	91	90	86	82	79	75	71	64	60	55	52	49	46
	40	81	81	81	81	79	75	71	64	60	55	52	49	46
	50	73	73	73	73	73	73	71	64	60	55	52	49	46
	60	67	67	67	67	67	67	67	64	60	55	52	49	46
	70	63	63	63	63	63	63	63	63	60	55	52	49	46
	80	59	59	59	59	59	59	59	59	59	55	52	49	46
	90	56	56	56	56	56	56	56	56	56	55	52	49	46
Zone 3r	0	87	83	79	75	70	67	64	59	54	50	47	44	42
	10	87	83	79	75	70	67	64	59	54	50	47	44	42
	20	87	83	79	75	70	67	64	59	54	50	47	44	42
	30	87	83	79	75	70	67	64	59	54	50	47	44	42
	40	81	81	79	75	70	67	64	59	54	50	47	44	42
	50	73	73	73	73	70	67	64	59	54	50	47	44	42
	60	67	67	67	67	67	67	64	59	54	50	47	44	42
	70	63	63	63	63	63	63	63	59	54	50	47	44	42
	80	59	59	59	59	59	59	59	59	54	50	47	44	42
	90	56	56	56	56	56	56	56	56	54	50	47	44	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 197a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	113	108	104	100	96	93	90	84	80	74	68	64	60
	10	113	108	104	100	96	93	90	84	80	74	68	64	60
	20	91	91	91	91	91	91	90	84	80	74	68	64	60
	30	91	91	91	91	91	91	90	84	80	74	68	64	60
	40	81	81	81	81	81	81	81	81	80	74	68	64	60
	50	73	73	73	73	73	73	73	73	73	73	68	64	60
	60	67	67	67	67	67	67	67	67	67	67	67	64	60
	70	63	63	63	63	63	63	63	63	63	63	63	63	60
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	99	94	90	87	83	80	77	69	63	59	55	52	49
	10	99	94	90	87	83	80	77	69	63	59	55	52	49
	20	91	91	90	87	83	80	77	69	63	59	55	52	49
	30	91	91	90	87	83	80	77	69	63	59	55	52	49
	40	81	81	81	81	81	80	77	69	63	59	55	52	49
	50	73	73	73	73	73	73	73	69	63	59	55	52	49
	60	67	67	67	67	67	67	67	67	63	59	55	52	49
	70	63	63	63	63	63	63	63	63	63	59	55	52	49
	80	59	59	59	59	59	59	59	59	59	59	55	52	49
	90	56	56	56	56	56	56	56	56	56	56	55	52	49
Zone 3r	0	92	87	84	80	76	72	68	62	58	54	50	47	44
	10	92	87	84	80	76	72	68	62	58	54	50	47	44
	20	91	87	84	80	76	72	68	62	58	54	50	47	44
	30	91	87	84	80	76	72	68	62	58	54	50	47	44
	40	81	81	81	80	76	72	68	62	58	54	50	47	44
	50	73	73	73	73	73	72	68	62	58	54	50	47	44
	60	67	67	67	67	67	67	67	62	58	54	50	47	44
	70	63	63	63	63	63	63	63	62	58	54	50	47	44
	80	59	59	59	59	59	59	59	59	58	54	50	47	44
	90	56	56	56	56	56	56	56	56	56	54	50	47	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 197b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape		
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		X _E = 1.5		
		Exposure Category: C								Roof Type :		Gable		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	96	92	88	85	82	79	76	69	63	59	55	52	49
	10	96	92	88	85	82	79	76	69	63	59	55	52	49
	20	91	91	88	85	82	79	76	69	63	59	55	52	49
	30	91	91	88	85	82	79	76	69	63	59	55	52	49
	40	81	81	81	81	81	79	76	69	63	59	55	52	49
	50	73	73	73	73	73	73	73	69	63	59	55	52	49
	60	67	67	67	67	67	67	67	67	63	59	55	52	49
	70	63	63	63	63	63	63	63	63	63	59	55	52	49
	80	59	59	59	59	59	59	59	59	59	59	55	52	49
	90	56	56	56	56	56	56	56	56	56	56	55	52	49
Zones 2n, 2r, & 3e	0	83	79	75	70	66	63	60	55	51	48	45	42	40
	10	83	79	75	70	66	63	60	55	51	48	45	42	40
	20	83	79	75	70	66	63	60	55	51	48	45	42	40
	30	83	79	75	70	66	63	60	55	51	48	45	42	40
	40	81	79	75	70	66	63	60	55	51	48	45	42	40
	50	73	73	73	70	66	63	60	55	51	48	45	42	40
	60	67	67	67	67	66	63	60	55	51	48	45	42	40
	70	63	63	63	63	63	63	60	55	51	48	45	42	40
	80	59	59	59	59	59	59	59	55	51	48	45	42	40
	90	56	56	56	56	56	56	56	55	51	48	45	42	40
Zone 3r	0	76	71	66	63	60	57	55	50	47	44	41	38	36
	10	76	71	66	63	60	57	55	50	47	44	41	38	36
	20	76	71	66	63	60	57	55	50	47	44	41	38	36
	30	76	71	66	63	60	57	55	50	47	44	41	38	36
	40	76	71	66	63	60	57	55	50	47	44	41	38	36
	50	73	71	66	63	60	57	55	50	47	44	41	38	36
	60	67	67	66	63	60	57	55	50	47	44	41	38	36
	70	63	63	63	63	60	57	55	50	47	44	41	38	36
	80	59	59	59	59	59	57	55	50	47	44	41	38	36
	90	56	56	56	56	56	56	55	50	47	44	41	38	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 198a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape		
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		X _E = 1		
		Exposure Category: D								Roof Type :		Gable		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	107	102	98	94	91	87	85	80	73	68	63	59	56
	10	107	102	98	94	91	87	85	80	73	68	63	59	56
	20	91	91	91	91	91	87	85	80	73	68	63	59	56
	30	91	91	91	91	91	87	85	80	73	68	63	59	56
	40	81	81	81	81	81	81	81	80	73	68	63	59	56
	50	73	73	73	73	73	73	73	73	73	68	63	59	56
	60	67	67	67	67	67	67	67	67	67	67	63	59	56
	70	63	63	63	63	63	63	63	63	63	63	63	59	56
	80	59	59	59	59	59	59	59	59	59	59	59	59	56
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	93	89	85	81	78	74	69	63	59	55	51	48	45
	10	93	89	85	81	78	74	69	63	59	55	51	48	45
	20	91	89	85	81	78	74	69	63	59	55	51	48	45
	30	91	89	85	81	78	74	69	63	59	55	51	48	45
	40	81	81	81	81	78	74	69	63	59	55	51	48	45
	50	73	73	73	73	73	73	69	63	59	55	51	48	45
	60	67	67	67	67	67	67	67	63	59	55	51	48	45
	70	63	63	63	63	63	63	63	63	59	55	51	48	45
	80	59	59	59	59	59	59	59	59	59	55	51	48	45
	90	56	56	56	56	56	56	56	56	56	55	51	48	45
Zone 3r	0	86	82	79	74	69	66	63	58	53	50	47	44	41
	10	86	82	79	74	69	66	63	58	53	50	47	44	41
	20	86	82	79	74	69	66	63	58	53	50	47	44	41
	30	86	82	79	74	69	66	63	58	53	50	47	44	41
	40	81	81	79	74	69	66	63	58	53	50	47	44	41
	50	73	73	73	73	69	66	63	58	53	50	47	44	41
	60	67	67	67	67	67	66	63	58	53	50	47	44	41
	70	63	63	63	63	63	63	63	58	53	50	47	44	41
	80	59	59	59	59	59	59	59	58	53	50	47	44	41
	90	56	56	56	56	56	56	56	56	53	50	47	44	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 198b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape			
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		Y _E = 1.5			
		Exposure Category: D								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	90	87	83	80	77	73	69	63	59	55	51	48	45	
	10	90	87	83	80	77	73	69	63	59	55	51	48	45	
	20	90	87	83	80	77	73	69	63	59	55	51	48	45	
	30	90	87	83	80	77	73	69	63	59	55	51	48	45	
	40	81	81	81	80	77	73	69	63	59	55	51	48	45	
	50	73	73	73	73	73	73	69	63	59	55	51	48	45	
	60	67	67	67	67	67	67	67	63	59	55	51	48	45	
	70	63	63	63	63	63	63	63	63	59	55	51	48	45	
	80	59	59	59	59	59	59	59	59	59	55	51	48	45	
	90	56	56	56	56	56	56	56	56	56	55	51	48	45	
Zones 2n, 2r, & 3e	0	78	72	68	64	61	58	56	51	48	44	41	39	37	
	10	78	72	68	64	61	58	56	51	48	44	41	39	37	
	20	78	72	68	64	61	58	56	51	48	44	41	39	37	
	30	78	72	68	64	61	58	56	51	48	44	41	39	37	
	40	78	72	68	64	61	58	56	51	48	44	41	39	37	
	50	73	72	68	64	61	58	56	51	48	44	41	39	37	
	60	67	67	67	64	61	58	56	51	48	44	41	39	37	
	70	63	63	63	63	61	58	56	51	48	44	41	39	37	
	80	59	59	59	59	59	58	56	51	48	44	41	39	37	
	90	56	56	56	56	56	56	56	51	48	44	41	39	37	
Zone 3r	0	69	65	61	58	56	53	51	47	43	40	38	35	33	
	10	69	65	61	58	56	53	51	47	43	40	38	35	33	
	20	69	65	61	58	56	53	51	47	43	40	38	35	33	
	30	69	65	61	58	56	53	51	47	43	40	38	35	33	
	40	69	65	61	58	56	53	51	47	43	40	38	35	33	
	50	69	65	61	58	56	53	51	47	43	40	38	35	33	
	60	67	65	61	58	56	53	51	47	43	40	38	35	33	
	70	63	63	61	58	56	53	51	47	43	40	38	35	33	
	80	59	59	59	58	56	53	51	47	43	40	38	35	33	
	90	56	56	56	56	56	53	51	47	43	40	38	35	33	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 199a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation:		Landscape			
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support		X _E = 1			
		Exposure Category: B							Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	121	121	121	121	117	113	106	99	94	89	85	82
	10	121	121	121	121	121	117	113	106	99	94	89	85	82
	20	107	107	107	107	107	107	107	106	99	94	89	85	82
	30	92	92	92	92	92	92	92	92	92	91	89	85	82
	40	81	81	81	81	81	81	81	81	81	81	81	81	79
	50	74	74	74	74	74	74	74	74	74	74	74	74	74
	60	68	68	68	68	68	68	68	68	68	68	68	68	68
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	121	116	111	106	101	98	94	88	83	78	72	66	63
	10	121	116	111	106	101	98	94	88	83	78	72	66	63
	20	107	107	107	106	101	98	94	88	83	78	72	66	63
	30	92	92	92	92	92	92	92	88	83	78	72	66	63
	40	81	81	81	81	81	81	81	81	81	78	72	66	63
	50	74	74	74	74	74	74	74	74	74	74	72	66	63
	60	68	68	68	68	68	68	68	68	68	68	68	66	63
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 3r	0	114	109	104	99	95	92	88	82	77	70	64	60	56
	10	114	109	104	99	95	92	88	82	77	70	64	60	56
	20	107	107	104	99	95	92	88	82	77	70	64	60	56
	30	92	92	92	92	92	92	88	82	77	70	64	60	56
	40	81	81	81	81	81	81	81	81	77	70	64	60	56
	50	74	74	74	74	74	74	74	74	74	70	64	60	56
	60	68	68	68	68	68	68	68	68	68	68	64	60	56
	70	63	63	63	63	63	63	63	63	63	63	63	60	56
	80	60	60	60	60	60	60	60	60	60	60	60	60	56
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 199b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	116	111	107	103	99	96	90	85	80	76	71	66
	10	121	116	111	107	103	99	96	90	85	80	76	71	66
	20	107	107	107	107	103	99	96	90	85	80	76	71	66
	30	92	92	92	92	92	92	92	90	85	80	76	71	66
	40	81	81	81	81	81	81	81	81	81	80	76	71	66
	50	74	74	74	74	74	74	74	74	74	74	74	71	66
	60	68	68	68	68	68	68	68	68	68	68	68	68	66
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	101	97	92	89	85	82	79	72	66	61	57	54	51
	10	101	97	92	89	85	82	79	72	66	61	57	54	51
	20	101	97	92	89	85	82	79	72	66	61	57	54	51
	30	92	92	92	89	85	82	79	72	66	61	57	54	51
	40	81	81	81	81	81	81	79	72	66	61	57	54	51
	50	74	74	74	74	74	74	74	72	66	61	57	54	51
	60	68	68	68	68	68	68	68	68	66	61	57	54	51
	70	63	63	63	63	63	63	63	63	63	61	57	54	51
	80	60	60	60	60	60	60	60	60	60	60	57	54	51
	90	56	56	56	56	56	56	56	56	56	56	56	54	51
Zone 3r	0	95	91	87	83	80	77	72	65	59	55	51	47	44
	10	95	91	87	83	80	77	72	65	59	55	51	47	44
	20	95	91	87	83	80	77	72	65	59	55	51	47	44
	30	92	91	87	83	80	77	72	65	59	55	51	47	44
	40	81	81	81	81	80	77	72	65	59	55	51	47	44
	50	74	74	74	74	74	74	72	65	59	55	51	47	44
	60	68	68	68	68	68	68	68	65	59	55	51	47	44
	70	63	63	63	63	63	63	63	63	59	55	51	47	44
	80	60	60	60	60	60	60	60	60	59	55	51	47	44
	90	56	56	56	56	56	56	56	56	56	55	51	47	44

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 200a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation:			Landscape		
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support			X _E = 1		
		Exposure Category: C							Roof Type :			Gable		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	121	121	117	112	108	104	100	94	89	84	80	76	71
	10	121	121	117	112	108	104	100	94	89	84	80	76	71
	20	107	107	107	107	107	104	100	94	89	84	80	76	71
	30	92	92	92	92	92	92	92	91	89	84	80	76	71
	40	81	81	81	81	81	81	81	81	81	80	79	76	71
	50	74	74	74	74	74	74	74	74	74	74	73	72	71
	60	68	68	68	68	68	68	68	68	68	68	68	68	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	107	102	97	93	90	86	83	78	71	65	61	57	54
	10	107	102	97	93	90	86	83	78	71	65	61	57	54
	20	107	102	97	93	90	86	83	78	71	65	61	57	54
	30	92	92	92	92	90	86	83	78	71	65	61	57	54
	40	81	81	81	81	81	81	81	78	71	65	61	57	54
	50	74	74	74	74	74	74	74	74	71	65	61	57	54
	60	68	68	68	68	68	68	68	68	68	65	61	57	54
	70	63	63	63	63	63	63	63	63	63	63	61	57	54
	80	60	60	60	60	60	60	60	60	60	60	60	57	54
	90	56	56	56	56	56	56	56	56	56	56	56	56	54
Zone 3r	0	100	96	91	88	84	81	78	70	64	59	54	51	47
	10	100	96	91	88	84	81	78	70	64	59	54	51	47
	20	100	96	91	88	84	81	78	70	64	59	54	51	47
	30	92	92	91	88	84	81	78	70	64	59	54	51	47
	40	81	81	81	81	81	81	78	70	64	59	54	51	47
	50	74	74	74	74	74	74	74	70	64	59	54	51	47
	60	68	68	68	68	68	68	68	68	64	59	54	51	47
	70	63	63	63	63	63	63	63	63	63	59	54	51	47
	80	60	60	60	60	60	60	60	60	60	59	54	51	47
	90	56	56	56	56	56	56	56	56	56	56	54	51	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 200b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape			
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support		X _E = 1.5			
		Exposure Category: C								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	108	103	99	95	92	88	86	80	75	69	64	60	57	
	10	108	103	99	95	92	88	86	80	75	69	64	60	57	
	20	107	103	99	95	92	88	86	80	75	69	64	60	57	
	30	92	92	92	92	92	88	86	80	75	69	64	60	57	
	40	81	81	81	81	81	81	81	80	75	69	64	60	57	
	50	74	74	74	74	74	74	74	74	74	69	64	60	57	
	60	68	68	68	68	68	68	68	68	68	68	64	60	57	
	70	63	63	63	63	63	63	63	63	63	63	63	60	57	
	80	60	60	60	60	60	60	60	60	60	60	60	60	57	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2n, 2r, & 3e	0	90	86	82	79	75	70	67	61	57	53	49	46	44	
	10	90	86	82	79	75	70	67	61	57	53	49	46	44	
	20	90	86	82	79	75	70	67	61	57	53	49	46	44	
	30	90	86	82	79	75	70	67	61	57	53	49	46	44	
	40	81	81	81	79	75	70	67	61	57	53	49	46	44	
	50	74	74	74	74	74	70	67	61	57	53	49	46	44	
	60	68	68	68	68	68	68	67	61	57	53	49	46	44	
	70	63	63	63	63	63	63	63	61	57	53	49	46	44	
	80	60	60	60	60	60	60	60	60	57	53	49	46	44	
	90	56	56	56	56	56	56	56	56	56	53	49	46	44	
Zone 3r	0	84	80	76	71	67	63	60	55	50	46	43	40	37	
	10	84	80	76	71	67	63	60	55	50	46	43	40	37	
	20	84	80	76	71	67	63	60	55	50	46	43	40	37	
	30	84	80	76	71	67	63	60	55	50	46	43	40	37	
	40	81	80	76	71	67	63	60	55	50	46	43	40	37	
	50	74	74	74	71	67	63	60	55	50	46	43	40	37	
	60	68	68	68	68	67	63	60	55	50	46	43	40	37	
	70	63	63	63	63	63	63	60	55	50	46	43	40	37	
	80	60	60	60	60	60	60	60	55	50	46	43	40	37	
	90	56	56	56	56	56	56	56	55	50	46	43	40	37	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 201a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape		
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support		X _E = 1		
		Exposure Category: D								Roof Type :		Gable		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	120	115	110	105	101	98	95	89	84	80	75	69	65
	10	120	115	110	105	101	98	95	89	84	80	75	69	65
	20	107	107	107	105	101	98	95	89	84	80	75	69	65
	30	92	92	92	92	92	92	91	89	84	80	75	69	65
	40	81	81	81	81	81	81	81	81	80	79	75	69	65
	50	74	74	74	74	74	74	74	74	74	73	72	69	65
	60	68	68	68	68	68	68	68	68	68	68	67	66	65
	70	63	63	63	63	63	63	63	63	63	63	63	63	62
	80	60	60	60	60	60	60	60	60	60	60	60	60	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2n, 2r, & 3e	0	100	95	91	88	84	81	78	71	65	60	56	53	50
	10	100	95	91	88	84	81	78	71	65	60	56	53	50
	20	100	95	91	88	84	81	78	71	65	60	56	53	50
	30	92	92	91	88	84	81	78	71	65	60	56	53	50
	40	81	81	81	81	81	81	78	71	65	60	56	53	50
	50	74	74	74	74	74	74	74	71	65	60	56	53	50
	60	68	68	68	68	68	68	68	68	65	60	56	53	50
	70	63	63	63	63	63	63	63	63	63	60	56	53	50
	80	60	60	60	60	60	60	60	60	60	60	56	53	50
	90	56	56	56	56	56	56	56	56	56	56	56	53	50
Zone 3r	0	94	90	86	82	79	75	71	64	58	54	50	46	43
	10	94	90	86	82	79	75	71	64	58	54	50	46	43
	20	94	90	86	82	79	75	71	64	58	54	50	46	43
	30	92	90	86	82	79	75	71	64	58	54	50	46	43
	40	81	81	81	81	79	75	71	64	58	54	50	46	43
	50	74	74	74	74	74	74	71	64	58	54	50	46	43
	60	68	68	68	68	68	68	68	64	58	54	50	46	43
	70	63	63	63	63	63	63	63	63	58	54	50	46	43
	80	60	60	60	60	60	60	60	60	58	54	50	46	43
	90	56	56	56	56	56	56	56	56	56	54	50	46	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 201b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape						
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5						
		Exposure Category: D							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	101	97	93	90	86	83	81	75	69	64	60	56	53	
	10	101	97	93	90	86	83	81	75	69	64	60	56	53	
	20	101	97	93	90	86	83	81	75	69	64	60	56	53	
	30	92	92	92	90	86	83	81	75	69	64	60	56	53	
	40	81	81	81	81	81	81	81	75	69	64	60	56	53	
	50	74	74	74	74	74	74	74	74	69	64	60	56	53	
	60	68	68	68	68	68	68	68	68	68	64	60	56	53	
	70	63	63	63	63	63	63	63	63	63	63	60	56	53	
	80	60	60	60	60	60	60	60	60	60	60	60	56	53	
	90	56	56	56	56	56	56	56	56	56	56	56	56	53	
Zones 2n, 2r, & 3e	0	84	80	77	72	68	64	62	57	52	49	46	43	40	
	10	84	80	77	72	68	64	62	57	52	49	46	43	40	
	20	84	80	77	72	68	64	62	57	52	49	46	43	40	
	30	84	80	77	72	68	64	62	57	52	49	46	43	40	
	40	81	80	77	72	68	64	62	57	52	49	46	43	40	
	50	74	74	74	72	68	64	62	57	52	49	46	43	40	
	60	68	68	68	68	68	64	62	57	52	49	46	43	40	
	70	63	63	63	63	63	63	62	57	52	49	46	43	40	
	80	60	60	60	60	60	60	60	57	52	49	46	43	40	
	90	56	56	56	56	56	56	56	56	52	49	46	43	40	
Zone 3r	0	79	74	69	65	61	58	55	50	46	42	39	37	34	
	10	79	74	69	65	61	58	55	50	46	42	39	37	34	
	20	79	74	69	65	61	58	55	50	46	42	39	37	34	
	30	79	74	69	65	61	58	55	50	46	42	39	37	34	
	40	79	74	69	65	61	58	55	50	46	42	39	37	34	
	50	74	74	69	65	61	58	55	50	46	42	39	37	34	
	60	68	68	68	65	61	58	55	50	46	42	39	37	34	
	70	63	63	63	63	61	58	55	50	46	42	39	37	34	
	80	60	60	60	60	60	58	55	50	46	42	39	37	34	
	90	56	56	56	56	56	56	55	50	46	42	39	37	34	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 202a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	121	121	121	121	118	113	109	101	95	89	85	80	77
	10	121	121	121	121	118	113	109	101	95	89	85	80	77
	20	110	110	110	108	107	106	104	101	95	89	85	80	77
	30	97	97	97	97	96	95	94	92	89	87	85	80	77
	40	86	86	86	86	86	86	86	84	82	81	79	77	75
	50	78	78	78	78	78	78	78	78	77	75	74	72	71
	60	72	72	72	72	72	72	72	72	72	71	70	68	67
	70	67	67	67	67	67	67	67	67	67	67	66	65	64
	80	63	63	63	63	63	63	63	63	63	63	63	62	61
	90	60	60	60	60	60	60	60	60	60	60	60	60	59
Zones 2n & 3r	0	121	121	120	115	110	106	102	96	90	85	81	77	71
	10	121	121	120	115	110	106	102	96	90	85	81	77	71
	20	110	110	110	108	107	106	102	96	90	85	81	77	71
	30	97	97	97	97	96	95	94	92	89	85	81	77	71
	40	86	86	86	86	86	86	86	84	82	81	79	77	71
	50	78	78	78	78	78	78	78	78	77	75	74	72	71
	60	72	72	72	72	72	72	72	72	72	71	70	68	67
	70	67	67	67	67	67	67	67	67	67	67	66	65	64
	80	63	63	63	63	63	63	63	63	63	63	63	62	61
	90	60	60	60	60	60	60	60	60	60	60	60	60	59
Zone 3e	0	120	114	109	105	100	97	93	87	82	78	72	66	62
	10	120	114	109	105	100	97	93	87	82	78	72	66	62
	20	110	110	109	105	100	97	93	87	82	78	72	66	62
	30	97	97	97	97	96	95	93	87	82	78	72	66	62
	40	86	86	86	86	86	86	86	84	82	78	72	66	62
	50	78	78	78	78	78	78	78	78	77	75	72	66	62
	60	72	72	72	72	72	72	72	72	72	71	70	66	62
	70	67	67	67	67	67	67	67	67	67	67	66	65	62
	80	63	63	63	63	63	63	63	63	63	63	63	62	61
	90	60	60	60	60	60	60	60	60	60	60	60	60	59

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 202b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1.5					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	118	112	107	102	98	94	91	85	80	75	68	64	60
	10	118	112	107	102	98	94	91	85	80	75	68	64	60
	20	110	110	107	102	98	94	91	85	80	75	68	64	60
	30	97	97	97	97	96	94	91	85	80	75	68	64	60
	40	86	86	86	86	86	86	86	84	80	75	68	64	60
	50	78	78	78	78	78	78	78	78	77	75	68	64	60
	60	72	72	72	72	72	72	72	72	72	71	68	64	60
	70	67	67	67	67	67	67	67	67	67	67	66	64	60
	80	63	63	63	63	63	63	63	63	63	63	63	62	60
	90	60	60	60	60	60	60	60	60	60	60	60	60	59
Zones 2n & 3r	0	110	105	101	96	93	89	86	81	76	69	64	60	57
	10	110	105	101	96	93	89	86	81	76	69	64	60	57
	20	110	105	101	96	93	89	86	81	76	69	64	60	57
	30	97	97	97	96	93	89	86	81	76	69	64	60	57
	40	86	86	86	86	86	86	86	81	76	69	64	60	57
	50	78	78	78	78	78	78	78	78	76	69	64	60	57
	60	72	72	72	72	72	72	72	72	72	69	64	60	57
	70	67	67	67	67	67	67	67	67	67	67	64	60	57
	80	63	63	63	63	63	63	63	63	63	63	63	60	57
	90	60	60	60	60	60	60	60	60	60	60	60	60	57
Zone 3e	0	100	96	92	88	85	82	79	72	66	61	56	53	49
	10	100	96	92	88	85	82	79	72	66	61	56	53	49
	20	100	96	92	88	85	82	79	72	66	61	56	53	49
	30	97	96	92	88	85	82	79	72	66	61	56	53	49
	40	86	86	86	86	85	82	79	72	66	61	56	53	49
	50	78	78	78	78	78	78	78	72	66	61	56	53	49
	60	72	72	72	72	72	72	72	72	66	61	56	53	49
	70	67	67	67	67	67	67	67	67	66	61	56	53	49
	80	63	63	63	63	63	63	63	63	63	61	56	53	49
	90	60	60	60	60	60	60	60	60	60	60	56	53	49

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 203a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape			
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support		Y _E = 1			
		Exposure Category: C								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	121	118	113	108	104	100	96	89	84	79	74	68	64	
	10	121	118	113	108	104	100	96	89	84	79	74	68	64	
	20	109	107	106	104	103	100	96	89	84	79	74	68	64	
	30	97	96	95	93	92	91	90	87	84	79	74	68	64	
	40	86	86	86	85	84	84	83	81	79	76	74	68	64	
	50	78	78	78	78	78	78	77	75	74	72	70	68	64	
	60	72	72	72	72	72	72	72	71	69	68	67	65	64	
	70	67	67	67	67	67	67	67	67	66	65	64	62	61	
	80	63	63	63	63	63	63	63	63	63	62	61	60	59	
	90	60	60	60	60	60	60	60	60	60	60	59	58	57	
Zones 2n & 3r	0	116	111	106	102	98	94	91	85	80	75	69	64	61	
	10	116	111	106	102	98	94	91	85	80	75	69	64	61	
	20	109	107	106	102	98	94	91	85	80	75	69	64	61	
	30	97	96	95	93	92	91	90	85	80	75	69	64	61	
	40	86	86	86	85	84	84	83	81	79	75	69	64	61	
	50	78	78	78	78	78	78	77	75	74	72	69	64	61	
	60	72	72	72	72	72	72	72	71	69	68	67	64	61	
	70	67	67	67	67	67	67	67	67	66	65	64	62	61	
	80	63	63	63	63	63	63	63	63	63	62	61	60	59	
	90	60	60	60	60	60	60	60	60	60	60	59	58	57	
Zone 3e	0	106	101	97	93	89	86	83	78	71	65	60	56	53	
	10	106	101	97	93	89	86	83	78	71	65	60	56	53	
	20	106	101	97	93	89	86	83	78	71	65	60	56	53	
	30	97	96	95	93	89	86	83	78	71	65	60	56	53	
	40	86	86	86	85	84	84	83	78	71	65	60	56	53	
	50	78	78	78	78	78	78	77	75	71	65	60	56	53	
	60	72	72	72	72	72	72	72	71	69	65	60	56	53	
	70	67	67	67	67	67	67	67	67	66	65	60	56	53	
	80	63	63	63	63	63	63	63	63	63	62	60	56	53	
	90	60	60	60	60	60	60	60	60	60	60	59	56	53	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 203b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape			
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support		X _E = 1.5			
		Exposure Category: C								Roof Type :		Gable			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	103	99	94	90	87	84	81	75	67	63	59	55	52	
	10	103	99	94	90	87	84	81	75	67	63	59	55	52	
	20	103	99	94	90	87	84	81	75	67	63	59	55	52	
	30	97	96	94	90	87	84	81	75	67	63	59	55	52	
	40	86	86	86	85	84	84	81	75	67	63	59	55	52	
	50	78	78	78	78	78	78	77	75	67	63	59	55	52	
	60	72	72	72	72	72	72	72	71	67	63	59	55	52	
	70	67	67	67	67	67	67	67	67	66	63	59	55	52	
	80	63	63	63	63	63	63	63	63	63	62	59	55	52	
	90	60	60	60	60	60	60	60	60	60	60	59	55	52	
Zones 2n & 3r	0	97	93	89	86	83	80	77	69	64	59	55	52	49	
	10	97	93	89	86	83	80	77	69	64	59	55	52	49	
	20	97	93	89	86	83	80	77	69	64	59	55	52	49	
	30	97	93	89	86	83	80	77	69	64	59	55	52	49	
	40	86	86	86	85	83	80	77	69	64	59	55	52	49	
	50	78	78	78	78	78	78	77	69	64	59	55	52	49	
	60	72	72	72	72	72	72	72	69	64	59	55	52	49	
	70	67	67	67	67	67	67	67	67	64	59	55	52	49	
	80	63	63	63	63	63	63	63	63	63	59	55	52	49	
	90	60	60	60	60	60	60	60	60	60	59	55	52	49	
Zone 3e	0	89	85	82	78	75	70	67	61	56	52	48	45	42	
	10	89	85	82	78	75	70	67	61	56	52	48	45	42	
	20	89	85	82	78	75	70	67	61	56	52	48	45	42	
	30	89	85	82	78	75	70	67	61	56	52	48	45	42	
	40	86	85	82	78	75	70	67	61	56	52	48	45	42	
	50	78	78	78	78	75	70	67	61	56	52	48	45	42	
	60	72	72	72	72	72	70	67	61	56	52	48	45	42	
	70	67	67	67	67	67	67	67	61	56	52	48	45	42	
	80	63	63	63	63	63	63	63	61	56	52	48	45	42	
	90	60	60	60	60	60	60	60	60	56	52	48	45	42	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 204a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape						
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support X _E = 1						
		Exposure Category: D							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1, 2e, & 2r	0	116	111	106	101	97	93	90	84	79	73	67	63	59	
	10	116	111	106	101	97	93	90	84	79	73	67	63	59	
	20	107	105	103	101	97	93	90	84	79	73	67	63	59	
	30	95	94	93	91	90	89	87	84	79	73	67	63	59	
	40	86	86	85	84	83	82	81	79	76	73	67	63	59	
	50	78	78	78	78	77	76	75	74	72	70	67	63	59	
	60	72	72	72	72	72	72	71	69	68	66	65	63	59	
	70	67	67	67	67	67	67	67	66	65	63	62	61	59	
	80	63	63	63	63	63	63	63	63	62	61	60	58	57	
	90	60	60	60	60	60	60	60	60	60	59	57	56	55	
Zones 2n & 3r	0	109	104	99	95	92	88	85	80	75	68	64	60	56	
	10	109	104	99	95	92	88	85	80	75	68	64	60	56	
	20	107	104	99	95	92	88	85	80	75	68	64	60	56	
	30	95	94	93	91	90	88	85	80	75	68	64	60	56	
	40	86	86	85	84	83	82	81	79	75	68	64	60	56	
	50	78	78	78	78	77	76	75	74	72	68	64	60	56	
	60	72	72	72	72	72	72	71	69	68	66	64	60	56	
	70	67	67	67	67	67	67	67	66	65	63	62	60	56	
	80	63	63	63	63	63	63	63	63	62	61	60	58	56	
	90	60	60	60	60	60	60	60	60	60	59	57	56	55	
Zone 3e	0	99	95	91	87	84	81	78	71	65	60	56	52	49	
	10	99	95	91	87	84	81	78	71	65	60	56	52	49	
	20	99	95	91	87	84	81	78	71	65	60	56	52	49	
	30	95	94	91	87	84	81	78	71	65	60	56	52	49	
	40	86	86	85	84	83	81	78	71	65	60	56	52	49	
	50	78	78	78	78	77	76	75	71	65	60	56	52	49	
	60	72	72	72	72	72	72	71	69	65	60	56	52	49	
	70	67	67	67	67	67	67	67	66	65	60	56	52	49	
	80	63	63	63	63	63	63	63	63	62	60	56	52	49	
	90	60	60	60	60	60	60	60	60	60	59	56	52	49	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 204b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	92	88	85	82	79	75	68	62	58	54	51	48
	10	97	92	88	85	82	79	75	68	62	58	54	51	48
	20	97	92	88	85	82	79	75	68	62	58	54	51	48
	30	95	92	88	85	82	79	75	68	62	58	54	51	48
	40	86	86	85	84	82	79	75	68	62	58	54	51	48
	50	78	78	78	78	77	76	75	68	62	58	54	51	48
	60	72	72	72	72	72	72	71	68	62	58	54	51	48
	70	67	67	67	67	67	67	67	66	62	58	54	51	48
	80	63	63	63	63	63	63	63	63	62	58	54	51	48
	90	60	60	60	60	60	60	60	60	60	58	54	51	48
Zones 2n & 3r	0	92	88	84	81	78	74	70	64	59	55	51	48	45
	10	92	88	84	81	78	74	70	64	59	55	51	48	45
	20	92	88	84	81	78	74	70	64	59	55	51	48	45
	30	92	88	84	81	78	74	70	64	59	55	51	48	45
	40	86	86	84	81	78	74	70	64	59	55	51	48	45
	50	78	78	78	78	77	74	70	64	59	55	51	48	45
	60	72	72	72	72	72	72	70	64	59	55	51	48	45
	70	67	67	67	67	67	67	67	64	59	55	51	48	45
	80	63	63	63	63	63	63	63	63	59	55	51	48	45
	90	60	60	60	60	60	60	60	60	59	55	51	48	45
Zone 3e	0	84	80	77	72	68	64	61	56	51	47	44	41	39
	10	84	80	77	72	68	64	61	56	51	47	44	41	39
	20	84	80	77	72	68	64	61	56	51	47	44	41	39
	30	84	80	77	72	68	64	61	56	51	47	44	41	39
	40	84	80	77	72	68	64	61	56	51	47	44	41	39
	50	78	78	77	72	68	64	61	56	51	47	44	41	39
	60	72	72	72	72	68	64	61	56	51	47	44	41	39
	70	67	67	67	67	67	64	61	56	51	47	44	41	39
	80	63	63	63	63	63	63	61	56	51	47	44	41	39
	90	60	60	60	60	60	60	60	56	51	47	44	41	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 205a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	117	113	109	105	98	93	88	83	80	75
	10	114	114	113	112	111	109	105	98	93	88	83	80	75
	20	91	91	91	91	91	91	91	91	90	88	83	80	75
	30	91	91	91	91	91	91	91	91	90	88	83	80	75
	40	81	81	81	81	81	81	81	81	81	80	79	77	75
	50	73	73	73	73	73	73	73	73	73	73	73	72	71
	60	67	67	67	67	67	67	67	67	67	67	67	67	66
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	121	117	112	107	103	99	95	89	84	79	73	68	64
	10	114	114	112	107	103	99	95	89	84	79	73	68	64
	20	91	91	91	91	91	91	91	89	84	79	73	68	64
	30	91	91	91	91	91	91	91	89	84	79	73	68	64
	40	81	81	81	81	81	81	81	81	81	79	73	68	64
	50	73	73	73	73	73	73	73	73	73	73	73	68	64
	60	67	67	67	67	67	67	67	67	67	67	67	67	64
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e & 3	0	119	113	108	103	99	96	92	86	81	76	69	65	61
	10	114	113	108	103	99	96	92	86	81	76	69	65	61
	20	91	91	91	91	91	91	91	86	81	76	69	65	61
	30	91	91	91	91	91	91	91	86	81	76	69	65	61
	40	81	81	81	81	81	81	81	81	81	76	69	65	61
	50	73	73	73	73	73	73	73	73	73	73	69	65	61
	60	67	67	67	67	67	67	67	67	67	67	67	65	61
	70	63	63	63	63	63	63	63	63	63	63	63	63	61
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 205b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support X _E = 1.5					
		Exposure Category: B							Roof Type : Hip h/B = ≥ 0.8					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	113	108	103	99	95	92	89	84	79	73	68	64	60
	10	113	108	103	99	95	92	89	84	79	73	68	64	60
	20	91	91	91	91	91	91	89	84	79	73	68	64	60
	30	91	91	91	91	91	91	89	84	79	73	68	64	60
	40	81	81	81	81	81	81	81	81	79	73	68	64	60
	50	73	73	73	73	73	73	73	73	73	73	68	64	60
	60	67	67	67	67	67	67	67	67	67	67	67	64	60
	70	63	63	63	63	63	63	63	63	63	63	63	63	60
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	103	98	94	90	86	83	80	74	67	62	58	55	52
	10	103	98	94	90	86	83	80	74	67	62	58	55	52
	20	91	91	91	90	86	83	80	74	67	62	58	55	52
	30	91	91	91	90	86	83	80	74	67	62	58	55	52
	40	81	81	81	81	81	81	80	74	67	62	58	55	52
	50	73	73	73	73	73	73	73	73	67	62	58	55	52
	60	67	67	67	67	67	67	67	67	67	62	58	55	52
	70	63	63	63	63	63	63	63	63	63	62	58	55	52
	80	59	59	59	59	59	59	59	59	59	59	58	55	52
90	56	56	56	56	56	56	56	56	56	56	56	55	52	
Zones 2e & 3	0	99	95	91	87	84	81	78	70	64	60	56	52	49
	10	99	95	91	87	84	81	78	70	64	60	56	52	49
	20	91	91	91	87	84	81	78	70	64	60	56	52	49
	30	91	91	91	87	84	81	78	70	64	60	56	52	49
	40	81	81	81	81	81	81	78	70	64	60	56	52	49
	50	73	73	73	73	73	73	73	70	64	60	56	52	49
	60	67	67	67	67	67	67	67	67	64	60	56	52	49
	70	63	63	63	63	63	63	63	63	63	60	56	52	49
	80	59	59	59	59	59	59	59	59	59	59	56	52	49
	90	56	56	56	56	56	56	56	56	56	56	56	52	49

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 206a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape		
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		Y _E = 1		
		Exposure Category: C								Roof Type : Hip		h/B = ≥ 0.8		
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	119	113	108	104	100	97	93	88	83	79	73	68	64
	10	112	111	108	104	100	97	93	88	83	79	73	68	64
	20	91	91	91	91	91	91	90	88	83	79	73	68	64
	30	91	91	91	91	91	91	90	88	83	79	73	68	64
	40	81	81	81	81	81	81	81	80	79	77	73	68	64
	50	73	73	73	73	73	73	73	73	73	72	70	68	64
	60	67	67	67	67	67	67	67	67	67	67	66	65	64
	70	63	63	63	63	63	63	63	63	63	63	63	62	61
	80	59	59	59	59	59	59	59	59	59	59	59	59	58
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	108	103	99	95	91	88	85	79	72	66	62	58	55
	10	108	103	99	95	91	88	85	79	72	66	62	58	55
	20	91	91	91	91	91	88	85	79	72	66	62	58	55
	30	91	91	91	91	91	88	85	79	72	66	62	58	55
	40	81	81	81	81	81	81	81	79	72	66	62	58	55
	50	73	73	73	73	73	73	73	73	72	66	62	58	55
	60	67	67	67	67	67	67	67	67	67	66	62	58	55
	70	63	63	63	63	63	63	63	63	63	63	62	58	55
	80	59	59	59	59	59	59	59	59	59	59	59	58	55
	90	56	56	56	56	56	56	56	56	56	56	56	56	55
Zones 2e & 3	0	104	100	95	91	88	85	82	76	69	64	59	56	53
	10	104	100	95	91	88	85	82	76	69	64	59	56	53
	20	91	91	91	91	88	85	82	76	69	64	59	56	53
	30	91	91	91	91	88	85	82	76	69	64	59	56	53
	40	81	81	81	81	81	81	81	76	69	64	59	56	53
	50	73	73	73	73	73	73	73	73	69	64	59	56	53
	60	67	67	67	67	67	67	67	67	67	64	59	56	53
	70	63	63	63	63	63	63	63	63	63	63	59	56	53
	80	59	59	59	59	59	59	59	59	59	59	59	56	53
	90	56	56	56	56	56	56	56	56	56	56	56	56	53

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 206b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape			
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		Y _E = 1.5			
		Exposure Category: C								Roof Type : Hip		h/B = ≥ 0.8			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	100	96	92	88	85	82	80	73	67	62	58	55	52	
	10	100	96	92	88	85	82	80	73	67	62	58	55	52	
	20	91	91	91	88	85	82	80	73	67	62	58	55	52	
	30	91	91	91	88	85	82	80	73	67	62	58	55	52	
	40	81	81	81	81	81	81	80	73	67	62	58	55	52	
	50	73	73	73	73	73	73	73	73	67	62	58	55	52	
	60	67	67	67	67	67	67	67	67	67	62	58	55	52	
	70	63	63	63	63	63	63	63	63	63	62	58	55	52	
	80	59	59	59	59	59	59	59	59	59	59	58	55	52	
	90	56	56	56	56	56	56	56	56	56	56	56	55	52	
Zone 2r	0	91	87	83	80	76	72	68	62	58	54	50	47	44	
	10	91	87	83	80	76	72	68	62	58	54	50	47	44	
	20	91	87	83	80	76	72	68	62	58	54	50	47	44	
	30	91	87	83	80	76	72	68	62	58	54	50	47	44	
	40	81	81	81	80	76	72	68	62	58	54	50	47	44	
	50	73	73	73	73	73	72	68	62	58	54	50	47	44	
	60	67	67	67	67	67	67	67	62	58	54	50	47	44	
	70	63	63	63	63	63	63	63	62	58	54	50	47	44	
	80	59	59	59	59	59	59	59	59	58	54	50	47	44	
	90	56	56	56	56	56	56	56	56	56	54	50	47	44	
Zones 2e & 3	0	88	84	80	77	72	68	65	60	55	52	48	45	43	
	10	88	84	80	77	72	68	65	60	55	52	48	45	43	
	20	88	84	80	77	72	68	65	60	55	52	48	45	43	
	30	88	84	80	77	72	68	65	60	55	52	48	45	43	
	40	81	81	80	77	72	68	65	60	55	52	48	45	43	
	50	73	73	73	73	72	68	65	60	55	52	48	45	43	
	60	67	67	67	67	67	67	65	60	55	52	48	45	43	
	70	63	63	63	63	63	63	63	60	55	52	48	45	43	
	80	59	59	59	59	59	59	59	59	55	52	48	45	43	
	90	56	56	56	56	56	56	56	56	55	52	48	45	43	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 207a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	111	106	102	98	94	91	88	83	78	72	67	63	59
	10	110	106	102	98	94	91	88	83	78	72	67	63	59
	20	91	91	91	91	90	89	88	83	78	72	67	63	59
	30	91	91	91	91	90	89	88	83	78	72	67	63	59
	40	81	81	81	81	81	81	80	79	77	72	67	63	59
	50	73	73	73	73	73	73	73	73	71	70	67	63	59
	60	67	67	67	67	67	67	67	67	67	66	65	63	59
	70	63	63	63	63	63	63	63	63	63	63	62	61	59
	80	59	59	59	59	59	59	59	59	59	59	59	58	57
	90	56	56	56	56	56	56	56	56	56	56	56	56	55
Zone 2r	0	101	97	93	89	86	82	80	72	66	61	57	54	51
	10	101	97	93	89	86	82	80	72	66	61	57	54	51
	20	91	91	91	89	86	82	80	72	66	61	57	54	51
	30	91	91	91	89	86	82	80	72	66	61	57	54	51
	40	81	81	81	81	81	81	80	72	66	61	57	54	51
	50	73	73	73	73	73	73	73	72	66	61	57	54	51
	60	67	67	67	67	67	67	67	67	66	61	57	54	51
	70	63	63	63	63	63	63	63	63	63	61	57	54	51
	80	59	59	59	59	59	59	59	59	59	59	57	54	51
	90	56	56	56	56	56	56	56	56	56	56	56	54	51
Zones 2e & 3	0	98	94	90	86	83	80	76	69	63	59	55	52	49
	10	98	94	90	86	83	80	76	69	63	59	55	52	49
	20	91	91	90	86	83	80	76	69	63	59	55	52	49
	30	91	91	90	86	83	80	76	69	63	59	55	52	49
	40	81	81	81	81	81	80	76	69	63	59	55	52	49
	50	73	73	73	73	73	73	73	69	63	59	55	52	49
	60	67	67	67	67	67	67	67	67	63	59	55	52	49
	70	63	63	63	63	63	63	63	63	63	59	55	52	49
	80	59	59	59	59	59	59	59	59	59	59	55	52	49
	90	56	56	56	56	56	56	56	56	56	56	55	52	49

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 207b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	94	90	87	84	81	78	74	67	62	58	54	51	48
	10	94	90	87	84	81	78	74	67	62	58	54	51	48
	20	91	90	87	84	81	78	74	67	62	58	54	51	48
	30	91	90	87	84	81	78	74	67	62	58	54	51	48
	40	81	81	81	81	81	78	74	67	62	58	54	51	48
	50	73	73	73	73	73	73	73	67	62	58	54	51	48
	60	67	67	67	67	67	67	67	67	62	58	54	51	48
	70	63	63	63	63	63	63	63	63	62	58	54	51	48
	80	59	59	59	59	59	59	59	59	59	58	54	51	48
	90	56	56	56	56	56	56	56	56	56	56	54	51	48
Zone 2r	0	85	82	78	73	69	66	63	58	53	50	47	44	41
	10	85	82	78	73	69	66	63	58	53	50	47	44	41
	20	85	82	78	73	69	66	63	58	53	50	47	44	41
	30	85	82	78	73	69	66	63	58	53	50	47	44	41
	40	81	81	78	73	69	66	63	58	53	50	47	44	41
	50	73	73	73	73	69	66	63	58	53	50	47	44	41
	60	67	67	67	67	67	66	63	58	53	50	47	44	41
	70	63	63	63	63	63	63	63	58	53	50	47	44	41
	80	59	59	59	59	59	59	59	58	53	50	47	44	41
	90	56	56	56	56	56	56	56	56	53	50	47	44	41
Zones 2e & 3	0	83	79	74	70	66	63	60	55	51	48	45	42	40
	10	83	79	74	70	66	63	60	55	51	48	45	42	40
	20	83	79	74	70	66	63	60	55	51	48	45	42	40
	30	83	79	74	70	66	63	60	55	51	48	45	42	40
	40	81	79	74	70	66	63	60	55	51	48	45	42	40
	50	73	73	73	70	66	63	60	55	51	48	45	42	40
	60	67	67	67	67	66	63	60	55	51	48	45	42	40
	70	63	63	63	63	63	63	60	55	51	48	45	42	40
	80	59	59	59	59	59	59	59	55	51	48	45	42	40
	90	56	56	56	56	56	56	56	55	51	48	45	42	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 208a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support X _E = 1					
		Exposure Category: B							Roof Type : Hip h/B = ≤ 0.5					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	121	120	112	106	100	95	90	86
	10	113	112	111	110	109	108	107	105	103	100	95	90	86
	20	91	91	91	91	91	91	91	90	89	87	85	84	82
	30	91	91	91	91	91	91	91	90	89	87	85	84	82
	40	81	81	81	81	81	81	81	81	81	80	78	77	76
	50	73	73	73	73	73	73	73	73	73	73	73	72	71
	60	67	67	67	67	67	67	67	67	67	67	67	67	66
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	121	117	112	107	103	99	95	89	84	79	73	68	64
	10	113	112	111	107	103	99	95	89	84	79	73	68	64
	20	91	91	91	91	91	91	91	89	84	79	73	68	64
	30	91	91	91	91	91	91	91	89	84	79	73	68	64
	40	81	81	81	81	81	81	81	81	81	79	73	68	64
	50	73	73	73	73	73	73	73	73	73	73	73	68	64
	60	67	67	67	67	67	67	67	67	67	67	67	67	64
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e & 3	0	121	121	121	121	116	112	108	100	94	89	84	80	76
	10	113	112	111	110	109	108	107	100	94	89	84	80	76
	20	91	91	91	91	91	91	91	90	89	87	84	80	76
	30	91	91	91	91	91	91	91	90	89	87	84	80	76
	40	81	81	81	81	81	81	81	81	81	80	78	77	76
	50	73	73	73	73	73	73	73	73	73	73	73	72	71
	60	67	67	67	67	67	67	67	67	67	67	67	67	66
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 208b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	118	113	109	105	101	95	90	85	81	76	71
	10	113	112	111	110	109	105	101	95	90	85	81	76	71
	20	91	91	91	91	91	91	91	90	89	85	81	76	71
	30	91	91	91	91	91	91	91	90	89	85	81	76	71
	40	81	81	81	81	81	81	81	81	81	80	78	76	71
	50	73	73	73	73	73	73	73	73	73	73	73	72	71
	60	67	67	67	67	67	67	67	67	67	67	67	67	66
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	103	98	94	90	86	83	80	74	67	62	58	55	52
	10	103	98	94	90	86	83	80	74	67	62	58	55	52
	20	91	91	91	90	86	83	80	74	67	62	58	55	52
	30	91	91	91	90	86	83	80	74	67	62	58	55	52
	40	81	81	81	81	81	81	80	74	67	62	58	55	52
	50	73	73	73	73	73	73	73	73	67	62	58	55	52
	60	67	67	67	67	67	67	67	67	67	62	58	55	52
	70	63	63	63	63	63	63	63	63	63	62	58	55	52
	80	59	59	59	59	59	59	59	59	59	59	58	55	52
	90	56	56	56	56	56	56	56	56	56	56	56	55	52
Zones 2e & 3	0	116	111	106	101	97	94	90	85	80	74	68	64	60
	10	113	111	106	101	97	94	90	85	80	74	68	64	60
	20	91	91	91	91	91	91	90	85	80	74	68	64	60
	30	91	91	91	91	91	91	90	85	80	74	68	64	60
	40	81	81	81	81	81	81	81	81	80	74	68	64	60
	50	73	73	73	73	73	73	73	73	73	73	68	64	60
	60	67	67	67	67	67	67	67	67	67	67	67	64	60
	70	63	63	63	63	63	63	63	63	63	63	63	63	60
	80	59	59	59	59	59	59	59	59	59	59	59	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 209a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape			
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		X _E = 1			
		Exposure Category: C								Roof Type : Hip		h/B = ≤ 0.5			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	121	121	121	119	115	111	107	100	94	89	85	81	77	
	10	111	109	108	107	106	104	103	100	94	89	85	81	77	
	20	91	91	91	91	91	90	89	87	85	83	81	79	77	
	30	91	91	91	91	91	90	89	87	85	83	81	79	77	
	40	81	81	81	81	81	81	81	80	78	77	75	73	72	
	50	73	73	73	73	73	73	73	73	73	71	70	69	67	
	60	67	67	67	67	67	67	67	67	67	67	66	65	64	
	70	63	63	63	63	63	63	63	63	63	63	63	62	61	
	80	59	59	59	59	59	59	59	59	59	59	59	59	58	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zone 2r	0	108	103	99	95	91	88	85	79	72	66	62	58	55	
	10	108	103	99	95	91	88	85	79	72	66	62	58	55	
	20	91	91	91	91	91	88	85	79	72	66	62	58	55	
	30	91	91	91	91	91	88	85	79	72	66	62	58	55	
	40	81	81	81	81	81	81	81	79	72	66	62	58	55	
	50	73	73	73	73	73	73	73	73	72	66	62	58	55	
	60	67	67	67	67	67	67	67	67	67	66	62	58	55	
	70	63	63	63	63	63	63	63	63	63	63	62	58	55	
	80	59	59	59	59	59	59	59	59	59	59	59	58	55	
	90	56	56	56	56	56	56	56	56	56	56	56	56	55	
Zones 2e & 3	0	121	117	111	107	102	99	95	89	84	79	73	68	64	
	10	111	109	108	107	102	99	95	89	84	79	73	68	64	
	20	91	91	91	91	91	90	89	87	84	79	73	68	64	
	30	91	91	91	91	91	90	89	87	84	79	73	68	64	
	40	81	81	81	81	81	81	81	80	78	77	73	68	64	
	50	73	73	73	73	73	73	73	73	73	71	70	68	64	
	60	67	67	67	67	67	67	67	67	67	67	66	65	64	
	70	63	63	63	63	63	63	63	63	63	63	63	62	61	
	80	59	59	59	59	59	59	59	59	59	59	59	59	58	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 209b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	115	109	105	101	97	94	91	85	80	75	69	65	61
	10	111	109	105	101	97	94	91	85	80	75	69	65	61
	20	91	91	91	91	91	90	89	85	80	75	69	65	61
	30	91	91	91	91	91	90	89	85	80	75	69	65	61
	40	81	81	81	81	81	81	81	80	78	75	69	65	61
	50	73	73	73	73	73	73	73	73	73	71	69	65	61
	60	67	67	67	67	67	67	67	67	67	67	66	65	61
	70	63	63	63	63	63	63	63	63	63	63	63	62	61
	80	59	59	59	59	59	59	59	59	59	59	59	59	58
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zone 2r	0	91	87	83	80	76	72	68	62	58	54	50	47	44
	10	91	87	83	80	76	72	68	62	58	54	50	47	44
	20	91	87	83	80	76	72	68	62	58	54	50	47	44
	30	91	87	83	80	76	72	68	62	58	54	50	47	44
	40	81	81	81	80	76	72	68	62	58	54	50	47	44
	50	73	73	73	73	73	72	68	62	58	54	50	47	44
	60	67	67	67	67	67	67	67	62	58	54	50	47	44
	70	63	63	63	63	63	63	63	62	58	54	50	47	44
	80	59	59	59	59	59	59	59	59	58	54	50	47	44
	90	56	56	56	56	56	56	56	56	56	54	50	47	44
Zones 2e & 3	0	102	98	93	90	86	83	80	74	67	62	58	55	52
	10	102	98	93	90	86	83	80	74	67	62	58	55	52
	20	91	91	91	90	86	83	80	74	67	62	58	55	52
	30	91	91	91	90	86	83	80	74	67	62	58	55	52
	40	81	81	81	81	81	81	80	74	67	62	58	55	52
	50	73	73	73	73	73	73	73	73	67	62	58	55	52
	60	67	67	67	67	67	67	67	67	67	62	58	55	52
	70	63	63	63	63	63	63	63	63	63	62	58	55	52
	80	59	59	59	59	59	59	59	59	59	59	58	55	52
	90	56	56	56	56	56	56	56	56	56	56	56	55	52

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 210a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape			North/South Support X _E = 1		
		Roof Angle: 7 < θ ≤ 20 degrees							Roof Type : Hip			h/B = ≤ 0.5		
		Exposure Category: D												
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	117	112	108	104	100	94	89	84	80	75	70
	10	109	108	106	105	104	102	100	94	89	84	80	75	70
	20	91	91	91	90	89	88	87	85	83	81	79	75	70
	30	91	91	91	90	89	88	87	85	83	81	79	75	70
	40	81	81	81	81	81	81	80	78	77	75	73	71	70
	50	73	73	73	73	73	73	73	73	71	70	68	67	66
	60	67	67	67	67	67	67	67	67	67	66	65	64	62
	70	63	63	63	63	63	63	63	63	63	63	62	61	60
	80	59	59	59	59	59	59	59	59	59	59	59	58	57
	90	56	56	56	56	56	56	56	56	56	56	56	56	55
Zone 2r	0	101	97	93	89	86	82	80	72	66	61	57	54	51
	10	101	97	93	89	86	82	80	72	66	61	57	54	51
	20	91	91	91	89	86	82	80	72	66	61	57	54	51
	30	91	91	91	89	86	82	80	72	66	61	57	54	51
	40	81	81	81	81	81	81	80	72	66	61	57	54	51
	50	73	73	73	73	73	73	73	72	66	61	57	54	51
	60	67	67	67	67	67	67	67	67	66	61	57	54	51
	70	63	63	63	63	63	63	63	63	63	61	57	54	51
	80	59	59	59	59	59	59	59	59	59	59	57	54	51
	90	56	56	56	56	56	56	56	56	56	56	56	54	51
Zones 2e & 3	0	115	109	104	100	96	93	89	84	79	72	67	63	59
	10	109	108	104	100	96	93	89	84	79	72	67	63	59
	20	91	91	91	90	89	88	87	84	79	72	67	63	59
	30	91	91	91	90	89	88	87	84	79	72	67	63	59
	40	81	81	81	81	81	81	80	78	77	72	67	63	59
	50	73	73	73	73	73	73	73	73	71	70	67	63	59
	60	67	67	67	67	67	67	67	67	67	66	65	63	59
	70	63	63	63	63	63	63	63	63	63	63	62	61	59
	80	59	59	59	59	59	59	59	59	59	59	59	58	57
	90	56	56	56	56	56	56	56	56	56	56	56	56	55

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 210b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation:		Landscape			
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support		X _E = 1.5			
		Exposure Category: D								Roof Type : Hip		h/B = ≤ 0.5			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	108	103	99	95	91	88	85	80	74	69	64	60	57	
	10	108	103	99	95	91	88	85	80	74	69	64	60	57	
	20	91	91	91	90	89	88	85	80	74	69	64	60	57	
	30	91	91	91	90	89	88	85	80	74	69	64	60	57	
	40	81	81	81	81	81	81	80	78	74	69	64	60	57	
	50	73	73	73	73	73	73	73	73	71	69	64	60	57	
	60	67	67	67	67	67	67	67	67	67	66	64	60	57	
	70	63	63	63	63	63	63	63	63	63	63	62	60	57	
	80	59	59	59	59	59	59	59	59	59	59	59	58	57	
	90	56	56	56	56	56	56	56	56	56	56	56	56	55	
Zone 2r	0	85	82	78	73	69	66	63	58	53	50	47	44	41	
	10	85	82	78	73	69	66	63	58	53	50	47	44	41	
	20	85	82	78	73	69	66	63	58	53	50	47	44	41	
	30	85	82	78	73	69	66	63	58	53	50	47	44	41	
	40	81	81	78	73	69	66	63	58	53	50	47	44	41	
	50	73	73	73	73	69	66	63	58	53	50	47	44	41	
	60	67	67	67	67	67	66	63	58	53	50	47	44	41	
	70	63	63	63	63	63	63	63	58	53	50	47	44	41	
	80	59	59	59	59	59	59	59	58	53	50	47	44	41	
	90	56	56	56	56	56	56	56	56	53	50	47	44	41	
Zones 2e & 3	0	96	92	88	84	81	78	74	67	62	58	54	51	48	
	10	96	92	88	84	81	78	74	67	62	58	54	51	48	
	20	91	91	88	84	81	78	74	67	62	58	54	51	48	
	30	91	91	88	84	81	78	74	67	62	58	54	51	48	
	40	81	81	81	81	81	78	74	67	62	58	54	51	48	
	50	73	73	73	73	73	73	73	67	62	58	54	51	48	
	60	67	67	67	67	67	67	67	67	62	58	54	51	48	
	70	63	63	63	63	63	63	63	63	62	58	54	51	48	
	80	59	59	59	59	59	59	59	59	59	58	54	51	48	
	90	56	56	56	56	56	56	56	56	56	56	54	51	48	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 211a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	121	121	113	106	100	94	89	85
	10	121	121	121	121	120	119	118	113	106	100	94	89	85
	20	107	107	107	107	107	107	106	103	101	99	94	89	85
	30	92	92	92	92	92	92	92	92	90	88	87	85	83
	40	81	81	81	81	81	81	81	81	81	81	79	78	76
	50	74	74	74	74	74	74	74	74	74	74	73	72	71
	60	68	68	68	68	68	68	68	68	68	68	68	68	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	121	121	121	116	112	107	103	96	90	85	81	77	71
	10	121	121	121	116	112	107	103	96	90	85	81	77	71
	20	107	107	107	107	107	107	103	96	90	85	81	77	71
	30	92	92	92	92	92	92	92	92	90	85	81	77	71
	40	81	81	81	81	81	81	81	81	81	81	79	77	71
	50	74	74	74	74	74	74	74	74	74	74	73	72	71
	60	68	68	68	68	68	68	68	68	68	68	68	68	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 211b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5					
		Exposure Category: B							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	120	114	110	105	101	95	89	84	79	74	69
	10	121	121	120	114	110	105	101	95	89	84	79	74	69
	20	107	107	107	107	107	105	101	95	89	84	79	74	69
	30	92	92	92	92	92	92	92	92	89	84	79	74	69
	40	81	81	81	81	81	81	81	81	81	81	79	74	69
	50	74	74	74	74	74	74	74	74	74	74	73	72	69
	60	68	68	68	68	68	68	68	68	68	68	68	68	67
	70	63	63	63	63	63	63	63	63	63	63	63	63	63
	80	60	60	60	60	60	60	60	60	60	60	60	60	60
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	111	106	101	97	93	90	87	81	76	69	64	60	57
	10	111	106	101	97	93	90	87	81	76	69	64	60	57
	20	107	106	101	97	93	90	87	81	76	69	64	60	57
	30	92	92	92	92	92	90	87	81	76	69	64	60	57
	40	81	81	81	81	81	81	81	81	76	69	64	60	57
	50	74	74	74	74	74	74	74	74	74	69	64	60	57
	60	68	68	68	68	68	68	68	68	68	68	64	60	57
	70	63	63	63	63	63	63	63	63	63	63	63	60	57
	80	60	60	60	60	60	60	60	60	60	60	60	60	57
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 212a		Mean Roof Height:		30 < h ≤ 60 ft		Panel Orientation:		Landscape						
		Roof Angle:		20 < θ ≤ 27 degrees		North/South Support		Y _E = 1						
		Exposure Category:		C		Roof Type :		Hip						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	116	111	107	100	93	88	83	79	75
	10	121	121	119	117	116	111	107	100	93	88	83	79	75
	20	107	107	107	105	104	103	102	99	93	88	83	79	75
	30	92	92	92	92	92	91	90	88	86	84	82	79	75
	40	81	81	81	81	81	81	81	81	79	77	76	74	72
	50	74	74	74	74	74	74	74	74	73	72	71	69	68
	60	68	68	68	68	68	68	68	68	68	68	66	65	64
	70	63	63	63	63	63	63	63	63	63	63	63	62	61
	80	60	60	60	60	60	60	60	60	60	60	60	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56
Zones 2e, 2r, & 3	0	118	112	107	102	98	95	91	85	80	75	69	64	61
	10	118	112	107	102	98	95	91	85	80	75	69	64	61
	20	107	107	107	102	98	95	91	85	80	75	69	64	61
	30	92	92	92	92	92	91	90	85	80	75	69	64	61
	40	81	81	81	81	81	81	81	81	79	75	69	64	61
	50	74	74	74	74	74	74	74	74	73	72	69	64	61
	60	68	68	68	68	68	68	68	68	68	68	66	64	61
	70	63	63	63	63	63	63	63	63	63	63	63	62	61
	80	60	60	60	60	60	60	60	60	60	60	60	59	59
	90	56	56	56	56	56	56	56	56	56	56	56	56	56

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 212b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Landscape						
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5						
		Exposure Category: C							Roof Type : Hip						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	116	110	105	101	97	93	90	84	79	73	67	63	59	
	10	116	110	105	101	97	93	90	84	79	73	67	63	59	
	20	107	107	105	101	97	93	90	84	79	73	67	63	59	
	30	92	92	92	92	92	91	90	84	79	73	67	63	59	
	40	81	81	81	81	81	81	81	81	79	73	67	63	59	
	50	74	74	74	74	74	74	74	74	73	72	67	63	59	
	60	68	68	68	68	68	68	68	68	68	68	66	63	59	
	70	63	63	63	63	63	63	63	63	63	63	63	62	59	
	80	60	60	60	60	60	60	60	60	60	60	60	59	59	
	90	56	56	56	56	56	56	56	56	56	56	56	56	56	
Zones 2e, 2r, & 3	0	98	94	90	86	83	80	77	69	64	59	55	52	49	
	10	98	94	90	86	83	80	77	69	64	59	55	52	49	
	20	98	94	90	86	83	80	77	69	64	59	55	52	49	
	30	92	92	90	86	83	80	77	69	64	59	55	52	49	
	40	81	81	81	81	81	80	77	69	64	59	55	52	49	
	50	74	74	74	74	74	74	74	69	64	59	55	52	49	
	60	68	68	68	68	68	68	68	68	64	59	55	52	49	
	70	63	63	63	63	63	63	63	63	63	59	55	52	49	
	80	60	60	60	60	60	60	60	60	60	59	55	52	49	
	90	56	56	56	56	56	56	56	56	56	56	55	52	49	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 213a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	118	113	108	104	100	93	88	83	79	73	68
	10	120	118	117	113	108	104	100	93	88	83	79	73	68
	20	107	106	105	103	102	101	99	93	88	83	79	73	68
	30	92	92	92	92	91	89	88	86	84	82	79	73	68
	40	81	81	81	81	81	81	81	79	77	75	74	72	68
	50	74	74	74	74	74	74	74	73	72	70	69	67	66
	60	68	68	68	68	68	68	68	68	67	66	65	64	63
	70	63	63	63	63	63	63	63	63	63	63	62	61	60
	80	60	60	60	60	60	60	60	60	60	60	59	58	57
	90	56	56	56	56	56	56	56	56	56	56	56	56	55
Zones 2e, 2r, & 3	0	110	105	100	96	92	89	86	80	74	68	63	59	56
	10	110	105	100	96	92	89	86	80	74	68	63	59	56
	20	107	105	100	96	92	89	86	80	74	68	63	59	56
	30	92	92	92	92	91	89	86	80	74	68	63	59	56
	40	81	81	81	81	81	81	81	79	74	68	63	59	56
	50	74	74	74	74	74	74	74	73	72	68	63	59	56
	60	68	68	68	68	68	68	68	68	67	66	63	59	56
	70	63	63	63	63	63	63	63	63	63	63	62	59	56
	80	60	60	60	60	60	60	60	60	60	60	59	58	56
	90	56	56	56	56	56	56	56	56	56	56	56	56	55

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 213b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	108	103	98	94	91	87	84	79	72	66	62	58	55
	10	108	103	98	94	91	87	84	79	72	66	62	58	55
	20	107	103	98	94	91	87	84	79	72	66	62	58	55
	30	92	92	92	92	91	87	84	79	72	66	62	58	55
	40	81	81	81	81	81	81	81	79	72	66	62	58	55
	50	74	74	74	74	74	74	74	73	72	66	62	58	55
	60	68	68	68	68	68	68	68	68	67	66	62	58	55
	70	63	63	63	63	63	63	63	63	63	63	62	58	55
	80	60	60	60	60	60	60	60	60	60	60	59	58	55
	90	56	56	56	56	56	56	56	56	56	56	56	56	55
Zones 2e, 2r, & 3	0	92	88	84	81	78	74	70	64	59	55	51	48	45
	10	92	88	84	81	78	74	70	64	59	55	51	48	45
	20	92	88	84	81	78	74	70	64	59	55	51	48	45
	30	92	88	84	81	78	74	70	64	59	55	51	48	45
	40	81	81	81	81	78	74	70	64	59	55	51	48	45
	50	74	74	74	74	74	74	70	64	59	55	51	48	45
	60	68	68	68	68	68	68	68	64	59	55	51	48	45
	70	63	63	63	63	63	63	63	63	59	55	51	48	45
	80	60	60	60	60	60	60	60	60	59	55	51	48	45
	90	56	56	56	56	56	56	56	56	56	55	51	48	45

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 214a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	121	121	121	120	116	108	101	95	90	86	82
	10	121	121	121	121	121	120	116	108	101	95	90	86	82
	20	110	110	110	110	110	110	109	107	101	95	90	86	82
	30	97	97	97	97	97	97	97	96	94	92	90	86	82
	40	86	86	86	86	86	86	86	86	86	84	83	82	80
	50	78	78	78	78	78	78	78	78	78	78	77	76	75
	60	72	72	72	72	72	72	72	72	72	72	72	71	70
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2e	0	121	121	121	121	120	115	110	102	95	90	85	80	76
	10	121	121	121	121	120	115	110	102	95	90	85	80	76
	20	110	110	110	110	110	110	109	102	95	90	85	80	76
	30	97	97	97	97	97	97	97	96	94	90	85	80	76
	40	86	86	86	86	86	86	86	86	86	84	83	80	76
	50	78	78	78	78	78	78	78	78	78	78	77	76	75
	60	72	72	72	72	72	72	72	72	72	72	72	71	70
	70	67	67	67	67	67	67	67	67	67	67	67	67	67
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2r	0	121	121	115	110	105	101	98	91	85	81	76	70	65
	10	121	121	115	110	105	101	98	91	85	81	76	70	65
	20	110	110	110	110	105	101	98	91	85	81	76	70	65
	30	97	97	97	97	97	97	97	91	85	81	76	70	65
	40	86	86	86	86	86	86	86	86	85	81	76	70	65
	50	78	78	78	78	78	78	78	78	78	78	76	70	65
	60	72	72	72	72	72	72	72	72	72	72	72	70	65
	70	67	67	67	67	67	67	67	67	67	67	67	67	65
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 3	0	121	121	115	110	105	100	97	90	84	79	73	67	62
	10	121	121	115	110	105	100	97	90	84	79	73	67	62
	20	110	110	110	110	105	100	97	90	84	79	73	67	62
	30	97	97	97	97	97	97	97	90	84	79	73	67	62
	40	86	86	86	86	86	86	86	86	84	79	73	67	62
	50	78	78	78	78	78	78	78	78	78	78	73	67	62
	60	72	72	72	72	72	72	72	72	72	72	72	67	62
	70	67	67	67	67	67	67	67	67	67	67	67	67	62
	80	63	63	63	63	63	63	63	63	63	63	63	63	62
	90	60	60	60	60	60	60	60	60	60	60	60	60	60

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 214b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation:		Landscape			
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support		X _E = 1.5			
		Exposure Category: B							Roof Type :		Hip			
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	119	114	109	105	101	97	91	85	81	77	71	66
	10	121	119	114	109	105	101	97	91	85	81	77	71	66
	20	110	110	110	109	105	101	97	91	85	81	77	71	66
	30	97	97	97	97	97	97	97	91	85	81	77	71	66
	40	86	86	86	86	86	86	86	86	85	81	77	71	66
	50	78	78	78	78	78	78	78	78	78	78	77	71	66
	60	72	72	72	72	72	72	72	72	72	72	72	71	66
	70	67	67	67	67	67	67	67	67	67	67	67	67	66
	80	63	63	63	63	63	63	63	63	63	63	63	63	63
	90	60	60	60	60	60	60	60	60	60	60	60	60	60
Zone 2e	0	120	114	108	103	99	95	91	85	80	74	67	62	58
	10	120	114	108	103	99	95	91	85	80	74	67	62	58
	20	110	110	108	103	99	95	91	85	80	74	67	62	58
	30	97	97	97	97	97	95	91	85	80	74	67	62	58
	40	86	86	86	86	86	86	86	85	80	74	67	62	58
	50	78	78	78	78	78	78	78	78	78	74	67	62	58
	60	72	72	72	72	72	72	72	72	72	72	67	62	58
	70	67	67	67	67	67	67	67	67	67	67	67	62	58
	80	63	63	63	63	63	63	63	63	63	63	63	62	58
	90	60	60	60	60	60	60	60	60	60	60	60	60	58
Zone 2r	0	105	100	96	92	88	85	82	77	69	64	59	55	51
	10	105	100	96	92	88	85	82	77	69	64	59	55	51
	20	105	100	96	92	88	85	82	77	69	64	59	55	51
	30	97	97	96	92	88	85	82	77	69	64	59	55	51
	40	86	86	86	86	86	85	82	77	69	64	59	55	51
	50	78	78	78	78	78	78	78	77	69	64	59	55	51
	60	72	72	72	72	72	72	72	72	69	64	59	55	51
	70	67	67	67	67	67	67	67	67	67	64	59	55	51
	80	63	63	63	63	63	63	63	63	63	63	59	55	51
	90	60	60	60	60	60	60	60	60	60	60	59	55	51
Zone 3	0	105	99	95	91	87	83	80	74	66	60	55	51	48
	10	105	99	95	91	87	83	80	74	66	60	55	51	48
	20	105	99	95	91	87	83	80	74	66	60	55	51	48
	30	97	97	95	91	87	83	80	74	66	60	55	51	48
	40	86	86	86	86	86	83	80	74	66	60	55	51	48
	50	78	78	78	78	78	78	78	74	66	60	55	51	48
	60	72	72	72	72	72	72	72	72	66	60	55	51	48
	70	67	67	67	67	67	67	67	67	66	60	55	51	48
	80	63	63	63	63	63	63	63	63	63	60	55	51	48
	90	60	60	60	60	60	60	60	60	60	60	55	51	48

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 215a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	121	120	115	110	106	102	95	90	85	80	76	71
	10	121	121	120	115	110	106	102	95	90	85	80	76	71
	20	110	110	110	109	108	106	102	95	90	85	80	76	71
	30	97	97	97	97	96	95	94	92	90	85	80	76	71
	40	86	86	86	86	86	86	86	84	83	81	79	76	71
	50	78	78	78	78	78	78	78	78	77	76	74	73	71
	60	72	72	72	72	72	72	72	72	72	71	70	69	67
	70	67	67	67	67	67	67	67	67	67	67	66	65	64
	80	63	63	63	63	63	63	63	63	63	63	63	62	62
	90	60	60	60	60	60	60	60	60	60	60	60	60	59
Zone 2e	0	121	121	115	109	105	100	97	90	84	79	74	67	63
	10	121	121	115	109	105	100	97	90	84	79	74	67	63
	20	110	110	110	109	105	100	97	90	84	79	74	67	63
	30	97	97	97	97	96	95	94	90	84	79	74	67	63
	40	86	86	86	86	86	86	86	84	83	79	74	67	63
	50	78	78	78	78	78	78	78	78	77	76	74	67	63
	60	72	72	72	72	72	72	72	72	72	71	70	67	63
	70	67	67	67	67	67	67	67	67	67	67	66	65	63
	80	63	63	63	63	63	63	63	63	63	63	63	62	62
	90	60	60	60	60	60	60	60	60	60	60	60	60	59
Zone 2r	0	111	106	101	97	93	90	86	81	76	69	63	59	55
	10	111	106	101	97	93	90	86	81	76	69	63	59	55
	20	110	106	101	97	93	90	86	81	76	69	63	59	55
	30	97	97	97	97	93	90	86	81	76	69	63	59	55
	40	86	86	86	86	86	86	86	81	76	69	63	59	55
	50	78	78	78	78	78	78	78	78	76	69	63	59	55
	60	72	72	72	72	72	72	72	72	72	69	63	59	55
	70	67	67	67	67	67	67	67	67	67	67	63	59	55
	80	63	63	63	63	63	63	63	63	63	63	63	59	55
	90	60	60	60	60	60	60	60	60	60	60	60	59	55
Zone 3	0	111	105	100	96	92	88	85	79	72	65	60	55	52
	10	111	105	100	96	92	88	85	79	72	65	60	55	52
	20	110	105	100	96	92	88	85	79	72	65	60	55	52
	30	97	97	97	96	92	88	85	79	72	65	60	55	52
	40	86	86	86	86	86	86	85	79	72	65	60	55	52
	50	78	78	78	78	78	78	78	78	72	65	60	55	52
	60	72	72	72	72	72	72	72	72	72	65	60	55	52
	70	67	67	67	67	67	67	67	67	67	65	60	55	52
	80	63	63	63	63	63	63	63	63	63	63	60	55	52
	90	60	60	60	60	60	60	60	60	60	60	60	55	52

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 215b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	110	105	100	96	93	89	86	81	76	69	64	60	57
	10	110	105	100	96	93	89	86	81	76	69	64	60	57
	20	110	105	100	96	93	89	86	81	76	69	64	60	57
	30	97	97	97	96	93	89	86	81	76	69	64	60	57
	40	86	86	86	86	86	86	86	81	76	69	64	60	57
	50	78	78	78	78	78	78	78	78	76	69	64	60	57
	60	72	72	72	72	72	72	72	72	72	69	64	60	57
	70	67	67	67	67	67	67	67	67	67	67	64	60	57
	80	63	63	63	63	63	63	63	63	63	63	63	60	57
	90	60	60	60	60	60	60	60	60	60	60	60	60	57
Zone 2e	0	104	99	95	91	87	84	81	74	67	61	56	52	49
	10	104	99	95	91	87	84	81	74	67	61	56	52	49
	20	104	99	95	91	87	84	81	74	67	61	56	52	49
	30	97	97	95	91	87	84	81	74	67	61	56	52	49
	40	86	86	86	86	86	84	81	74	67	61	56	52	49
	50	78	78	78	78	78	78	78	74	67	61	56	52	49
	60	72	72	72	72	72	72	72	72	67	61	56	52	49
	70	67	67	67	67	67	67	67	67	67	61	56	52	49
	80	63	63	63	63	63	63	63	63	63	61	56	52	49
	90	60	60	60	60	60	60	60	60	60	60	56	52	49
Zone 2r	0	93	89	85	81	78	75	71	64	58	54	50	46	43
	10	93	89	85	81	78	75	71	64	58	54	50	46	43
	20	93	89	85	81	78	75	71	64	58	54	50	46	43
	30	93	89	85	81	78	75	71	64	58	54	50	46	43
	40	86	86	85	81	78	75	71	64	58	54	50	46	43
	50	78	78	78	78	78	75	71	64	58	54	50	46	43
	60	72	72	72	72	72	72	71	64	58	54	50	46	43
	70	67	67	67	67	67	67	67	64	58	54	50	46	43
	80	63	63	63	63	63	63	63	63	58	54	50	46	43
	90	60	60	60	60	60	60	60	60	58	54	50	46	43
Zone 3	0	91	87	83	80	76	71	67	60	55	50	46	43	40
	10	91	87	83	80	76	71	67	60	55	50	46	43	40
	20	91	87	83	80	76	71	67	60	55	50	46	43	40
	30	91	87	83	80	76	71	67	60	55	50	46	43	40
	40	86	86	83	80	76	71	67	60	55	50	46	43	40
	50	78	78	78	78	76	71	67	60	55	50	46	43	40
	60	72	72	72	72	72	71	67	60	55	50	46	43	40
	70	67	67	67	67	67	67	67	60	55	50	46	43	40
	80	63	63	63	63	63	63	63	60	55	50	46	43	40
	90	60	60	60	60	60	60	60	60	55	50	46	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 216a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	121	118	112	108	103	99	96	90	84	80	75	69	65
	10	121	118	112	108	103	99	96	90	84	80	75	69	65
	20	110	110	108	107	103	99	96	90	84	80	75	69	65
	30	97	97	97	96	94	93	92	90	84	80	75	69	65
	40	86	86	86	86	86	85	85	83	81	79	75	69	65
	50	78	78	78	78	78	78	78	77	76	74	72	69	65
	60	72	72	72	72	72	72	72	72	71	70	68	67	65
	70	67	67	67	67	67	67	67	67	67	66	65	64	63
	80	63	63	63	63	63	63	63	63	63	63	62	61	60
	90	60	60	60	60	60	60	60	60	60	60	60	59	58
Zone 2e	0	118	112	107	102	98	94	90	84	79	73	66	61	57
	10	118	112	107	102	98	94	90	84	79	73	66	61	57
	20	110	110	107	102	98	94	90	84	79	73	66	61	57
	30	97	97	97	96	94	93	90	84	79	73	66	61	57
	40	86	86	86	86	86	85	85	83	79	73	66	61	57
	50	78	78	78	78	78	78	78	77	76	73	66	61	57
	60	72	72	72	72	72	72	72	72	71	70	66	61	57
	70	67	67	67	67	67	67	67	67	67	66	65	61	57
	80	63	63	63	63	63	63	63	63	63	63	62	61	57
	90	60	60	60	60	60	60	60	60	60	60	60	59	57
Zone 2r	0	104	99	95	91	87	84	81	76	68	63	58	54	50
	10	104	99	95	91	87	84	81	76	68	63	58	54	50
	20	104	99	95	91	87	84	81	76	68	63	58	54	50
	30	97	97	95	91	87	84	81	76	68	63	58	54	50
	40	86	86	86	86	86	84	81	76	68	63	58	54	50
	50	78	78	78	78	78	78	78	76	68	63	58	54	50
	60	72	72	72	72	72	72	72	72	68	63	58	54	50
	70	67	67	67	67	67	67	67	67	67	63	58	54	50
	80	63	63	63	63	63	63	63	63	63	63	58	54	50
	90	60	60	60	60	60	60	60	60	60	60	58	54	50
Zone 3	0	103	98	93	89	86	82	79	72	65	59	54	50	47
	10	103	98	93	89	86	82	79	72	65	59	54	50	47
	20	103	98	93	89	86	82	79	72	65	59	54	50	47
	30	97	97	93	89	86	82	79	72	65	59	54	50	47
	40	86	86	86	86	86	82	79	72	65	59	54	50	47
	50	78	78	78	78	78	78	78	72	65	59	54	50	47
	60	72	72	72	72	72	72	72	72	65	59	54	50	47
	70	67	67	67	67	67	67	67	67	65	59	54	50	47
	80	63	63	63	63	63	63	63	63	63	59	54	50	47
	90	60	60	60	60	60	60	60	60	60	59	54	50	47

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 216b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Landscape				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	103	98	94	90	87	84	81	76	69	64	59	56	52
	10	103	98	94	90	87	84	81	76	69	64	59	56	52
	20	103	98	94	90	87	84	81	76	69	64	59	56	52
	30	97	97	94	90	87	84	81	76	69	64	59	56	52
	40	86	86	86	86	86	84	81	76	69	64	59	56	52
	50	78	78	78	78	78	78	78	76	69	64	59	56	52
	60	72	72	72	72	72	72	72	72	69	64	59	56	52
	70	67	67	67	67	67	67	67	67	67	64	59	56	52
	80	63	63	63	63	63	63	63	63	63	63	59	56	52
	90	60	60	60	60	60	60	60	60	60	60	59	56	52
Zone 2e	0	97	93	89	85	81	78	75	67	61	56	51	48	44
	10	97	93	89	85	81	78	75	67	61	56	51	48	44
	20	97	93	89	85	81	78	75	67	61	56	51	48	44
	30	97	93	89	85	81	78	75	67	61	56	51	48	44
	40	86	86	86	85	81	78	75	67	61	56	51	48	44
	50	78	78	78	78	78	78	75	67	61	56	51	48	44
	60	72	72	72	72	72	72	72	67	61	56	51	48	44
	70	67	67	67	67	67	67	67	67	61	56	51	48	44
	80	63	63	63	63	63	63	63	63	61	56	51	48	44
	90	60	60	60	60	60	60	60	60	60	56	51	48	44
Zone 2r	0	87	83	80	77	72	68	64	58	53	49	45	42	40
	10	87	83	80	77	72	68	64	58	53	49	45	42	40
	20	87	83	80	77	72	68	64	58	53	49	45	42	40
	30	87	83	80	77	72	68	64	58	53	49	45	42	40
	40	86	83	80	77	72	68	64	58	53	49	45	42	40
	50	78	78	78	77	72	68	64	58	53	49	45	42	40
	60	72	72	72	72	72	68	64	58	53	49	45	42	40
	70	67	67	67	67	67	67	64	58	53	49	45	42	40
	80	63	63	63	63	63	63	63	58	53	49	45	42	40
	90	60	60	60	60	60	60	60	58	53	49	45	42	40
Zone 3	0	86	81	78	73	68	64	61	55	50	46	42	33	31
	10	86	81	78	73	68	64	61	55	50	46	42	33	31
	20	86	81	78	73	68	64	61	55	50	46	42	33	31
	30	86	81	78	73	68	64	61	55	50	46	42	33	31
	40	86	81	78	73	68	64	61	55	50	46	42	33	31
	50	78	78	78	73	68	64	61	55	50	46	42	33	31
	60	72	72	72	72	68	64	61	55	50	46	42	33	31
	70	67	67	67	67	67	64	61	55	50	46	42	33	31
	80	63	63	63	63	63	63	61	55	50	46	42	33	31
	90	60	60	60	60	60	60	60	55	50	46	42	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in landscape orientation with a maximum width of 42"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 217a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	97	97	97	97	97
	10	90	90	90	90	90	90	90	90	90	90	90	90	90
	20	71	71	71	71	71	71	71	71	71	71	71	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	97	97	97	97	97	97	93	88	83	79
	10	90	90	90	90	90	90	90	90	90	90	88	83	79
	20	71	71	71	71	71	71	71	71	71	71	71	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	97	97	97	97	97	97	97	92	86	81	75	69	64
	10	90	90	90	90	90	90	90	90	86	81	75	69	64
	20	71	71	71	71	71	71	71	71	71	71	71	69	64
	30	70	70	70	70	70	70	70	70	70	70	70	69	64
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 3	0	97	97	97	97	94	90	87	81	73	67	61	56	52
	10	90	90	90	90	90	90	87	81	73	67	61	56	52
	20	71	71	71	71	71	71	71	71	71	67	61	56	52
	30	70	70	70	70	70	70	70	70	70	67	61	56	52
	40	61	61	61	61	61	61	61	61	61	61	61	56	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 217b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	97	97	93	88	84
	10	90	90	90	90	90	90	90	90	90	90	90	88	84
	20	71	71	71	71	71	71	71	71	71	71	71	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	97	97	97	95	88	82	76	70	64	60
	10	90	90	90	90	90	90	90	88	82	76	70	64	60
	20	71	71	71	71	71	71	71	71	71	71	70	64	60
	30	70	70	70	70	70	70	70	70	70	70	70	64	60
	40	61	61	61	61	61	61	61	61	61	61	61	61	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	97	97	97	93	89	85	82	75	68	62	57	53	49
	10	90	90	90	90	89	85	82	75	68	62	57	53	49
	20	71	71	71	71	71	71	71	71	68	62	57	53	49
	30	70	70	70	70	70	70	70	70	68	62	57	53	49
	40	61	61	61	61	61	61	61	61	61	61	57	53	49
	50	56	56	56	56	56	56	56	56	56	56	56	53	49
	60	51	51	51	51	51	51	51	51	51	51	51	51	49
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 3	0	94	89	85	82	78	73	69	61	56	51	47	43	40
	10	90	89	85	82	78	73	69	61	56	51	47	43	40
	20	71	71	71	71	71	71	69	61	56	51	47	43	40
	30	70	70	70	70	70	70	69	61	56	51	47	43	40
	40	61	61	61	61	61	61	61	61	56	51	47	43	40
	50	56	56	56	56	56	56	56	56	56	51	47	43	40
	60	51	51	51	51	51	51	51	51	51	51	47	43	40
	70	48	48	48	48	48	48	48	48	48	48	47	43	40
	80	45	45	45	45	45	45	45	45	45	45	45	43	40
	90	42	42	42	42	42	42	42	42	42	42	42	42	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 218a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	97	97	93	88	84
	10	90	90	90	90	90	90	90	90	90	90	90	88	84
	20	71	71	71	71	71	71	71	71	71	71	71	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	97	97	97	95	88	83	77	70	65	60
	10	90	90	90	90	90	90	90	88	83	77	70	65	60
	20	71	71	71	71	71	71	71	71	71	71	70	65	60
	30	70	70	70	70	70	70	70	70	70	70	70	65	60
	40	61	61	61	61	61	61	61	61	61	61	61	61	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	97	97	97	93	89	86	83	76	68	62	57	53	49
	10	90	90	90	90	89	86	83	76	68	62	57	53	49
	20	71	71	71	71	71	71	71	71	68	62	57	53	49
	30	70	70	70	70	70	70	70	70	68	62	57	53	49
	40	61	61	61	61	61	61	61	61	61	61	57	53	49
	50	56	56	56	56	56	56	56	56	56	56	56	53	49
	60	51	51	51	51	51	51	51	51	51	51	51	51	49
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 3	0	94	90	85	82	78	73	69	62	56	51	47	43	40
	10	90	90	85	82	78	73	69	62	56	51	47	43	40
	20	71	71	71	71	71	71	69	62	56	51	47	43	40
	30	70	70	70	70	70	70	69	62	56	51	47	43	40
	40	61	61	61	61	61	61	61	61	56	51	47	43	40
	50	56	56	56	56	56	56	56	56	56	51	47	43	40
	60	51	51	51	51	51	51	51	51	51	51	47	43	40
	70	48	48	48	48	48	48	48	48	48	48	47	43	40
	80	45	45	45	45	45	45	45	45	45	45	45	43	40
	90	42	42	42	42	42	42	42	42	42	42	42	42	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 218b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $0 < \theta \leq 7$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	93	87	82	78	72	67
	10	90	90	90	90	90	90	90	90	87	82	78	72	67
	20	71	71	71	71	71	71	71	71	71	71	71	71	67
	30	70	70	70	70	70	70	70	70	70	70	70	70	67
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	93	89	85	82	79	71	64	58	54	50	46
	10	90	90	90	89	85	82	79	71	64	58	54	50	46
	20	71	71	71	71	71	71	71	71	64	58	54	50	46
	30	70	70	70	70	70	70	70	70	64	58	54	50	46
	40	61	61	61	61	61	61	61	61	61	58	54	50	46
	50	56	56	56	56	56	56	56	56	56	56	54	50	46
	60	51	51	51	51	51	51	51	51	51	51	51	50	46
	70	48	48	48	48	48	48	48	48	48	48	48	48	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	89	85	81	77	72	68	64	58	52	48	44	41	38
	10	89	85	81	77	72	68	64	58	52	48	44	41	38
	20	71	71	71	71	71	68	64	58	52	48	44	41	38
	30	70	70	70	70	70	68	64	58	52	48	44	41	38
	40	61	61	61	61	61	61	61	58	52	48	44	41	38
	50	56	56	56	56	56	56	56	56	52	48	44	41	38
	60	51	51	51	51	51	51	51	51	51	48	44	41	38
	70	48	48	48	48	48	48	48	48	48	48	44	41	38
	80	45	45	45	45	45	45	45	45	45	45	44	41	38
	90	42	42	42	42	42	42	42	42	42	42	42	41	38
Zone 3	0	78	72	67	63	59	55	52	47	43	39	36	34	32
	10	78	72	67	63	59	55	52	47	43	39	36	34	32
	20	71	71	67	63	59	55	52	47	43	39	36	34	32
	30	70	70	67	63	59	55	52	47	43	39	36	34	32
	40	61	61	61	61	59	55	52	47	43	39	36	34	32
	50	56	56	56	56	56	55	52	47	43	39	36	34	32
	60	51	51	51	51	51	51	51	47	43	39	36	34	32
	70	48	48	48	48	48	48	48	47	43	39	36	34	32
	80	45	45	45	45	45	45	45	45	43	39	36	34	32
	90	42	42	42	42	42	42	42	42	42	39	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 219a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $0 < \theta \leq 7$ degrees								North/South Support $X_E = 1$				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	96	90	85	81	76
	10	90	90	90	90	90	90	90	90	90	90	85	81	76
	20	71	71	71	71	71	71	71	71	71	71	71	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	97	94	90	87	81	74	67	62	57	53
	10	90	90	90	90	90	90	87	81	74	67	62	57	53
	20	71	71	71	71	71	71	71	71	71	67	62	57	53
	30	70	70	70	70	70	70	70	70	70	67	62	57	53
	40	61	61	61	61	61	61	61	61	61	61	61	57	53
	50	56	56	56	56	56	56	56	56	56	56	56	56	53
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	97	93	89	85	82	79	74	66	60	55	51	47	44
	10	90	90	89	85	82	79	74	66	60	55	51	47	44
	20	71	71	71	71	71	71	71	66	60	55	51	47	44
	30	70	70	70	70	70	70	70	66	60	55	51	47	44
	40	61	61	61	61	61	61	61	61	60	55	51	47	44
	50	56	56	56	56	56	56	56	56	56	55	51	47	44
	60	51	51	51	51	51	51	51	51	51	51	51	47	44
	70	48	48	48	48	48	48	48	48	48	48	48	47	44
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 3	0	86	82	78	73	68	64	60	54	49	45	41	38	35
	10	86	82	78	73	68	64	60	54	49	45	41	38	35
	20	71	71	71	71	68	64	60	54	49	45	41	38	35
	30	70	70	70	70	68	64	60	54	49	45	41	38	35
	40	61	61	61	61	61	61	60	54	49	45	41	38	35
	50	56	56	56	56	56	56	56	54	49	45	41	38	35
	60	51	51	51	51	51	51	51	51	49	45	41	38	35
	70	48	48	48	48	48	48	48	48	48	45	41	38	35
	80	45	45	45	45	45	45	45	45	45	45	41	38	35
	90	42	42	42	42	42	42	42	42	42	42	41	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 219b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $0 < \theta \leq 7$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	95	92	86	81	74	69	64	59
	10	90	90	90	90	90	90	90	86	81	74	69	64	59
	20	71	71	71	71	71	71	71	71	71	71	69	64	59
	30	70	70	70	70	70	70	70	70	70	70	69	64	59
	40	61	61	61	61	61	61	61	61	61	61	61	61	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	94	89	85	82	78	73	69	62	56	51	47	44	41
	10	90	89	85	82	78	73	69	62	56	51	47	44	41
	20	71	71	71	71	71	71	69	62	56	51	47	44	41
	30	70	70	70	70	70	70	69	62	56	51	47	44	41
	40	61	61	61	61	61	61	61	61	56	51	47	44	41
	50	56	56	56	56	56	56	56	56	56	51	47	44	41
	60	51	51	51	51	51	51	51	51	51	51	47	44	41
	70	48	48	48	48	48	48	48	48	48	48	47	44	41
	80	45	45	45	45	45	45	45	45	45	45	45	44	41
	90	42	42	42	42	42	42	42	42	42	42	42	42	41
Zone 2	0	82	77	72	67	63	60	56	51	46	42	39	36	34
	10	82	77	72	67	63	60	56	51	46	42	39	36	34
	20	71	71	71	67	63	60	56	51	46	42	39	36	34
	30	70	70	70	67	63	60	56	51	46	42	39	36	34
	40	61	61	61	61	61	60	56	51	46	42	39	36	34
	50	56	56	56	56	56	56	56	51	46	42	39	36	34
	60	51	51	51	51	51	51	51	51	46	42	39	36	34
	70	48	48	48	48	48	48	48	48	46	42	39	36	34
	80	45	45	45	45	45	45	45	45	45	42	39	36	34
	90	42	42	42	42	42	42	42	42	42	42	39	36	34
Zone 3	0	68	63	59	55	52	49	46	41	38	35	32	30	29
	10	68	63	59	55	52	49	46	41	38	35	32	30	29
	20	68	63	59	55	52	49	46	41	38	35	32	30	29
	30	68	63	59	55	52	49	46	41	38	35	32	30	29
	40	61	61	59	55	52	49	46	41	38	35	32	30	29
	50	56	56	56	55	52	49	46	41	38	35	32	30	29
	60	51	51	51	51	51	49	46	41	38	35	32	30	29
	70	48	48	48	48	48	48	46	41	38	35	32	30	29
	80	45	45	45	45	45	45	45	41	38	35	32	30	29
	90	42	42	42	42	42	42	42	41	38	35	32	30	29

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 220a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	97	97	97	93	86	80	74	67
	10	84	84	84	84	84	84	84	84	84	84	80	74	67
	20	65	65	65	65	65	65	65	65	65	65	65	65	65
	30	65	65	65	65	65	65	65	65	65	65	65	65	65
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	97	97	97	97	97	96	92	85	80	73	66	61	56
	10	84	84	84	84	84	84	84	84	80	73	66	61	56
	20	65	65	65	65	65	65	65	65	65	65	65	61	56
	30	65	65	65	65	65	65	65	65	65	65	65	61	56
	40	58	58	58	58	58	58	58	58	58	58	58	58	56
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 3r	0	97	97	97	97	92	89	85	79	71	64	58	53	49
	10	84	84	84	84	84	84	84	79	71	64	58	53	49
	20	65	65	65	65	65	65	65	65	65	64	58	53	49
	30	65	65	65	65	65	65	65	65	65	64	58	53	49
	40	58	58	58	58	58	58	58	58	58	58	58	53	49
	50	52	52	52	52	52	52	52	52	52	52	52	52	49
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 220b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	92	88	81	73	66	61	56	52
	10	84	84	84	84	84	84	84	81	73	66	61	56	52
	20	65	65	65	65	65	65	65	65	65	65	61	56	52
	30	65	65	65	65	65	65	65	65	65	65	61	56	52
	40	58	58	58	58	58	58	58	58	58	58	58	56	52
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	97	95	90	86	83	79	75	67	60	54	49	45	42
	10	84	84	84	84	83	79	75	67	60	54	49	45	42
	20	65	65	65	65	65	65	65	65	60	54	49	45	42
	30	65	65	65	65	65	65	65	65	60	54	49	45	42
	40	58	58	58	58	58	58	58	58	58	54	49	45	42
	50	52	52	52	52	52	52	52	52	52	52	49	45	42
	60	48	48	48	48	48	48	48	48	48	48	48	45	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 3r	0	92	88	83	80	75	70	66	59	53	48	44	40	37
	10	84	84	83	80	75	70	66	59	53	48	44	40	37
	20	65	65	65	65	65	65	65	59	53	48	44	40	37
	30	65	65	65	65	65	65	65	59	53	48	44	40	37
	40	58	58	58	58	58	58	58	58	53	48	44	40	37
	50	52	52	52	52	52	52	52	52	52	48	44	40	37
	60	48	48	48	48	48	48	48	48	48	48	44	40	37
	70	45	45	45	45	45	45	45	45	45	45	44	40	37
	80	42	42	42	42	42	42	42	42	42	42	42	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 221a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait						
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$						
		Exposure Category: C							Roof Type : Gable						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	97	97	97	97	97	93	88	81	73	66	61	56	53	
	10	84	84	84	84	84	84	84	81	73	66	61	56	53	
	20	65	65	65	65	65	65	65	65	65	65	61	56	53	
	30	65	65	65	65	65	65	65	65	65	65	61	56	53	
	40	58	58	58	58	58	58	58	58	58	58	58	56	53	
	50	52	52	52	52	52	52	52	52	52	52	52	52	52	
	60	48	48	48	48	48	48	48	48	48	48	48	48	48	
	70	45	45	45	45	45	45	45	45	45	45	45	45	45	
	80	42	42	42	42	42	42	42	42	42	42	42	42	42	
90	40	40	40	40	40	40	40	40	40	40	40	40	40		
Zones 2n, 2r, & 3e	0	97	95	91	87	83	80	76	67	60	54	50	46	42	
	10	84	84	84	84	83	80	76	67	60	54	50	46	42	
	20	65	65	65	65	65	65	65	65	60	54	50	46	42	
	30	65	65	65	65	65	65	65	65	60	54	50	46	42	
	40	58	58	58	58	58	58	58	58	58	54	50	46	42	
	50	52	52	52	52	52	52	52	52	52	52	50	46	42	
	60	48	48	48	48	48	48	48	48	48	48	48	46	42	
	70	45	45	45	45	45	45	45	45	45	45	45	45	42	
	80	42	42	42	42	42	42	42	42	42	42	42	42	42	
90	40	40	40	40	40	40	40	40	40	40	40	40	40		
Zone 3r	0	93	88	84	80	76	71	66	59	53	48	44	40	37	
	10	84	84	84	80	76	71	66	59	53	48	44	40	37	
	20	65	65	65	65	65	65	65	59	53	48	44	40	37	
	30	65	65	65	65	65	65	65	59	53	48	44	40	37	
	40	58	58	58	58	58	58	58	58	53	48	44	40	37	
	50	52	52	52	52	52	52	52	52	52	48	44	40	37	
	60	48	48	48	48	48	48	48	48	48	48	44	40	37	
	70	45	45	45	45	45	45	45	45	45	45	44	40	37	
	80	42	42	42	42	42	42	42	42	42	42	42	40	37	
	90	40	40	40	40	40	40	40	40	40	40	40	40	37	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 221b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	91	86	82	78	72	68	61	56	51	47	44	41
	10	84	84	84	82	78	72	68	61	56	51	47	44	41
	20	65	65	65	65	65	65	65	61	56	51	47	44	41
	30	65	65	65	65	65	65	65	61	56	51	47	44	41
	40	58	58	58	58	58	58	58	58	56	51	47	44	41
	50	52	52	52	52	52	52	52	52	52	51	47	44	41
	60	48	48	48	48	48	48	48	48	48	48	47	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	42	42	42	42	42	42	42	42	42	42	42	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	83	79	73	68	64	60	56	50	45	41	38	35	33
	10	83	79	73	68	64	60	56	50	45	41	38	35	33
	20	65	65	65	65	64	60	56	50	45	41	38	35	33
	30	65	65	65	65	64	60	56	50	45	41	38	35	33
	40	58	58	58	58	58	58	56	50	45	41	38	35	33
	50	52	52	52	52	52	52	52	50	45	41	38	35	33
	60	48	48	48	48	48	48	48	48	45	41	38	35	33
	70	45	45	45	45	45	45	45	45	45	41	38	35	33
	80	42	42	42	42	42	42	42	42	42	41	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33
Zone 3r	0	76	69	64	60	56	52	49	44	40	36	34	32	30
	10	76	69	64	60	56	52	49	44	40	36	34	32	30
	20	65	65	64	60	56	52	49	44	40	36	34	32	30
	30	65	65	64	60	56	52	49	44	40	36	34	32	30
	40	58	58	58	58	56	52	49	44	40	36	34	32	30
	50	52	52	52	52	52	52	49	44	40	36	34	32	30
	60	48	48	48	48	48	48	48	44	40	36	34	32	30
	70	45	45	45	45	45	45	45	44	40	36	34	32	30
	80	42	42	42	42	42	42	42	42	40	36	34	32	30
	90	40	40	40	40	40	40	40	40	40	36	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 222a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Portrait					
		Exposure Category: D				North/South Support $X_E = 1$					Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zones 1 & 2e	0	97	97	97	92	87	83	80	70	64	58	54	50	47	
	10	84	84	84	84	84	83	80	70	64	58	54	50	47	
	20	65	65	65	65	65	65	65	65	64	58	54	50	47	
	30	65	65	65	65	65	65	65	65	64	58	54	50	47	
	40	58	58	58	58	58	58	58	58	58	58	54	50	47	
	50	52	52	52	52	52	52	52	52	52	52	52	50	47	
	60	48	48	48	48	48	48	48	48	48	48	48	48	47	
	70	45	45	45	45	45	45	45	45	45	45	45	45	45	
	80	42	42	42	42	42	42	42	42	42	42	42	42	42	
	90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	92	87	83	79	75	70	65	58	52	48	44	40	37	
	10	84	84	83	79	75	70	65	58	52	48	44	40	37	
	20	65	65	65	65	65	65	65	58	52	48	44	40	37	
	30	65	65	65	65	65	65	65	58	52	48	44	40	37	
	40	58	58	58	58	58	58	58	58	52	48	44	40	37	
	50	52	52	52	52	52	52	52	52	52	48	44	40	37	
	60	48	48	48	48	48	48	48	48	48	48	44	40	37	
	70	45	45	45	45	45	45	45	45	45	45	44	40	37	
	80	42	42	42	42	42	42	42	42	42	42	42	40	37	
	90	40	40	40	40	40	40	40	40	40	40	40	40	37	
Zone 3r	0	84	80	76	70	65	61	58	51	46	42	38	35	33	
	10	84	80	76	70	65	61	58	51	46	42	38	35	33	
	20	65	65	65	65	65	61	58	51	46	42	38	35	33	
	30	65	65	65	65	65	61	58	51	46	42	38	35	33	
	40	58	58	58	58	58	58	58	51	46	42	38	35	33	
	50	52	52	52	52	52	52	52	51	46	42	38	35	33	
	60	48	48	48	48	48	48	48	48	46	42	38	35	33	
	70	45	45	45	45	45	45	45	45	45	42	38	35	33	
	80	42	42	42	42	42	42	42	42	42	42	38	35	33	
	90	40	40	40	40	40	40	40	40	40	40	38	35	33	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 222b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	87	82	78	72	67	63	60	54	50	46	42	39	37
	10	84	82	78	72	67	63	60	54	50	46	42	39	37
	20	65	65	65	65	65	63	60	54	50	46	42	39	37
	30	65	65	65	65	65	63	60	54	50	46	42	39	37
	40	58	58	58	58	58	58	58	54	50	46	42	39	37
	50	52	52	52	52	52	52	52	52	50	46	42	39	37
	60	48	48	48	48	48	48	48	48	48	46	42	39	37
	70	45	45	45	45	45	45	45	45	45	45	42	39	37
	80	42	42	42	42	42	42	42	42	42	42	42	39	37
	90	40	40	40	40	40	40	40	40	40	40	40	39	37
Zones 2n, 2r, & 3e	0	74	69	63	59	55	52	49	44	40	36	33	31	30
	10	74	69	63	59	55	52	49	44	40	36	33	31	30
	20	65	65	63	59	55	52	49	44	40	36	33	31	30
	30	65	65	63	59	55	52	49	44	40	36	33	31	30
	40	58	58	58	58	55	52	49	44	40	36	33	31	30
	50	52	52	52	52	52	52	49	44	40	36	33	31	30
	60	48	48	48	48	48	48	48	44	40	36	33	31	30
	70	45	45	45	45	45	45	45	44	40	36	33	31	30
	80	42	42	42	42	42	42	42	42	40	36	33	31	30
	90	40	40	40	40	40	40	40	40	40	36	33	31	30
Zone 3r	0	65	60	56	52	49	46	43	39	35	33	30	29	27
	10	65	60	56	52	49	46	43	39	35	33	30	29	27
	20	65	60	56	52	49	46	43	39	35	33	30	29	27
	30	65	60	56	52	49	46	43	39	35	33	30	29	27
	40	58	58	56	52	49	46	43	39	35	33	30	29	27
	50	52	52	52	52	49	46	43	39	35	33	30	29	27
	60	48	48	48	48	48	46	43	39	35	33	30	29	27
	70	45	45	45	45	45	45	43	39	35	33	30	29	27
	80	42	42	42	42	42	42	42	39	35	33	30	29	27
	90	40	40	40	40	40	40	40	39	35	33	30	29	27

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 223a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	97	97	97	97	95	90	85	81
	10	92	92	92	92	92	92	92	92	92	92	90	85	81
	20	77	77	77	77	77	77	77	77	77	77	77	76	75
	30	66	66	66	66	66	66	66	66	66	66	66	66	66
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	97	97	97	97	97	97	97	92	86	81	76	70	64
	10	92	92	92	92	92	92	92	92	86	81	76	70	64
	20	77	77	77	77	77	77	77	77	77	77	76	70	64
	30	66	66	66	66	66	66	66	66	66	66	66	66	64
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	97	97	97	97	97	97	95	88	82	77	69	63	58
	10	92	92	92	92	92	92	92	88	82	77	69	63	58
	20	77	77	77	77	77	77	77	77	77	77	69	63	58
	30	66	66	66	66	66	66	66	66	66	66	66	63	58
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 223b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	97	97	90	84	79	74	68	63
	10	92	92	92	92	92	92	92	90	84	79	74	68	63
	20	77	77	77	77	77	77	77	77	77	77	74	68	63
	30	66	66	66	66	66	66	66	66	66	66	66	66	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	97	97	97	93	89	85	82	76	69	62	56	52	48
	10	92	92	92	92	89	85	82	76	69	62	56	52	48
	20	77	77	77	77	77	77	77	76	69	62	56	52	48
	30	66	66	66	66	66	66	66	66	66	62	56	52	48
	40	58	58	58	58	58	58	58	58	58	58	56	52	48
	50	53	53	53	53	53	53	53	53	53	53	53	52	48
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	97	97	93	89	85	81	78	70	62	56	51	47	43
	10	92	92	92	89	85	81	78	70	62	56	51	47	43
	20	77	77	77	77	77	77	77	70	62	56	51	47	43
	30	66	66	66	66	66	66	66	66	62	56	51	47	43
	40	58	58	58	58	58	58	58	58	58	56	51	47	43
	50	53	53	53	53	53	53	53	53	53	53	51	47	43
	60	49	49	49	49	49	49	49	49	49	49	49	47	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 224a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	97	97	90	84	79	74	68	63
	10	92	92	92	92	92	92	92	90	84	79	74	68	63
	20	77	77	77	77	77	77	77	77	76	75	74	68	63
	30	66	66	66	66	66	66	66	66	66	66	65	64	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	97	97	97	93	89	86	82	77	69	62	57	52	48
	10	92	92	92	92	89	86	82	77	69	62	57	52	48
	20	77	77	77	77	77	77	77	77	69	62	57	52	48
	30	66	66	66	66	66	66	66	66	66	62	57	52	48
	40	58	58	58	58	58	58	58	58	58	58	57	52	48
	50	53	53	53	53	53	53	53	53	53	53	53	52	48
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	97	97	93	89	85	81	78	70	63	56	51	47	43
	10	92	92	92	89	85	81	78	70	63	56	51	47	43
	20	77	77	77	77	77	77	77	70	63	56	51	47	43
	30	66	66	66	66	66	66	66	66	63	56	51	47	43
	40	58	58	58	58	58	58	58	58	58	56	51	47	43
	50	53	53	53	53	53	53	53	53	53	53	51	47	43
	60	49	49	49	49	49	49	49	49	49	49	49	47	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 224b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	95	91	87	84	81	75	67	62	57	53	49
	10	92	92	92	91	87	84	81	75	67	62	57	53	49
	20	77	77	77	77	77	77	77	75	67	62	57	53	49
	30	66	66	66	66	66	66	66	66	66	62	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	53	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	89	85	81	77	73	68	64	57	51	47	43	39	36
	10	89	85	81	77	73	68	64	57	51	47	43	39	36
	20	77	77	77	77	73	68	64	57	51	47	43	39	36
	30	66	66	66	66	66	66	64	57	51	47	43	39	36
	40	58	58	58	58	58	58	58	57	51	47	43	39	36
	50	53	53	53	53	53	53	53	53	51	47	43	39	36
	60	49	49	49	49	49	49	49	49	49	47	43	39	36
	70	45	45	45	45	45	45	45	45	45	45	43	39	36
	80	43	43	43	43	43	43	43	43	43	43	43	39	36
	90	40	40	40	40	40	40	40	40	40	40	40	39	36
Zone 3r	0	85	80	77	72	66	62	58	52	46	42	38	35	33
	10	85	80	77	72	66	62	58	52	46	42	38	35	33
	20	77	77	77	72	66	62	58	52	46	42	38	35	33
	30	66	66	66	66	66	62	58	52	46	42	38	35	33
	40	58	58	58	58	58	58	58	52	46	42	38	35	33
	50	53	53	53	53	53	53	53	52	46	42	38	35	33
	60	49	49	49	49	49	49	49	49	46	42	38	35	33
	70	45	45	45	45	45	45	45	45	45	42	38	35	33
	80	43	43	43	43	43	43	43	43	43	42	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 225a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	96	92	89	83	77	71	65	60	56
	10	92	92	92	92	92	92	89	83	77	71	65	60	56
	20	77	77	77	77	77	77	77	76	74	71	65	60	56
	30	66	66	66	66	66	66	66	66	66	65	64	60	56
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	97	94	89	85	82	79	75	67	60	54	49	45	42
	10	92	92	89	85	82	79	75	67	60	54	49	45	42
	20	77	77	77	77	77	77	75	67	60	54	49	45	42
	30	66	66	66	66	66	66	66	66	60	54	49	45	42
	40	58	58	58	58	58	58	58	58	58	54	49	45	42
	50	53	53	53	53	53	53	53	53	53	53	49	45	42
	60	49	49	49	49	49	49	49	49	49	49	49	45	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 3r	0	94	89	85	81	78	73	68	60	54	49	45	41	38
	10	92	89	85	81	78	73	68	60	54	49	45	41	38
	20	77	77	77	77	77	73	68	60	54	49	45	41	38
	30	66	66	66	66	66	66	66	60	54	49	45	41	38
	40	58	58	58	58	58	58	58	58	54	49	45	41	38
	50	53	53	53	53	53	53	53	53	53	49	45	41	38
	60	49	49	49	49	49	49	49	49	49	49	45	41	38
	70	45	45	45	45	45	45	45	45	45	45	45	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 225b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	96	91	87	83	80	77	73	66	60	55	51	47	44
	10	92	91	87	83	80	77	73	66	60	55	51	47	44
	20	77	77	77	77	77	77	73	66	60	55	51	47	44
	30	66	66	66	66	66	66	66	66	60	55	51	47	44
	40	58	58	58	58	58	58	58	58	58	55	51	47	44
	50	53	53	53	53	53	53	53	53	53	53	51	47	44
	60	49	49	49	49	49	49	49	49	49	49	49	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	82	78	73	68	63	59	56	50	45	41	38	35	33
	10	82	78	73	68	63	59	56	50	45	41	38	35	33
	20	77	77	73	68	63	59	56	50	45	41	38	35	33
	30	66	66	66	66	63	59	56	50	45	41	38	35	33
	40	58	58	58	58	58	58	56	50	45	41	38	35	33
	50	53	53	53	53	53	53	53	50	45	41	38	35	33
	60	49	49	49	49	49	49	49	49	45	41	38	35	33
	70	45	45	45	45	45	45	45	45	45	41	38	35	33
	80	43	43	43	43	43	43	43	43	43	41	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33
Zone 3r	0	77	72	66	61	57	54	50	45	40	37	34	31	29
	10	77	72	66	61	57	54	50	45	40	37	34	31	29
	20	77	72	66	61	57	54	50	45	40	37	34	31	29
	30	66	66	66	61	57	54	50	45	40	37	34	31	29
	40	58	58	58	58	57	54	50	45	40	37	34	31	29
	50	53	53	53	53	53	53	50	45	40	37	34	31	29
	60	49	49	49	49	49	49	49	45	40	37	34	31	29
	70	45	45	45	45	45	45	45	45	40	37	34	31	29
	80	43	43	43	43	43	43	43	43	40	37	34	31	29
	90	40	40	40	40	40	40	40	40	40	37	34	31	29

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 226a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	97	97	97	97	97	97	96	90	85	80
	10	92	92	92	92	92	92	92	92	90	88	86	84	80
	20	80	80	80	80	80	80	80	79	77	76	74	73	71
	30	69	69	69	69	69	69	69	69	69	68	67	65	64
	40	61	61	61	61	61	61	61	61	61	61	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zones 2n & 3r	0	97	97	97	97	97	97	97	97	93	87	82	78	74
	10	92	92	92	92	92	92	92	92	90	87	82	78	74
	20	80	80	80	80	80	80	80	79	77	76	74	73	71
	30	69	69	69	69	69	69	69	69	69	68	67	65	64
	40	61	61	61	61	61	61	61	61	61	61	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3e	0	97	97	97	97	97	97	97	90	85	80	75	69	64
	10	92	92	92	92	92	92	92	90	85	80	75	69	64
	20	80	80	80	80	80	80	80	79	77	76	74	69	64
	30	69	69	69	69	69	69	69	69	69	68	67	65	64
	40	61	61	61	61	61	61	61	61	61	61	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 226b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	97	97	97	97	90	84	79	75	68	62
	10	92	92	92	92	92	92	92	90	84	79	75	68	62
	20	80	80	80	80	80	80	80	79	77	76	74	68	62
	30	69	69	69	69	69	69	69	69	69	68	67	65	62
	40	61	61	61	61	61	61	61	61	61	61	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zones 2n & 3r	0	97	97	97	97	96	92	89	83	78	72	66	60	56
	10	92	92	92	92	92	92	89	83	78	72	66	60	56
	20	80	80	80	80	80	80	80	79	77	72	66	60	56
	30	69	69	69	69	69	69	69	69	69	68	66	60	56
	40	61	61	61	61	61	61	61	61	61	61	61	60	56
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3e	0	97	97	95	91	87	84	81	76	68	62	56	52	48
	10	92	92	92	91	87	84	81	76	68	62	56	52	48
	20	80	80	80	80	80	80	80	76	68	62	56	52	48
	30	69	69	69	69	69	69	69	69	68	62	56	52	48
	40	61	61	61	61	61	61	61	61	61	61	56	52	48
	50	56	56	56	56	56	56	56	56	56	56	56	52	48
	60	51	51	51	51	51	51	51	51	51	51	51	51	48
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 227a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	97	97	97	97	90	84	79	75	68	62
	10	92	92	92	92	91	90	89	86	83	79	75	68	62
	20	80	80	80	79	78	77	76	75	73	71	69	67	62
	30	69	69	69	69	69	69	68	67	65	64	63	61	60
	40	61	61	61	61	61	61	61	61	60	59	58	56	55
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	51	51	51	51	51	51	51	51	51	51	51	50	49
	70	48	48	48	48	48	48	48	48	48	48	48	47	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zones 2n & 3r	0	97	97	97	97	97	93	89	83	78	73	66	61	56
	10	92	92	92	92	91	90	89	83	78	73	66	61	56
	20	80	80	80	79	78	77	76	75	73	71	66	61	56
	30	69	69	69	69	69	69	68	67	65	64	63	61	56
	40	61	61	61	61	61	61	61	61	60	59	58	56	55
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	51	51	51	51	51	51	51	51	51	51	51	50	49
	70	48	48	48	48	48	48	48	48	48	48	48	47	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zone 3e	0	97	97	96	91	88	84	81	76	69	62	57	52	48
	10	92	92	92	91	88	84	81	76	69	62	57	52	48
	20	80	80	80	79	78	77	76	75	69	62	57	52	48
	30	69	69	69	69	69	69	68	67	65	62	57	52	48
	40	61	61	61	61	61	61	61	61	60	59	57	52	48
	50	56	56	56	56	56	56	56	56	56	55	54	52	48
	60	51	51	51	51	51	51	51	51	51	51	51	50	48
	70	48	48	48	48	48	48	48	48	48	48	48	47	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 227b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	96	91	87	84	81	75	67	60	55	50	46
	10	92	92	92	91	87	84	81	75	67	60	55	50	46
	20	80	80	80	79	78	77	76	75	67	60	55	50	46
	30	69	69	69	69	69	69	68	67	65	60	55	50	46
	40	61	61	61	61	61	61	61	61	60	59	55	50	46
	50	56	56	56	56	56	56	56	56	56	55	54	50	46
	60	51	51	51	51	51	51	51	51	51	51	51	50	46
	70	48	48	48	48	48	48	48	48	48	48	48	47	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zones 2n & 3r	0	96	92	88	84	80	77	75	67	60	54	50	46	42
	10	92	92	88	84	80	77	75	67	60	54	50	46	42
	20	80	80	80	79	78	77	75	67	60	54	50	46	42
	30	69	69	69	69	69	69	68	67	60	54	50	46	42
	40	61	61	61	61	61	61	61	61	60	54	50	46	42
	50	56	56	56	56	56	56	56	56	56	54	50	46	42
	60	51	51	51	51	51	51	51	51	51	51	50	46	42
	70	48	48	48	48	48	48	48	48	48	48	48	46	42
	80	45	45	45	45	45	45	45	45	45	45	45	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 3e	0	88	83	80	76	73	68	64	57	51	47	43	39	37
	10	88	83	80	76	73	68	64	57	51	47	43	39	37
	20	80	80	80	76	73	68	64	57	51	47	43	39	37
	30	69	69	69	69	69	68	64	57	51	47	43	39	37
	40	61	61	61	61	61	61	61	57	51	47	43	39	37
	50	56	56	56	56	56	56	56	56	51	47	43	39	37
	60	51	51	51	51	51	51	51	51	51	47	43	39	37
	70	48	48	48	48	48	48	48	48	48	47	43	39	37
	80	45	45	45	45	45	45	45	45	45	45	43	39	37
	90	43	43	43	43	43	43	43	43	43	43	43	39	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 228a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $27 < \theta \leq 45$ degrees							North/South Support $X_E = 1$					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	97	97	93	89	83	77	71	64	59	54
	10	92	92	91	90	88	87	86	83	77	71	64	59	54
	20	80	79	78	77	76	75	74	72	70	68	64	59	54
	30	69	69	69	69	68	67	66	65	63	62	60	59	54
	40	61	61	61	61	61	61	61	60	58	57	56	54	53
	50	56	56	56	56	56	56	56	55	54	53	52	51	50
	60	51	51	51	51	51	51	51	51	51	50	49	48	47
	70	48	48	48	48	48	48	48	48	48	48	47	46	45
	80	45	45	45	45	45	45	45	45	45	45	45	44	43
	90	43	43	43	43	43	43	43	43	43	43	43	42	41
Zones 2n & 3r	0	97	97	96	92	88	85	82	76	70	63	58	53	49
	10	92	92	91	90	88	85	82	76	70	63	58	53	49
	20	80	79	78	77	76	75	74	72	70	63	58	53	49
	30	69	69	69	69	68	67	66	65	63	62	58	53	49
	40	61	61	61	61	61	61	61	60	58	57	56	53	49
	50	56	56	56	56	56	56	56	55	54	53	52	51	49
	60	51	51	51	51	51	51	51	51	51	50	49	48	47
	70	48	48	48	48	48	48	48	48	48	48	47	46	45
	80	45	45	45	45	45	45	45	45	45	45	45	44	43
	90	43	43	43	43	43	43	43	43	43	43	43	42	41
Zone 3e	0	97	92	88	84	81	77	75	67	60	54	49	45	42
	10	92	92	88	84	81	77	75	67	60	54	49	45	42
	20	80	79	78	77	76	75	74	67	60	54	49	45	42
	30	69	69	69	69	68	67	66	65	60	54	49	45	42
	40	61	61	61	61	61	61	61	60	58	54	49	45	42
	50	56	56	56	56	56	56	56	55	54	53	49	45	42
	60	51	51	51	51	51	51	51	51	51	50	49	45	42
	70	48	48	48	48	48	48	48	48	48	48	47	45	42
	80	45	45	45	45	45	45	45	45	45	45	45	44	42
	90	43	43	43	43	43	43	43	43	43	43	43	42	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 228b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	92	87	84	80	77	74	65	58	52	48	44	40
	10	92	92	87	84	80	77	74	65	58	52	48	44	40
	20	80	79	78	77	76	75	74	65	58	52	48	44	40
	30	69	69	69	69	68	67	66	65	58	52	48	44	40
	40	61	61	61	61	61	61	61	60	58	52	48	44	40
	50	56	56	56	56	56	56	56	55	54	52	48	44	40
	60	51	51	51	51	51	51	51	51	51	50	48	44	40
	70	48	48	48	48	48	48	48	48	48	48	47	44	40
	80	45	45	45	45	45	45	45	45	45	45	45	44	40
	90	43	43	43	43	43	43	43	43	43	43	43	42	40
Zones 2n & 3r	0	88	84	80	77	74	69	65	58	52	47	44	40	37
	10	88	84	80	77	74	69	65	58	52	47	44	40	37
	20	80	79	78	77	74	69	65	58	52	47	44	40	37
	30	69	69	69	69	68	67	65	58	52	47	44	40	37
	40	61	61	61	61	61	61	61	58	52	47	44	40	37
	50	56	56	56	56	56	56	56	55	52	47	44	40	37
	60	51	51	51	51	51	51	51	51	51	47	44	40	37
	70	48	48	48	48	48	48	48	48	48	47	44	40	37
	80	45	45	45	45	45	45	45	45	45	45	44	40	37
	90	43	43	43	43	43	43	43	43	43	43	43	40	37
Zone 3e	0	80	77	73	68	63	59	56	50	45	41	38	35	33
	10	80	77	73	68	63	59	56	50	45	41	38	35	33
	20	80	77	73	68	63	59	56	50	45	41	38	35	33
	30	69	69	69	68	63	59	56	50	45	41	38	35	33
	40	61	61	61	61	61	59	56	50	45	41	38	35	33
	50	56	56	56	56	56	56	56	50	45	41	38	35	33
	60	51	51	51	51	51	51	51	50	45	41	38	35	33
	70	48	48	48	48	48	48	48	48	45	41	38	35	33
	80	45	45	45	45	45	45	45	45	45	41	38	35	33
	90	43	43	43	43	43	43	43	43	43	41	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 229a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Hip $h/B = \geq 0.8$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	95	89	83	79	73
	10	84	84	84	84	84	84	84	84	84	83	82	79	73
	20	65	65	65	65	65	65	65	65	65	65	65	65	65
	30	65	65	65	65	65	65	65	65	65	65	65	65	65
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	97	97	97	97	97	97	92	86	81	76	69	64
	10	84	84	84	84	84	84	84	84	84	81	76	69	64
	20	65	65	65	65	65	65	65	65	65	65	65	65	64
	30	65	65	65	65	65	65	65	65	65	65	65	65	64
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	97	97	97	97	96	89	83	78	71	65	60
	10	84	84	84	84	84	84	84	84	83	78	71	65	60
	20	65	65	65	65	65	65	65	65	65	65	65	65	60
	30	65	65	65	65	65	65	65	65	65	65	65	65	60
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 229b		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Portrait				
		Exposure Category: B				North/South Support $X_E = 1.5$								
						Roof Type : Hip $h/B = \geq 0.8$								
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	94	91	84	78	70	65	60	56
	10	84	84	84	84	84	84	84	84	78	70	65	60	56
	20	65	65	65	65	65	65	65	65	65	65	65	60	56
	30	65	65	65	65	65	65	65	65	65	65	65	60	56
	40	58	58	58	58	58	58	58	58	58	58	58	58	56
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	97	97	97	93	89	86	82	76	68	62	57	52	48
	10	84	84	84	84	84	84	82	76	68	62	57	52	48
	20	65	65	65	65	65	65	65	65	65	62	57	52	48
	30	65	65	65	65	65	65	65	65	65	62	57	52	48
	40	58	58	58	58	58	58	58	58	58	58	57	52	48
	50	52	52	52	52	52	52	52	52	52	52	52	52	48
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	97	97	94	90	86	83	80	72	65	59	54	50	46
	10	84	84	84	84	84	83	80	72	65	59	54	50	46
	20	65	65	65	65	65	65	65	65	65	59	54	50	46
	30	65	65	65	65	65	65	65	65	65	59	54	50	46
	40	58	58	58	58	58	58	58	58	58	58	54	50	46
	50	52	52	52	52	52	52	52	52	52	52	52	50	46
	60	48	48	48	48	48	48	48	48	48	48	48	48	46
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 230a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Portrait				
		Exposure Category: C				North/South Support $X_E = 1$								
						Roof Type : Hip $h/B = \geq 0.8$								
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	95	91	84	78	71	65	60	56
	10	84	84	84	84	84	84	84	82	78	71	65	60	56
	20	65	65	65	65	65	65	65	65	65	64	63	60	56
	30	65	65	65	65	65	65	65	65	65	64	63	60	56
	40	58	58	58	58	58	58	58	58	58	58	57	57	56
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	97	97	97	93	89	86	83	77	69	62	57	52	49
	10	84	84	84	84	84	84	83	77	69	62	57	52	49
	20	65	65	65	65	65	65	65	65	65	62	57	52	49
	30	65	65	65	65	65	65	65	65	65	62	57	52	49
	40	58	58	58	58	58	58	58	58	58	58	57	52	49
	50	52	52	52	52	52	52	52	52	52	52	52	52	49
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	97	97	94	90	86	83	80	72	65	59	54	50	46
	10	84	84	84	84	84	83	80	72	65	59	54	50	46
	20	65	65	65	65	65	65	65	65	65	59	54	50	46
	30	65	65	65	65	65	65	65	65	65	59	54	50	46
	40	58	58	58	58	58	58	58	58	58	58	54	50	46
	50	52	52	52	52	52	52	52	52	52	52	52	50	46
	60	48	48	48	48	48	48	48	48	48	48	48	48	46
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 230b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Hip $h/B = \geq 0.8$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	94	89	85	81	78	73	65	60	55	51	47	44
	10	84	84	84	84	81	78	73	65	60	55	51	47	44
	20	65	65	65	65	65	65	65	65	60	55	51	47	44
	30	65	65	65	65	65	65	65	65	60	55	51	47	44
	40	58	58	58	58	58	58	58	58	58	55	51	47	44
	50	52	52	52	52	52	52	52	52	52	52	51	47	44
	60	48	48	48	48	48	48	48	48	48	48	48	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	89	85	81	78	73	68	64	57	52	47	43	40	37
	10	84	84	81	78	73	68	64	57	52	47	43	40	37
	20	65	65	65	65	65	65	64	57	52	47	43	40	37
	30	65	65	65	65	65	65	64	57	52	47	43	40	37
	40	58	58	58	58	58	58	58	57	52	47	43	40	37
	50	52	52	52	52	52	52	52	52	52	47	43	40	37
	60	48	48	48	48	48	48	48	48	48	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	42	42	42	42	42	42	42	42	42	42	42	40	37
90	40	40	40	40	40	40	40	40	40	40	40	40	37	
Zones 2e & 3	0	86	82	78	73	69	64	61	54	49	45	41	38	35
	10	84	82	78	73	69	64	61	54	49	45	41	38	35
	20	65	65	65	65	65	64	61	54	49	45	41	38	35
	30	65	65	65	65	65	64	61	54	49	45	41	38	35
	40	58	58	58	58	58	58	58	54	49	45	41	38	35
	50	52	52	52	52	52	52	52	52	49	45	41	38	35
	60	48	48	48	48	48	48	48	48	48	45	41	38	35
	70	45	45	45	45	45	45	45	45	45	45	41	38	35
	80	42	42	42	42	42	42	42	42	42	42	41	38	35
	90	40	40	40	40	40	40	40	40	40	40	40	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 231a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Portrait				
		Exposure Category: D				North/South Support $X_E = 1$								
						Roof Type : Hip $h/B = \geq 0.8$								
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	94	90	86	83	76	68	62	58	53	50
	10	84	84	84	84	83	83	82	76	68	62	58	53	50
	20	65	65	65	65	65	65	65	65	64	62	58	53	50
	30	65	65	65	65	65	65	65	65	64	62	58	53	50
	40	58	58	58	58	58	58	58	58	58	57	56	53	50
	50	52	52	52	52	52	52	52	52	52	52	52	51	50
	60	48	48	48	48	48	48	48	48	48	48	48	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	97	94	89	85	82	79	75	67	60	55	50	46	43
	10	84	84	84	84	82	79	75	67	60	55	50	46	43
	20	65	65	65	65	65	65	65	65	60	55	50	46	43
	30	65	65	65	65	65	65	65	65	60	55	50	46	43
	40	58	58	58	58	58	58	58	58	58	55	50	46	43
	50	52	52	52	52	52	52	52	52	52	52	50	46	43
	60	48	48	48	48	48	48	48	48	48	48	48	46	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	95	90	86	83	79	75	71	63	57	52	47	44	41
	10	84	84	84	83	79	75	71	63	57	52	47	44	41
	20	65	65	65	65	65	65	65	63	57	52	47	44	41
	30	65	65	65	65	65	65	65	63	57	52	47	44	41
	40	58	58	58	58	58	58	58	58	57	52	47	44	41
	50	52	52	52	52	52	52	52	52	52	52	47	44	41
	60	48	48	48	48	48	48	48	48	48	48	47	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	42	42	42	42	42	42	42	42	42	42	42	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 231b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Hip $h/B = \geq 0.8$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	90	85	81	77	72	68	64	58	53	49	45	42	39
	10	84	84	81	77	72	68	64	58	53	49	45	42	39
	20	65	65	65	65	65	65	64	58	53	49	45	42	39
	30	65	65	65	65	65	65	64	58	53	49	45	42	39
	40	58	58	58	58	58	58	58	58	53	49	45	42	39
	50	52	52	52	52	52	52	52	52	52	49	45	42	39
	60	48	48	48	48	48	48	48	48	48	48	45	42	39
	70	45	45	45	45	45	45	45	45	45	45	45	42	39
	80	42	42	42	42	42	42	42	42	42	42	42	42	39
	90	40	40	40	40	40	40	40	40	40	40	40	40	39
Zone 2r	0	82	78	73	68	63	60	56	50	46	42	38	35	33
	10	82	78	73	68	63	60	56	50	46	42	38	35	33
	20	65	65	65	65	63	60	56	50	46	42	38	35	33
	30	65	65	65	65	63	60	56	50	46	42	38	35	33
	40	58	58	58	58	58	58	56	50	46	42	38	35	33
	50	52	52	52	52	52	52	52	50	46	42	38	35	33
	60	48	48	48	48	48	48	48	48	46	42	38	35	33
	70	45	45	45	45	45	45	45	45	45	42	38	35	33
	80	42	42	42	42	42	42	42	42	42	42	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33
Zones 2e & 3	0	79	74	69	64	60	56	53	48	43	40	36	34	32
	10	79	74	69	64	60	56	53	48	43	40	36	34	32
	20	65	65	65	64	60	56	53	48	43	40	36	34	32
	30	65	65	65	64	60	56	53	48	43	40	36	34	32
	40	58	58	58	58	58	56	53	48	43	40	36	34	32
	50	52	52	52	52	52	52	52	48	43	40	36	34	32
	60	48	48	48	48	48	48	48	48	43	40	36	34	32
	70	45	45	45	45	45	45	45	45	43	40	36	34	32
	80	42	42	42	42	42	42	42	42	42	40	36	34	32
	90	40	40	40	40	40	40	40	40	40	40	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 232a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	97	97	96	90	86
	10	84	84	84	84	84	84	84	84	84	83	82	80	79
	20	65	65	65	65	65	65	65	65	65	65	65	64	63
	30	65	65	65	65	65	65	65	65	65	65	65	64	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	97	97	97	97	97	97	92	86	81	76	69	64
	10	84	84	84	84	84	84	84	84	84	81	76	69	64
	20	65	65	65	65	65	65	65	65	65	65	65	64	63
	30	65	65	65	65	65	65	65	65	65	65	65	64	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	97	97	97	97	97	97	97	91	86	81	77
	10	84	84	84	84	84	84	84	84	84	83	82	80	77
	20	65	65	65	65	65	65	65	65	65	65	65	64	63
	30	65	65	65	65	65	65	65	65	65	65	65	64	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 232b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	96	90	84	80	74	68
	10	84	84	84	84	84	84	84	84	84	83	80	74	68
	20	65	65	65	65	65	65	65	65	65	65	65	64	63
	30	65	65	65	65	65	65	65	65	65	65	65	64	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	97	97	93	89	86	82	76	68	62	57	52	48
	10	84	84	84	84	84	84	84	82	76	68	62	57	52
	20	65	65	65	65	65	65	65	65	65	62	57	52	48
	30	65	65	65	65	65	65	65	65	65	62	57	52	48
	40	58	58	58	58	58	58	58	58	58	58	57	52	48
	50	52	52	52	52	52	52	52	52	52	52	52	52	48
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	97	97	97	97	93	86	81	75	69	63	58
	10	84	84	84	84	84	84	84	84	81	75	69	63	58
	20	65	65	65	65	65	65	65	65	65	65	65	63	58
	30	65	65	65	65	65	65	65	65	65	65	65	63	58
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 233a		Mean Roof Height: $h \leq 15$ ft				Roof Angle: $7 < \theta \leq 20$ degrees				Panel Orientation: Portrait				
		Exposure Category: C				North/South Support $X_E = 1$								
						Roof Type : Hip $h/B = \leq 0.5$								
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	96	90	85	80	74	69
	10	84	84	84	84	84	84	84	82	80	78	77	74	69
	20	65	65	65	65	65	65	65	65	64	63	62	61	59
	30	65	65	65	65	65	65	65	65	64	63	62	61	59
	40	58	58	58	58	58	58	58	58	58	57	57	56	55
	50	52	52	52	52	52	52	52	52	52	52	52	52	51
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	97	97	97	93	89	86	83	77	69	62	57	52	49
	10	84	84	84	84	84	84	83	77	69	62	57	52	49
	20	65	65	65	65	65	65	65	65	64	62	57	52	49
	30	65	65	65	65	65	65	65	65	64	62	57	52	49
	40	58	58	58	58	58	58	58	58	58	57	57	52	49
	50	52	52	52	52	52	52	52	52	52	52	52	52	49
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	97	97	97	97	97	97	93	87	81	76	69	63	59
	10	84	84	84	84	84	84	84	82	80	76	69	63	59
	20	65	65	65	65	65	65	65	65	64	63	62	61	59
	30	65	65	65	65	65	65	65	65	64	63	62	61	59
	40	58	58	58	58	58	58	58	58	58	57	57	56	55
	50	52	52	52	52	52	52	52	52	52	52	52	52	51
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 233b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: C							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	93	89	86	80	74	67	62	57	53
	10	84	84	84	84	84	84	84	80	74	67	62	57	53
	20	65	65	65	65	65	65	65	65	64	63	62	57	53
	30	65	65	65	65	65	65	65	65	64	63	62	57	53
	40	58	58	58	58	58	58	58	58	58	57	57	56	53
	50	52	52	52	52	52	52	52	52	52	52	52	52	51
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	89	85	81	78	73	68	64	57	52	47	43	40	37
	10	84	84	81	78	73	68	64	57	52	47	43	40	37
	20	65	65	65	65	65	65	64	57	52	47	43	40	37
	30	65	65	65	65	65	65	64	57	52	47	43	40	37
	40	58	58	58	58	58	58	58	57	52	47	43	40	37
	50	52	52	52	52	52	52	52	52	52	47	43	40	37
	60	48	48	48	48	48	48	48	48	48	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	42	42	42	42	42	42	42	42	42	42	42	40	37
90	40	40	40	40	40	40	40	40	40	40	40	40	37	
Zones 2e & 3	0	97	96	91	87	84	81	78	69	63	57	52	48	45
	10	84	84	84	84	84	81	78	69	63	57	52	48	45
	20	65	65	65	65	65	65	65	65	63	57	52	48	45
	30	65	65	65	65	65	65	65	65	63	57	52	48	45
	40	58	58	58	58	58	58	58	58	58	57	52	48	45
	50	52	52	52	52	52	52	52	52	52	52	52	48	45
	60	48	48	48	48	48	48	48	48	48	48	48	48	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 234a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $\chi_E = 1$					
		Exposure Category: D							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	95	88	82	78	71	65	61
	10	84	84	84	84	83	83	82	80	78	76	71	65	61
	20	65	65	65	65	65	65	65	64	62	61	60	59	57
	30	65	65	65	65	65	65	65	64	62	61	60	59	57
	40	58	58	58	58	58	58	58	58	57	56	55	54	53
	50	52	52	52	52	52	52	52	52	52	52	51	50	50
	60	48	48	48	48	48	48	48	48	48	48	48	47	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	97	94	89	85	82	79	75	67	60	55	50	46	43
	10	84	84	84	84	82	79	75	67	60	55	50	46	43
	20	65	65	65	65	65	65	65	64	60	55	50	46	43
	30	65	65	65	65	65	65	65	64	60	55	50	46	43
	40	58	58	58	58	58	58	58	58	57	55	50	46	43
	50	52	52	52	52	52	52	52	52	52	52	50	46	43
	60	48	48	48	48	48	48	48	48	48	48	48	46	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	97	97	97	97	92	89	85	80	73	66	60	56	51
	10	84	84	84	84	83	83	82	80	73	66	60	56	51
	20	65	65	65	65	65	65	65	64	62	61	60	56	51
	30	65	65	65	65	65	65	65	64	62	61	60	56	51
	40	58	58	58	58	58	58	58	58	57	56	55	54	51
	50	52	52	52	52	52	52	52	52	52	52	51	50	50
	60	48	48	48	48	48	48	48	48	48	48	48	47	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 234b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $7 < \theta \leq 20$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: D							Roof Type : Hip $h/B = \leq 0.5$					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	93	89	85	82	79	71	65	59	55	51	48
	10	84	84	84	84	83	82	79	71	65	59	55	51	48
	20	65	65	65	65	65	65	65	64	62	59	55	51	48
	30	65	65	65	65	65	65	65	64	62	59	55	51	48
	40	58	58	58	58	58	58	58	58	57	56	55	51	48
	50	52	52	52	52	52	52	52	52	52	52	51	50	48
	60	48	48	48	48	48	48	48	48	48	48	48	47	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	82	78	73	68	63	60	56	50	46	42	38	35	33
	10	82	78	73	68	63	60	56	50	46	42	38	35	33
	20	65	65	65	65	63	60	56	50	46	42	38	35	33
	30	65	65	65	65	63	60	56	50	46	42	38	35	33
	40	58	58	58	58	58	58	56	50	46	42	38	35	33
	50	52	52	52	52	52	52	52	50	46	42	38	35	33
	60	48	48	48	48	48	48	48	48	46	42	38	35	33
	70	45	45	45	45	45	45	45	45	45	42	38	35	33
	80	42	42	42	42	42	42	42	42	42	42	38	35	33
90	40	40	40	40	40	40	40	40	40	40	38	35	33	
Zones 2e & 3	0	92	88	84	80	77	72	68	61	55	50	46	43	40
	10	84	84	84	80	77	72	68	61	55	50	46	43	40
	20	65	65	65	65	65	65	65	61	55	50	46	43	40
	30	65	65	65	65	65	65	65	61	55	50	46	43	40
	40	58	58	58	58	58	58	58	58	55	50	46	43	40
	50	52	52	52	52	52	52	52	52	52	50	46	43	40
	60	48	48	48	48	48	48	48	48	48	48	46	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	42	42	42	42	42	42	42	42	42	42	42	42	40
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 235a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$					
		Exposure Category: B							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	97	97	97	94	89
	10	92	92	92	92	92	92	92	92	92	92	90	88	86
	20	77	77	77	77	77	77	77	77	77	77	75	74	73
	30	66	66	66	66	66	66	66	66	66	66	66	66	65
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	97	97	97	97	97	97	94	88	83	79	74
	10	92	92	92	92	92	92	92	92	92	88	83	79	74
	20	77	77	77	77	77	77	77	77	77	77	75	74	73
	30	66	66	66	66	66	66	66	66	66	66	66	66	65
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 235b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$					
		Exposure Category: B							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	93	87	82	78	73
	10	92	92	92	92	92	92	92	92	92	87	82	78	73
	20	77	77	77	77	77	77	77	77	77	77	75	74	73
	30	66	66	66	66	66	66	66	66	66	66	66	66	65
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	97	97	97	94	90	84	78	72	66	60	55
	10	92	92	92	92	92	92	90	84	78	72	66	60	55
	20	77	77	77	77	77	77	77	77	77	72	66	60	55
	30	66	66	66	66	66	66	66	66	66	66	66	60	55
	40	58	58	58	58	58	58	58	58	58	58	58	58	55
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 236a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	93	87	82	78	73
	10	92	92	92	92	92	92	92	90	88	86	82	78	73
	20	77	77	77	77	77	77	77	76	74	73	71	70	68
	30	66	66	66	66	66	66	66	66	66	65	63	62	61
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	97	97	97	94	90	84	78	72	66	60	56
	10	92	92	92	92	92	92	90	84	78	72	66	60	56
	20	77	77	77	77	77	77	77	76	74	72	66	60	56
	30	66	66	66	66	66	66	66	66	66	65	63	60	56
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 236b		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait						
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1.5$						
		Exposure Category: C							Roof Type : Hip						
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	97	97	97	97	97	93	89	83	77	71	64	59	54	
	10	92	92	92	92	92	92	89	83	77	71	64	59	54	
	20	77	77	77	77	77	77	77	76	74	71	64	59	54	
	30	66	66	66	66	66	66	66	66	66	65	63	59	54	
	40	58	58	58	58	58	58	58	58	58	58	58	57	54	
	50	53	53	53	53	53	53	53	53	53	53	53	53	52	
	60	49	49	49	49	49	49	49	49	49	49	49	49	49	
	70	45	45	45	45	45	45	45	45	45	45	45	45	45	
	80	43	43	43	43	43	43	43	43	43	43	43	43	43	
	90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e, 2r, & 3	0	97	93	88	85	81	78	75	66	60	54	49	46	42	
	10	92	92	88	85	81	78	75	66	60	54	49	46	42	
	20	77	77	77	77	77	77	75	66	60	54	49	46	42	
	30	66	66	66	66	66	66	66	66	60	54	49	46	42	
	40	58	58	58	58	58	58	58	58	58	54	49	46	42	
	50	53	53	53	53	53	53	53	53	53	53	49	46	42	
	60	49	49	49	49	49	49	49	49	49	49	49	46	42	
	70	45	45	45	45	45	45	45	45	45	45	45	45	42	
	80	43	43	43	43	43	43	43	43	43	43	43	43	42	
	90	40	40	40	40	40	40	40	40	40	40	40	40	40	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 237a		Mean Roof Height: $h \leq 15$ ft							Panel Orientation: Portrait					
		Roof Angle: $20 < \theta \leq 27$ degrees							North/South Support $X_E = 1$					
		Exposure Category: D							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	91	85	80	75	69	63
	10	92	92	92	92	92	91	90	87	85	80	75	69	63
	20	77	77	77	77	77	76	75	74	72	71	69	67	63
	30	66	66	66	66	66	66	66	65	64	63	62	60	59
	40	58	58	58	58	58	58	58	58	58	57	56	55	54
	50	53	53	53	53	53	53	53	53	53	53	52	51	51
	60	49	49	49	49	49	49	49	49	49	49	49	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	97	93	89	86	83	77	70	63	57	53	49
	10	92	92	92	92	89	86	83	77	70	63	57	53	49
	20	77	77	77	77	77	76	75	74	70	63	57	53	49
	30	66	66	66	66	66	66	66	65	64	63	57	53	49
	40	58	58	58	58	58	58	58	58	58	57	56	53	49
	50	53	53	53	53	53	53	53	53	53	53	52	51	49
	60	49	49	49	49	49	49	49	49	49	49	49	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 237b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $20 < \theta \leq 27$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	92	88	85	82	76	68	61	56	51	47
	10	92	92	92	92	88	85	82	76	68	61	56	51	47
	20	77	77	77	77	77	76	75	74	68	61	56	51	47
	30	66	66	66	66	66	66	66	65	64	61	56	51	47
	40	58	58	58	58	58	58	58	58	58	57	56	51	47
	50	53	53	53	53	53	53	53	53	53	53	52	51	47
	60	49	49	49	49	49	49	49	49	49	49	49	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	89	85	81	78	74	69	65	58	52	47	43	40	37
	10	89	85	81	78	74	69	65	58	52	47	43	40	37
	20	77	77	77	77	74	69	65	58	52	47	43	40	37
	30	66	66	66	66	66	66	65	58	52	47	43	40	37
	40	58	58	58	58	58	58	58	58	52	47	43	40	37
	50	53	53	53	53	53	53	53	53	52	47	43	40	37
	60	49	49	49	49	49	49	49	49	49	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 238a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	97	97	94	89	84
	10	92	92	92	92	92	92	92	92	92	92	92	89	84
	20	80	80	80	80	80	80	80	80	80	79	78	77	76
	30	69	69	69	69	69	69	69	69	69	69	69	69	68
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	97	97	97	97	97	97	94	89	84
	10	92	92	92	92	92	92	92	92	92	92	92	89	84
	20	80	80	80	80	80	80	80	80	80	79	78	77	76
	30	69	69	69	69	69	69	69	69	69	69	69	69	68
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	97	97	97	97	97	97	97	91	85	80	76	71
	10	92	92	92	92	92	92	92	92	91	85	80	76	71
	20	80	80	80	80	80	80	80	80	80	79	78	76	71
	30	69	69	69	69	69	69	69	69	69	69	69	69	68
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	97	97	97	97	97	97	97	97	96	89	83	78	74
	10	92	92	92	92	92	92	92	92	92	89	83	78	74
	20	80	80	80	80	80	80	80	80	80	79	78	77	74
	30	69	69	69	69	69	69	69	69	69	69	69	69	68
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 238b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	94	88	83	78	74	69
	10	92	92	92	92	92	92	92	92	88	83	78	74	69
	20	80	80	80	80	80	80	80	80	80	79	78	74	69
	30	69	69	69	69	69	69	69	69	69	69	69	69	68
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	97	97	97	95	88	82	77	72	65
	10	92	92	92	92	92	92	92	92	88	82	77	72	65
	20	80	80	80	80	80	80	80	80	80	79	77	72	65
	30	69	69	69	69	69	69	69	69	69	69	69	69	65
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	97	97	97	94	90	87	81	75	69	62	56	52
	10	92	92	92	92	92	90	87	81	75	69	62	56	52
	20	80	80	80	80	80	80	80	80	75	69	62	56	52
	30	69	69	69	69	69	69	69	69	69	69	62	56	52
	40	61	61	61	61	61	61	61	61	61	61	61	56	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	97	97	97	97	97	95	91	83	77	71	63	56	51
	10	92	92	92	92	92	92	91	83	77	71	63	56	51
	20	80	80	80	80	80	80	80	80	77	71	63	56	51
	30	69	69	69	69	69	69	69	69	69	69	63	56	51
	40	61	61	61	61	61	61	61	61	61	61	61	56	51
	50	56	56	56	56	56	56	56	56	56	56	56	56	51
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 239a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	95	88	83	79	75	69
	10	92	92	92	92	92	92	92	92	88	83	79	75	69
	20	80	80	80	80	80	80	80	78	77	75	74	72	69
	30	69	69	69	69	69	69	69	69	68	67	66	65	64
	40	61	61	61	61	61	61	61	61	61	61	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	55	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	97	97	97	95	88	82	77	72	65
	10	92	92	92	92	92	92	92	92	88	82	77	72	65
	20	80	80	80	80	80	80	80	78	77	75	74	72	65
	30	69	69	69	69	69	69	69	69	68	67	66	65	64
	40	61	61	61	61	61	61	61	61	61	61	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	55	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	97	97	97	95	91	87	81	76	69	62	57	52
	10	92	92	92	92	92	91	87	81	76	69	62	57	52
	20	80	80	80	80	80	80	80	78	76	69	62	57	52
	30	69	69	69	69	69	69	69	69	68	67	62	57	52
	40	61	61	61	61	61	61	61	61	61	61	61	57	52
	50	56	56	56	56	56	56	56	56	56	56	56	55	52
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	97	97	97	97	97	96	91	84	78	71	63	57	51
	10	92	92	92	92	92	92	91	84	78	71	63	57	51
	20	80	80	80	80	80	80	80	78	77	71	63	57	51
	30	69	69	69	69	69	69	69	69	68	67	63	57	51
	40	61	61	61	61	61	61	61	61	61	61	61	57	51
	50	56	56	56	56	56	56	56	56	56	56	56	55	51
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 239b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	96	92	88	85	79	74	67	61	56	51
	10	92	92	92	92	92	88	85	79	74	67	61	56	51
	20	80	80	80	80	80	80	80	78	74	67	61	56	51
	30	69	69	69	69	69	69	69	69	68	67	61	56	51
	40	61	61	61	61	61	61	61	61	61	61	61	56	51
	50	56	56	56	56	56	56	56	56	56	56	56	55	51
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	96	92	88	84	78	71	63	56	51	46
	10	92	92	92	92	92	88	84	78	71	63	56	51	46
	20	80	80	80	80	80	80	80	78	71	63	56	51	46
	30	69	69	69	69	69	69	69	69	68	63	56	51	46
	40	61	61	61	61	61	61	61	61	61	61	56	51	46
	50	56	56	56	56	56	56	56	56	56	56	56	51	46
	60	51	51	51	51	51	51	51	51	51	51	51	51	46
	70	48	48	48	48	48	48	48	48	48	48	48	48	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	94	90	85	82	78	75	71	63	56	50	46	42	39
	10	92	90	85	82	78	75	71	63	56	50	46	42	39
	20	80	80	80	80	78	75	71	63	56	50	46	42	39
	30	69	69	69	69	69	69	69	63	56	50	46	42	39
	40	61	61	61	61	61	61	61	61	56	50	46	42	39
	50	56	56	56	56	56	56	56	56	56	50	46	42	39
	60	51	51	51	51	51	51	51	51	51	50	46	42	39
	70	48	48	48	48	48	48	48	48	48	48	46	42	39
	80	45	45	45	45	45	45	45	45	45	45	45	42	39
	90	43	43	43	43	43	43	43	43	43	43	43	42	39
Zone 3	0	97	94	89	85	81	77	74	64	56	50	45	40	37
	10	92	92	89	85	81	77	74	64	56	50	45	40	37
	20	80	80	80	80	80	77	74	64	56	50	45	40	37
	30	69	69	69	69	69	69	69	64	56	50	45	40	37
	40	61	61	61	61	61	61	61	61	56	50	45	40	37
	50	56	56	56	56	56	56	56	56	56	50	45	40	37
	60	51	51	51	51	51	51	51	51	51	50	45	40	37
	70	48	48	48	48	48	48	48	48	48	48	45	40	37
	80	45	45	45	45	45	45	45	45	45	45	45	40	37
	90	43	43	43	43	43	43	43	43	43	43	43	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 240a		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait					
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1$					
		Exposure Category: D								Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	97	97	97	97	97	97	97	93	87	81	76	71	65	60
	10	92	92	92	92	92	92	92	91	87	81	76	71	65	60
	20	80	80	80	80	80	80	79	78	76	75	73	71	65	60
	30	69	69	69	69	69	69	69	69	68	67	66	64	63	60
	40	61	61	61	61	61	61	61	61	61	61	60	59	58	57
	50	56	56	56	56	56	56	56	56	56	56	56	55	54	53
	60	51	51	51	51	51	51	51	51	51	51	51	51	51	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	97	97	97	94	86	80	75	68	61	55
	10	92	92	92	92	92	92	92	91	86	80	75	68	61	55
	20	80	80	80	80	80	80	79	78	76	75	73	68	61	55
	30	69	69	69	69	69	69	69	69	68	67	66	64	61	55
	40	61	61	61	61	61	61	61	61	61	61	60	59	58	55
	50	56	56	56	56	56	56	56	56	56	56	56	55	54	53
	60	51	51	51	51	51	51	51	51	51	51	51	51	51	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	97	95	90	86	83	80	74	66	59	54	49	45	45
	10	92	92	92	90	86	83	80	74	66	59	54	49	45	45
	20	80	80	80	80	80	79	78	74	66	59	54	49	45	45
	30	69	69	69	69	69	69	69	68	66	59	54	49	45	45
	40	61	61	61	61	61	61	61	61	61	59	54	49	45	45
	50	56	56	56	56	56	56	56	56	56	56	54	49	45	45
	60	51	51	51	51	51	51	51	51	51	51	51	49	45	45
	70	48	48	48	48	48	48	48	48	48	48	48	48	48	45
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	97	97	97	95	90	86	82	76	68	60	53	48	44	44
	10	92	92	92	92	90	86	82	76	68	60	53	48	44	44
	20	80	80	80	80	80	79	78	76	68	60	53	48	44	44
	30	69	69	69	69	69	69	69	68	67	60	53	48	44	44
	40	61	61	61	61	61	61	61	61	61	60	53	48	44	44
	50	56	56	56	56	56	56	56	56	56	56	53	48	44	44
	60	51	51	51	51	51	51	51	51	51	51	51	48	44	44
	70	48	48	48	48	48	48	48	48	48	48	48	48	48	44
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 240b		Mean Roof Height: $h \leq 15$ ft								Panel Orientation: Portrait				
		Roof Angle: $27 < \theta \leq 45$ degrees								North/South Support $X_E = 1.5$				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	96	91	88	84	81	78	72	64	58	53	49	45
	10	92	92	91	88	84	81	78	72	64	58	53	49	45
	20	80	80	80	80	80	79	78	72	64	58	53	49	45
	30	69	69	69	69	69	69	69	68	64	58	53	49	45
	40	61	61	61	61	61	61	61	61	61	58	53	49	45
	50	56	56	56	56	56	56	56	56	56	56	53	49	45
	60	51	51	51	51	51	51	51	51	51	51	51	49	45
	70	48	48	48	48	48	48	48	48	48	48	48	48	45
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	92	87	83	80	76	68	60	53	48	44	40
	10	92	92	92	87	83	80	76	68	60	53	48	44	40
	20	80	80	80	80	80	79	76	68	60	53	48	44	40
	30	69	69	69	69	69	69	69	68	60	53	48	44	40
	40	61	61	61	61	61	61	61	61	60	53	48	44	40
	50	56	56	56	56	56	56	56	56	56	53	48	44	40
	60	51	51	51	51	51	51	51	51	51	51	48	44	40
	70	48	48	48	48	48	48	48	48	48	48	48	44	40
	80	45	45	45	45	45	45	45	45	45	45	45	44	40
	90	43	43	43	43	43	43	43	43	43	43	43	43	40
Zone 2r	0	86	82	78	75	70	65	61	54	48	44	40	37	34
	10	86	82	78	75	70	65	61	54	48	44	40	37	34
	20	80	80	78	75	70	65	61	54	48	44	40	37	34
	30	69	69	69	69	69	65	61	54	48	44	40	37	34
	40	61	61	61	61	61	61	61	54	48	44	40	37	34
	50	56	56	56	56	56	56	56	54	48	44	40	37	34
	60	51	51	51	51	51	51	51	51	48	44	40	37	34
	70	48	48	48	48	48	48	48	48	48	44	40	37	34
	80	45	45	45	45	45	45	45	45	45	44	40	37	34
	90	43	43	43	43	43	43	43	43	43	43	40	37	34
Zone 3	0	90	85	81	77	73	67	62	54	47	42	38	35	32
	10	90	85	81	77	73	67	62	54	47	42	38	35	32
	20	80	80	80	77	73	67	62	54	47	42	38	35	32
	30	69	69	69	69	69	67	62	54	47	42	38	35	32
	40	61	61	61	61	61	61	61	54	47	42	38	35	32
	50	56	56	56	56	56	56	56	54	47	42	38	35	32
	60	51	51	51	51	51	51	51	51	47	42	38	35	32
	70	48	48	48	48	48	48	48	48	47	42	38	35	32
	80	45	45	45	45	45	45	45	45	45	42	38	35	32
	90	43	43	43	43	43	43	43	43	43	42	38	35	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 241a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	97	97	97	96	91
	10	90	90	90	90	90	90	90	90	90	90	90	90	90
	20	71	71	71	71	71	71	71	71	71	71	71	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	97	97	97	97	96	90	85	80	74	68
	10	90	90	90	90	90	90	90	90	90	85	80	74	68
	20	71	71	71	71	71	71	71	71	71	71	71	71	68
	30	70	70	70	70	70	70	70	70	70	70	70	70	68
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	97	97	97	97	97	94	90	84	78	71	65	60	56
	10	90	90	90	90	90	90	90	84	78	71	65	60	56
	20	71	71	71	71	71	71	71	71	71	71	65	60	56
	30	70	70	70	70	70	70	70	70	70	70	65	60	56
	40	61	61	61	61	61	61	61	61	61	61	61	60	56
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 3	0	97	97	94	89	86	82	79	71	64	58	53	49	45
	10	90	90	90	89	86	82	79	71	64	58	53	49	45
	20	71	71	71	71	71	71	71	71	64	58	53	49	45
	30	70	70	70	70	70	70	70	70	64	58	53	49	45
	40	61	61	61	61	61	61	61	61	61	58	53	49	45
	50	56	56	56	56	56	56	56	56	56	56	53	49	45
	60	51	51	51	51	51	51	51	51	51	51	51	49	45
	70	48	48	48	48	48	48	48	48	48	48	48	48	45
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 241b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	95	90	85	81	75
	10	90	90	90	90	90	90	90	90	90	90	85	81	75
	20	71	71	71	71	71	71	71	71	71	71	71	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	97	93	90	86	80	73	66	61	56	52
	10	90	90	90	90	90	90	86	80	73	66	61	56	52
	20	71	71	71	71	71	71	71	71	71	66	61	56	52
	30	70	70	70	70	70	70	70	70	70	66	61	56	52
	40	61	61	61	61	61	61	61	61	61	61	61	56	52
	50	56	56	56	56	56	56	56	56	56	56	56	56	52
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	97	93	88	85	81	77	73	66	59	54	50	46	43
	10	90	90	88	85	81	77	73	66	59	54	50	46	43
	20	71	71	71	71	71	71	71	66	59	54	50	46	43
	30	70	70	70	70	70	70	70	66	59	54	50	46	43
	40	61	61	61	61	61	61	61	61	59	54	50	46	43
	50	56	56	56	56	56	56	56	56	56	54	50	46	43
	60	51	51	51	51	51	51	51	51	51	51	50	46	43
	70	48	48	48	48	48	48	48	48	48	48	48	46	43
	80	45	45	45	45	45	45	45	45	45	45	45	45	43
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 3	0	85	81	77	72	67	63	60	53	48	44	41	38	35
	10	85	81	77	72	67	63	60	53	48	44	41	38	35
	20	71	71	71	71	67	63	60	53	48	44	41	38	35
	30	70	70	70	70	67	63	60	53	48	44	41	38	35
	40	61	61	61	61	61	61	60	53	48	44	41	38	35
	50	56	56	56	56	56	56	56	53	48	44	41	38	35
	60	51	51	51	51	51	51	51	51	48	44	41	38	35
	70	48	48	48	48	48	48	48	48	48	44	41	38	35
	80	45	45	45	45	45	45	45	45	45	44	41	38	35
	90	42	42	42	42	42	42	42	42	42	42	41	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 242a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	97	92	87	83	79
	10	90	90	90	90	90	90	90	90	90	90	87	83	79
	20	71	71	71	71	71	71	71	71	71	71	71	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	97	96	92	89	83	77	70	64	59	55
	10	90	90	90	90	90	90	89	83	77	70	64	59	55
	20	71	71	71	71	71	71	71	71	71	70	64	59	55
	30	70	70	70	70	70	70	70	70	70	70	64	59	55
	40	61	61	61	61	61	61	61	61	61	61	61	59	55
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	97	96	91	87	84	81	77	69	62	57	52	48	45
	10	90	90	90	87	84	81	77	69	62	57	52	48	45
	20	71	71	71	71	71	71	71	69	62	57	52	48	45
	30	70	70	70	70	70	70	70	69	62	57	52	48	45
	40	61	61	61	61	61	61	61	61	61	57	52	48	45
	50	56	56	56	56	56	56	56	56	56	56	52	48	45
	60	51	51	51	51	51	51	51	51	51	51	51	48	45
	70	48	48	48	48	48	48	48	48	48	48	48	48	45
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 3	0	88	84	80	75	70	66	62	56	51	46	43	39	37
	10	88	84	80	75	70	66	62	56	51	46	43	39	37
	20	71	71	71	71	70	66	62	56	51	46	43	39	37
	30	70	70	70	70	70	66	62	56	51	46	43	39	37
	40	61	61	61	61	61	61	61	56	51	46	43	39	37
	50	56	56	56	56	56	56	56	56	51	46	43	39	37
	60	51	51	51	51	51	51	51	51	51	46	43	39	37
	70	48	48	48	48	48	48	48	48	48	46	43	39	37
	80	45	45	45	45	45	45	45	45	45	45	43	39	37
	90	42	42	42	42	42	42	42	42	42	42	42	39	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 242b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait					
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5					
		Exposure Category: C								Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1'	0	97	97	97	97	97	97	97	94	88	82	77	71	66	61
	10	90	90	90	90	90	90	90	90	88	82	77	71	66	61
	20	71	71	71	71	71	71	71	71	71	71	71	71	66	61
	30	70	70	70	70	70	70	70	70	70	70	70	70	66	61
	40	61	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	96	91	87	84	80	76	72	64	58	53	49	45	42	42
	10	90	90	87	84	80	76	72	64	58	53	49	45	42	42
	20	71	71	71	71	71	71	71	64	58	53	49	45	42	42
	30	70	70	70	70	70	70	70	64	58	53	49	45	42	42
	40	61	61	61	61	61	61	61	61	58	53	49	45	42	42
	50	56	56	56	56	56	56	56	56	56	53	49	45	42	42
	60	51	51	51	51	51	51	51	51	51	51	49	45	42	42
	70	48	48	48	48	48	48	48	48	48	48	48	45	42	42
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	42
	90	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	84	80	74	70	65	62	58	53	48	44	40	37	35	35
	10	84	80	74	70	65	62	58	53	48	44	40	37	35	35
	20	71	71	71	70	65	62	58	53	48	44	40	37	35	35
	30	70	70	70	70	65	62	58	53	48	44	40	37	35	35
	40	61	61	61	61	61	61	58	53	48	44	40	37	35	35
	50	56	56	56	56	56	56	56	53	48	44	40	37	35	35
	60	51	51	51	51	51	51	51	51	48	44	40	37	35	35
	70	48	48	48	48	48	48	48	48	48	44	40	37	35	35
	80	45	45	45	45	45	45	45	45	45	44	40	37	35	35
	90	42	42	42	42	42	42	42	42	42	42	40	37	35	35
Zone 3	0	70	65	61	57	53	50	48	43	39	36	33	31	29	29
	10	70	65	61	57	53	50	48	43	39	36	33	31	29	29
	20	70	65	61	57	53	50	48	43	39	36	33	31	29	29
	30	70	65	61	57	53	50	48	43	39	36	33	31	29	29
	40	61	61	61	57	53	50	48	43	39	36	33	31	29	29
	50	56	56	56	56	53	50	48	43	39	36	33	31	29	29
	60	51	51	51	51	51	50	48	43	39	36	33	31	29	29
	70	48	48	48	48	48	48	48	43	39	36	33	31	29	29
	80	45	45	45	45	45	45	45	43	39	36	33	31	29	29
	90	42	42	42	42	42	42	42	42	39	36	33	31	29	29

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 243a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	91	86	81	76	71
	10	90	90	90	90	90	90	90	90	90	86	81	76	71
	20	71	71	71	71	71	71	71	71	71	71	71	71	70
	30	70	70	70	70	70	70	70	70	70	70	70	70	69
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	93	89	86	82	75	68	62	57	53	49
	10	90	90	90	90	89	86	82	75	68	62	57	53	49
	20	71	71	71	71	71	71	71	71	68	62	57	53	49
	30	70	70	70	70	70	70	70	70	68	62	57	53	49
	40	61	61	61	61	61	61	61	61	61	61	57	53	49
	50	56	56	56	56	56	56	56	56	56	56	56	53	49
	60	51	51	51	51	51	51	51	51	51	51	51	51	49
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	93	88	85	81	77	72	68	61	56	51	47	43	40
	10	90	88	85	81	77	72	68	61	56	51	47	43	40
	20	71	71	71	71	71	71	68	61	56	51	47	43	40
	30	70	70	70	70	70	70	68	61	56	51	47	43	40
	40	61	61	61	61	61	61	61	61	56	51	47	43	40
	50	56	56	56	56	56	56	56	56	56	51	47	43	40
	60	51	51	51	51	51	51	51	51	51	51	47	43	40
	70	48	48	48	48	48	48	48	48	48	48	47	43	40
	80	45	45	45	45	45	45	45	45	45	45	45	43	40
	90	42	42	42	42	42	42	42	42	42	42	42	42	40
Zone 3	0	82	77	72	67	63	59	56	50	45	41	38	35	33
	10	82	77	72	67	63	59	56	50	45	41	38	35	33
	20	71	71	71	67	63	59	56	50	45	41	38	35	33
	30	70	70	70	67	63	59	56	50	45	41	38	35	33
	40	61	61	61	61	61	59	56	50	45	41	38	35	33
	50	56	56	56	56	56	56	56	50	45	41	38	35	33
	60	51	51	51	51	51	51	51	50	45	41	38	35	33
	70	48	48	48	48	48	48	48	48	45	41	38	35	33
	80	45	45	45	45	45	45	45	45	45	41	38	35	33
	90	42	42	42	42	42	42	42	42	42	41	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 243b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	94	91	87	82	75	69	64	59	55
	10	90	90	90	90	90	90	87	82	75	69	64	59	55
	20	71	71	71	71	71	71	71	71	71	69	64	59	55
	30	70	70	70	70	70	70	70	70	70	69	64	59	55
	40	61	61	61	61	61	61	61	61	61	61	61	59	55
	50	56	56	56	56	56	56	56	56	56	56	56	56	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	89	85	81	77	72	68	64	57	52	48	44	41	38
	10	89	85	81	77	72	68	64	57	52	48	44	41	38
	20	71	71	71	71	71	68	64	57	52	48	44	41	38
	30	70	70	70	70	70	68	64	57	52	48	44	41	38
	40	61	61	61	61	61	61	61	57	52	48	44	41	38
	50	56	56	56	56	56	56	56	56	52	48	44	41	38
	60	51	51	51	51	51	51	51	51	51	48	44	41	38
	70	48	48	48	48	48	48	48	48	48	48	44	41	38
	80	45	45	45	45	45	45	45	45	45	45	44	41	38
	90	42	42	42	42	42	42	42	42	42	42	42	41	38
Zone 2	0	77	71	66	62	59	55	52	47	43	39	36	34	32
	10	77	71	66	62	59	55	52	47	43	39	36	34	32
	20	71	71	66	62	59	55	52	47	43	39	36	34	32
	30	70	70	66	62	59	55	52	47	43	39	36	34	32
	40	61	61	61	61	59	55	52	47	43	39	36	34	32
	50	56	56	56	56	56	55	52	47	43	39	36	34	32
	60	51	51	51	51	51	51	51	47	43	39	36	34	32
	70	48	48	48	48	48	48	48	47	43	39	36	34	32
	80	45	45	45	45	45	45	45	45	43	39	36	34	32
	90	42	42	42	42	42	42	42	42	42	39	36	34	32
Zone 3	0	62	58	54	51	48	45	43	38	35	32	30	29	27
	10	62	58	54	51	48	45	43	38	35	32	30	29	27
	20	62	58	54	51	48	45	43	38	35	32	30	29	27
	30	62	58	54	51	48	45	43	38	35	32	30	29	27
	40	61	58	54	51	48	45	43	38	35	32	30	29	27
	50	56	56	54	51	48	45	43	38	35	32	30	29	27
	60	51	51	51	51	48	45	43	38	35	32	30	29	27
	70	48	48	48	48	48	45	43	38	35	32	30	29	27
	80	45	45	45	45	45	45	43	38	35	32	30	29	27
	90	42	42	42	42	42	42	42	38	35	32	30	29	27

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 244a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	97	97	90	83	77	69	64	59
	10	84	84	84	84	84	84	84	84	83	77	69	64	59
	20	65	65	65	65	65	65	65	65	65	65	65	64	59
	30	65	65	65	65	65	65	65	65	65	65	65	64	59
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	97	97	97	95	91	87	84	78	69	63	57	52	48
	10	84	84	84	84	84	84	84	78	69	63	57	52	48
	20	65	65	65	65	65	65	65	65	65	63	57	52	48
	30	65	65	65	65	65	65	65	65	65	63	57	52	48
	40	58	58	58	58	58	58	58	58	58	58	57	52	48
	50	52	52	52	52	52	52	52	52	52	52	52	52	48
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	97	97	92	88	84	80	77	68	61	55	50	46	43
	10	84	84	84	84	84	80	77	68	61	55	50	46	43
	20	65	65	65	65	65	65	65	65	61	55	50	46	43
	30	65	65	65	65	65	65	65	65	61	55	50	46	43
	40	58	58	58	58	58	58	58	58	58	55	50	46	43
	50	52	52	52	52	52	52	52	52	52	52	50	46	43
	60	48	48	48	48	48	48	48	48	48	48	48	46	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 244b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	96	91	87	83	79	69	63	58	53	50	46
	10	84	84	84	84	84	83	79	69	63	58	53	50	46
	20	65	65	65	65	65	65	65	65	63	58	53	50	46
	30	65	65	65	65	65	65	65	65	63	58	53	50	46
	40	58	58	58	58	58	58	58	58	58	58	53	50	46
	50	52	52	52	52	52	52	52	52	52	52	52	50	46
	60	48	48	48	48	48	48	48	48	48	48	48	48	46
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	91	86	82	79	74	69	65	57	52	47	43	40	37
	10	84	84	82	79	74	69	65	57	52	47	43	40	37
	20	65	65	65	65	65	65	65	57	52	47	43	40	37
	30	65	65	65	65	65	65	65	57	52	47	43	40	37
	40	58	58	58	58	58	58	58	57	52	47	43	40	37
	50	52	52	52	52	52	52	52	52	52	47	43	40	37
	60	48	48	48	48	48	48	48	48	48	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	42	42	42	42	42	42	42	42	42	42	42	40	37
90	40	40	40	40	40	40	40	40	40	40	40	40	37	
Zone 3r	0	84	80	75	69	64	60	57	51	46	41	38	35	33
	10	84	80	75	69	64	60	57	51	46	41	38	35	33
	20	65	65	65	65	64	60	57	51	46	41	38	35	33
	30	65	65	65	65	64	60	57	51	46	41	38	35	33
	40	58	58	58	58	58	58	57	51	46	41	38	35	33
	50	52	52	52	52	52	52	52	51	46	41	38	35	33
	60	48	48	48	48	48	48	48	48	46	41	38	35	33
	70	45	45	45	45	45	45	45	45	45	41	38	35	33
	80	42	42	42	42	42	42	42	42	42	41	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 245a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	95	90	86	82	73	66	60	56	52	48
	10	84	84	84	84	84	84	82	73	66	60	56	52	48
	20	65	65	65	65	65	65	65	65	65	60	56	52	48
	30	65	65	65	65	65	65	65	65	65	60	56	52	48
	40	58	58	58	58	58	58	58	58	58	58	56	52	48
	50	52	52	52	52	52	52	52	52	52	52	52	52	48
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	94	89	85	81	78	72	68	60	54	49	45	41	38
	10	84	84	84	81	78	72	68	60	54	49	45	41	38
	20	65	65	65	65	65	65	65	60	54	49	45	41	38
	30	65	65	65	65	65	65	65	60	54	49	45	41	38
	40	58	58	58	58	58	58	58	58	54	49	45	41	38
	50	52	52	52	52	52	52	52	52	52	49	45	41	38
	60	48	48	48	48	48	48	48	48	48	48	45	41	38
	70	45	45	45	45	45	45	45	45	45	45	45	41	38
	80	42	42	42	42	42	42	42	42	42	42	42	41	38
90	40	40	40	40	40	40	40	40	40	40	40	40	38	
Zone 3r	0	86	82	78	73	68	63	60	53	48	43	40	37	34
	10	84	82	78	73	68	63	60	53	48	43	40	37	34
	20	65	65	65	65	65	63	60	53	48	43	40	37	34
	30	65	65	65	65	65	63	60	53	48	43	40	37	34
	40	58	58	58	58	58	58	58	53	48	43	40	37	34
	50	52	52	52	52	52	52	52	52	48	43	40	37	34
	60	48	48	48	48	48	48	48	48	48	43	40	37	34
	70	45	45	45	45	45	45	45	45	45	43	40	37	34
	80	42	42	42	42	42	42	42	42	42	42	40	37	34
	90	40	40	40	40	40	40	40	40	40	40	40	37	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 245b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	90	85	80	75	69	65	62	56	51	47	44	41	38
	10	84	84	80	75	69	65	62	56	51	47	44	41	38
	20	65	65	65	65	65	65	62	56	51	47	44	41	38
	30	65	65	65	65	65	65	62	56	51	47	44	41	38
	40	58	58	58	58	58	58	58	56	51	47	44	41	38
	50	52	52	52	52	52	52	52	52	51	47	44	41	38
	60	48	48	48	48	48	48	48	48	48	47	44	41	38
	70	45	45	45	45	45	45	45	45	45	45	44	41	38
	80	42	42	42	42	42	42	42	42	42	42	42	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38
Zones 2n, 2r, & 3e	0	77	71	66	61	57	54	51	45	41	37	34	32	30
	10	77	71	66	61	57	54	51	45	41	37	34	32	30
	20	65	65	65	61	57	54	51	45	41	37	34	32	30
	30	65	65	65	61	57	54	51	45	41	37	34	32	30
	40	58	58	58	58	57	54	51	45	41	37	34	32	30
	50	52	52	52	52	52	52	51	45	41	37	34	32	30
	60	48	48	48	48	48	48	48	45	41	37	34	32	30
	70	45	45	45	45	45	45	45	45	41	37	34	32	30
	80	42	42	42	42	42	42	42	42	41	37	34	32	30
	90	40	40	40	40	40	40	40	40	40	37	34	32	30
Zone 3r	0	68	62	58	54	50	47	45	40	36	33	31	29	28
	10	68	62	58	54	50	47	45	40	36	33	31	29	28
	20	65	62	58	54	50	47	45	40	36	33	31	29	28
	30	65	62	58	54	50	47	45	40	36	33	31	29	28
	40	58	58	58	54	50	47	45	40	36	33	31	29	28
	50	52	52	52	52	50	47	45	40	36	33	31	29	28
	60	48	48	48	48	48	47	45	40	36	33	31	29	28
	70	45	45	45	45	45	45	45	40	36	33	31	29	28
	80	42	42	42	42	42	42	42	40	36	33	31	29	28
	90	40	40	40	40	40	40	40	40	36	33	31	29	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 246a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	96	91	86	82	78	73	65	59	54	50	47	44
	10	84	84	84	84	82	78	73	65	59	54	50	47	44
	20	65	65	65	65	65	65	65	65	59	54	50	47	44
	30	65	65	65	65	65	65	65	65	59	54	50	47	44
	40	58	58	58	58	58	58	58	58	58	54	50	47	44
	50	52	52	52	52	52	52	52	52	52	52	50	47	44
	60	48	48	48	48	48	48	48	48	48	48	48	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	86	82	78	73	68	64	60	53	48	44	40	37	34
	10	84	82	78	73	68	64	60	53	48	44	40	37	34
	20	65	65	65	65	65	64	60	53	48	44	40	37	34
	30	65	65	65	65	65	64	60	53	48	44	40	37	34
	40	58	58	58	58	58	58	58	53	48	44	40	37	34
	50	52	52	52	52	52	52	52	52	48	44	40	37	34
	60	48	48	48	48	48	48	48	48	48	44	40	37	34
	70	45	45	45	45	45	45	45	45	45	44	40	37	34
	80	42	42	42	42	42	42	42	42	42	42	40	37	34
	90	40	40	40	40	40	40	40	40	40	40	40	37	34
Zone 3r	0	80	75	69	64	60	56	53	47	43	39	36	33	31
	10	80	75	69	64	60	56	53	47	43	39	36	33	31
	20	65	65	65	64	60	56	53	47	43	39	36	33	31
	30	65	65	65	64	60	56	53	47	43	39	36	33	31
	40	58	58	58	58	58	56	53	47	43	39	36	33	31
	50	52	52	52	52	52	52	52	47	43	39	36	33	31
	60	48	48	48	48	48	48	48	47	43	39	36	33	31
	70	45	45	45	45	45	45	45	45	43	39	36	33	31
	80	42	42	42	42	42	42	42	42	42	39	36	33	31
	90	40	40	40	40	40	40	40	40	40	39	36	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 246b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	82	77	70	66	62	59	56	51	46	43	39	37	34
	10	82	77	70	66	62	59	56	51	46	43	39	37	34
	20	65	65	65	65	62	59	56	51	46	43	39	37	34
	30	65	65	65	65	62	59	56	51	46	43	39	37	34
	40	58	58	58	58	58	58	56	51	46	43	39	37	34
	50	52	52	52	52	52	52	52	51	46	43	39	37	34
	60	48	48	48	48	48	48	48	48	46	43	39	37	34
	70	45	45	45	45	45	45	45	45	45	43	39	37	34
	80	42	42	42	42	42	42	42	42	42	42	39	37	34
	90	40	40	40	40	40	40	40	40	40	40	39	37	34
Zones 2n, 2r, & 3e	0	68	63	58	54	51	48	45	40	37	34	31	30	28
	10	68	63	58	54	51	48	45	40	37	34	31	30	28
	20	65	63	58	54	51	48	45	40	37	34	31	30	28
	30	65	63	58	54	51	48	45	40	37	34	31	30	28
	40	58	58	58	54	51	48	45	40	37	34	31	30	28
	50	52	52	52	52	51	48	45	40	37	34	31	30	28
	60	48	48	48	48	48	48	45	40	37	34	31	30	28
	70	45	45	45	45	45	45	45	40	37	34	31	30	28
	80	42	42	42	42	42	42	42	40	37	34	31	30	28
	90	40	40	40	40	40	40	40	40	37	34	31	30	28
Zone 3r	0	60	55	51	48	45	42	40	36	33	31	29	27	25
	10	60	55	51	48	45	42	40	36	33	31	29	27	25
	20	60	55	51	48	45	42	40	36	33	31	29	27	25
	30	60	55	51	48	45	42	40	36	33	31	29	27	25
	40	58	55	51	48	45	42	40	36	33	31	29	27	25
	50	52	52	51	48	45	42	40	36	33	31	29	27	25
	60	48	48	48	48	45	42	40	36	33	31	29	27	25
	70	45	45	45	45	45	42	40	36	33	31	29	27	25
	80	42	42	42	42	42	42	40	36	33	31	29	27	25
	90	40	40	40	40	40	40	40	36	33	31	29	27	25

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 247a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	97	97	97	92	86	82	77	72
	10	92	92	92	92	92	92	92	92	92	86	82	77	72
	20	77	77	77	77	77	77	77	77	77	77	76	74	72
	30	66	66	66	66	66	66	66	66	66	66	66	66	65
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	97	97	97	97	97	94	90	84	78	72	65	60	55
	10	92	92	92	92	92	92	90	84	78	72	65	60	55
	20	77	77	77	77	77	77	77	77	77	72	65	60	55
	30	66	66	66	66	66	66	66	66	66	66	65	60	55
	40	58	58	58	58	58	58	58	58	58	58	58	58	55
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	97	97	97	97	93	89	86	79	73	65	59	54	50
	10	92	92	92	92	92	89	86	79	73	65	59	54	50
	20	77	77	77	77	77	77	77	77	73	65	59	54	50
	30	66	66	66	66	66	66	66	66	66	65	59	54	50
	40	58	58	58	58	58	58	58	58	58	58	58	54	50
	50	53	53	53	53	53	53	53	53	53	53	53	53	50
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 247b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	96	92	88	82	77	70	64	60	55
	10	92	92	92	92	92	92	88	82	77	70	64	60	55
	20	77	77	77	77	77	77	77	77	77	70	64	60	55
	30	66	66	66	66	66	66	66	66	66	66	64	60	55
	40	58	58	58	58	58	58	58	58	58	58	58	58	55
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	97	93	88	85	81	78	74	66	59	53	49	45	42
	10	92	92	88	85	81	78	74	66	59	53	49	45	42
	20	77	77	77	77	77	77	74	66	59	53	49	45	42
	30	66	66	66	66	66	66	66	66	59	53	49	45	42
	40	58	58	58	58	58	58	58	58	58	53	49	45	42
	50	53	53	53	53	53	53	53	53	53	53	49	45	42
	60	49	49	49	49	49	49	49	49	49	49	49	45	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 3r	0	93	88	84	80	77	72	67	60	53	48	44	40	37
	10	92	88	84	80	77	72	67	60	53	48	44	40	37
	20	77	77	77	77	77	72	67	60	53	48	44	40	37
	30	66	66	66	66	66	66	66	60	53	48	44	40	37
	40	58	58	58	58	58	58	58	58	53	48	44	40	37
	50	53	53	53	53	53	53	53	53	53	48	44	40	37
	60	49	49	49	49	49	49	49	49	49	48	44	40	37
	70	45	45	45	45	45	45	45	45	45	45	44	40	37
	80	43	43	43	43	43	43	43	43	43	43	43	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 248a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	95	91	85	79	74	67	62	58
	10	92	92	92	92	92	92	91	85	79	74	67	62	58
	20	77	77	77	77	77	77	77	76	75	74	67	62	58
	30	66	66	66	66	66	66	66	66	66	65	64	62	58
	40	58	58	58	58	58	58	58	58	58	58	58	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	97	96	91	87	84	80	77	69	62	56	51	47	43
	10	92	92	91	87	84	80	77	69	62	56	51	47	43
	20	77	77	77	77	77	77	77	69	62	56	51	47	43
	30	66	66	66	66	66	66	66	66	62	56	51	47	43
	40	58	58	58	58	58	58	58	58	58	56	51	47	43
	50	53	53	53	53	53	53	53	53	53	53	51	47	43
	60	49	49	49	49	49	49	49	49	49	49	49	47	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	96	91	87	83	79	76	71	63	56	51	46	42	39
	10	92	91	87	83	79	76	71	63	56	51	46	42	39
	20	77	77	77	77	77	76	71	63	56	51	46	42	39
	30	66	66	66	66	66	66	66	63	56	51	46	42	39
	40	58	58	58	58	58	58	58	58	56	51	46	42	39
	50	53	53	53	53	53	53	53	53	53	51	46	42	39
	60	49	49	49	49	49	49	49	49	49	49	46	42	39
	70	45	45	45	45	45	45	45	45	45	45	45	42	39
	80	43	43	43	43	43	43	43	43	43	43	43	42	39
	90	40	40	40	40	40	40	40	40	40	40	40	40	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 248b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	94	89	85	82	79	76	68	62	56	52	48	45
	10	92	92	89	85	82	79	76	68	62	56	52	48	45
	20	77	77	77	77	77	77	76	68	62	56	52	48	45
	30	66	66	66	66	66	66	66	66	62	56	52	48	45
	40	58	58	58	58	58	58	58	58	58	56	52	48	45
	50	53	53	53	53	53	53	53	53	53	53	52	48	45
	60	49	49	49	49	49	49	49	49	49	49	49	48	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	83	79	76	70	66	61	58	52	46	42	39	36	33
	10	83	79	76	70	66	61	58	52	46	42	39	36	33
	20	77	77	76	70	66	61	58	52	46	42	39	36	33
	30	66	66	66	66	66	61	58	52	46	42	39	36	33
	40	58	58	58	58	58	58	58	52	46	42	39	36	33
	50	53	53	53	53	53	53	53	52	46	42	39	36	33
	60	49	49	49	49	49	49	49	49	46	42	39	36	33
	70	45	45	45	45	45	45	45	45	45	42	39	36	33
	80	43	43	43	43	43	43	43	43	43	42	39	36	33
90	40	40	40	40	40	40	40	40	40	40	39	36	33	
Zone 3r	0	79	75	69	64	59	56	52	46	42	38	35	32	30
	10	79	75	69	64	59	56	52	46	42	38	35	32	30
	20	77	75	69	64	59	56	52	46	42	38	35	32	30
	30	66	66	66	64	59	56	52	46	42	38	35	32	30
	40	58	58	58	58	58	56	52	46	42	38	35	32	30
	50	53	53	53	53	53	53	52	46	42	38	35	32	30
	60	49	49	49	49	49	49	49	46	42	38	35	32	30
	70	45	45	45	45	45	45	45	45	42	38	35	32	30
	80	43	43	43	43	43	43	43	43	42	38	35	32	30
	90	40	40	40	40	40	40	40	40	40	38	35	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 249a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	95	91	88	84	78	72	66	60	56	52
	10	92	92	92	92	91	88	84	78	72	66	60	56	52
	20	77	77	77	77	77	77	76	75	72	66	60	56	52
	30	66	66	66	66	66	66	66	66	65	64	60	56	52
	40	58	58	58	58	58	58	58	58	58	58	57	56	52
	50	53	53	53	53	53	53	53	53	53	53	53	52	51
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	93	89	84	81	77	73	69	61	55	50	46	42	39
	10	92	89	84	81	77	73	69	61	55	50	46	42	39
	20	77	77	77	77	77	73	69	61	55	50	46	42	39
	30	66	66	66	66	66	66	66	61	55	50	46	42	39
	40	58	58	58	58	58	58	58	58	55	50	46	42	39
	50	53	53	53	53	53	53	53	53	53	50	46	42	39
	60	49	49	49	49	49	49	49	49	49	49	46	42	39
	70	45	45	45	45	45	45	45	45	45	45	45	42	39
	80	43	43	43	43	43	43	43	43	43	43	43	42	39
	90	40	40	40	40	40	40	40	40	40	40	40	40	39
Zone 3r	0	89	84	80	77	72	67	62	55	50	45	41	38	35
	10	89	84	80	77	72	67	62	55	50	45	41	38	35
	20	77	77	77	77	72	67	62	55	50	45	41	38	35
	30	66	66	66	66	66	66	62	55	50	45	41	38	35
	40	58	58	58	58	58	58	58	55	50	45	41	38	35
	50	53	53	53	53	53	53	53	53	50	45	41	38	35
	60	49	49	49	49	49	49	49	49	49	45	41	38	35
	70	45	45	45	45	45	45	45	45	45	45	41	38	35
	80	43	43	43	43	43	43	43	43	43	43	41	38	35
	90	40	40	40	40	40	40	40	40	40	40	40	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 249b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	91	87	83	79	76	71	67	61	55	51	47	44	41
	10	91	87	83	79	76	71	67	61	55	51	47	44	41
	20	77	77	77	77	76	71	67	61	55	51	47	44	41
	30	66	66	66	66	66	66	66	61	55	51	47	44	41
	40	58	58	58	58	58	58	58	58	55	51	47	44	41
	50	53	53	53	53	53	53	53	53	53	51	47	44	41
	60	49	49	49	49	49	49	49	49	49	49	47	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2n, 2r, & 3e	0	77	72	67	62	58	54	51	46	41	38	35	33	31
	10	77	72	67	62	58	54	51	46	41	38	35	33	31
	20	77	72	67	62	58	54	51	46	41	38	35	33	31
	30	66	66	66	62	58	54	51	46	41	38	35	33	31
	40	58	58	58	58	58	54	51	46	41	38	35	33	31
	50	53	53	53	53	53	53	51	46	41	38	35	33	31
	60	49	49	49	49	49	49	49	46	41	38	35	33	31
	70	45	45	45	45	45	45	45	45	41	38	35	33	31
	80	43	43	43	43	43	43	43	43	41	38	35	33	31
90	40	40	40	40	40	40	40	40	40	38	35	33	31	
Zone 3r	0	71	65	60	56	52	49	46	41	37	34	31	29	27
	10	71	65	60	56	52	49	46	41	37	34	31	29	27
	20	71	65	60	56	52	49	46	41	37	34	31	29	27
	30	66	65	60	56	52	49	46	41	37	34	31	29	27
	40	58	58	58	56	52	49	46	41	37	34	31	29	27
	50	53	53	53	53	52	49	46	41	37	34	31	29	27
	60	49	49	49	49	49	49	46	41	37	34	31	29	27
	70	45	45	45	45	45	45	45	41	37	34	31	29	27
	80	43	43	43	43	43	43	43	41	37	34	31	29	27
	90	40	40	40	40	40	40	40	40	37	34	31	29	27

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 250a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	97	97	97	97	97	92	87	82	77	73
	10	92	92	92	92	92	92	92	89	87	85	82	77	73
	20	80	80	80	80	80	79	78	77	75	73	72	70	68
	30	69	69	69	69	69	69	69	68	67	66	65	63	62
	40	61	61	61	61	61	61	61	61	61	60	59	58	57
	50	56	56	56	56	56	56	56	56	56	56	55	54	53
	60	51	51	51	51	51	51	51	51	51	51	51	51	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zones 2n & 3r	0	97	97	97	97	97	97	97	91	85	80	75	70	64
	10	92	92	92	92	92	92	92	89	85	80	75	70	64
	20	80	80	80	80	80	79	78	77	75	73	72	70	64
	30	69	69	69	69	69	69	69	68	67	66	65	63	62
	40	61	61	61	61	61	61	61	61	61	60	59	58	57
	50	56	56	56	56	56	56	56	56	56	56	55	54	53
	60	51	51	51	51	51	51	51	51	51	51	51	51	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zone 3e	0	97	97	97	97	96	92	88	82	77	72	65	60	55
	10	92	92	92	92	92	92	88	82	77	72	65	60	55
	20	80	80	80	80	80	79	78	77	75	72	65	60	55
	30	69	69	69	69	69	69	69	68	67	66	65	60	55
	40	61	61	61	61	61	61	61	61	61	60	59	58	55
	50	56	56	56	56	56	56	56	56	56	56	55	54	53
	60	51	51	51	51	51	51	51	51	51	51	51	51	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 250b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	97	96	92	88	82	77	70	63	58	53
	10	92	92	92	92	92	92	88	82	77	70	63	58	53
	20	80	80	80	80	80	79	78	77	75	70	63	58	53
	30	69	69	69	69	69	69	69	68	67	66	63	58	53
	40	61	61	61	61	61	61	61	61	61	60	59	58	53
	50	56	56	56	56	56	56	56	56	56	56	55	54	53
	60	51	51	51	51	51	51	51	51	51	51	51	51	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zones 2n & 3r	0	97	97	96	91	88	84	81	76	69	62	57	52	48
	10	92	92	92	91	88	84	81	76	69	62	57	52	48
	20	80	80	80	80	80	79	78	76	69	62	57	52	48
	30	69	69	69	69	69	69	69	68	67	62	57	52	48
	40	61	61	61	61	61	61	61	61	61	60	57	52	48
	50	56	56	56	56	56	56	56	56	56	56	55	52	48
	60	51	51	51	51	51	51	51	51	51	51	51	51	48
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
90	43	43	43	43	43	43	43	43	43	43	43	43	43	
Zone 3e	0	96	91	87	83	80	77	74	66	59	53	49	45	42
	10	92	91	87	83	80	77	74	66	59	53	49	45	42
	20	80	80	80	80	80	77	74	66	59	53	49	45	42
	30	69	69	69	69	69	69	69	66	59	53	49	45	42
	40	61	61	61	61	61	61	61	61	59	53	49	45	42
	50	56	56	56	56	56	56	56	56	56	53	49	45	42
	60	51	51	51	51	51	51	51	51	51	51	49	45	42
	70	48	48	48	48	48	48	48	48	48	48	48	45	42
	80	45	45	45	45	45	45	45	45	45	45	45	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 251a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	97	97	95	91	85	79	74	67	61	56
	10	92	92	92	91	89	88	86	84	79	74	67	61	56
	20	80	79	78	78	77	76	75	73	71	69	67	61	56
	30	69	69	69	69	68	68	67	65	64	62	61	59	56
	40	61	61	61	61	61	61	61	60	59	58	56	55	54
	50	56	56	56	56	56	56	56	56	55	54	53	52	50
	60	51	51	51	51	51	51	51	51	51	51	50	49	48
	70	48	48	48	48	48	48	48	48	48	48	47	46	45
	80	45	45	45	45	45	45	45	45	45	45	45	44	44
90	43	43	43	43	43	43	43	43	43	43	43	42	42	
Zones 2n & 3r	0	97	97	97	94	90	87	84	78	73	65	60	55	51
	10	92	92	92	91	89	87	84	78	73	65	60	55	51
	20	80	79	78	78	77	76	75	73	71	65	60	55	51
	30	69	69	69	69	68	68	67	65	64	62	60	55	51
	40	61	61	61	61	61	61	61	60	59	58	56	55	51
	50	56	56	56	56	56	56	56	56	55	54	53	52	50
	60	51	51	51	51	51	51	51	51	51	51	50	49	48
	70	48	48	48	48	48	48	48	48	48	48	47	46	45
	80	45	45	45	45	45	45	45	45	45	45	45	44	44
90	43	43	43	43	43	43	43	43	43	43	43	42	42	
Zone 3e	0	97	94	90	86	82	79	76	69	62	56	51	47	44
	10	92	92	90	86	82	79	76	69	62	56	51	47	44
	20	80	79	78	78	77	76	75	69	62	56	51	47	44
	30	69	69	69	69	68	68	67	65	62	56	51	47	44
	40	61	61	61	61	61	61	61	60	59	56	51	47	44
	50	56	56	56	56	56	56	56	56	55	54	51	47	44
	60	51	51	51	51	51	51	51	51	51	51	50	47	44
	70	48	48	48	48	48	48	48	48	48	48	47	46	44
	80	45	45	45	45	45	45	45	45	45	45	45	44	44
90	43	43	43	43	43	43	43	43	43	43	43	42	42	

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 251b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	94	89	85	82	79	76	68	60	54	49	45	42
	10	92	92	89	85	82	79	76	68	60	54	49	45	42
	20	80	79	78	78	77	76	75	68	60	54	49	45	42
	30	69	69	69	69	68	68	67	65	60	54	49	45	42
	40	61	61	61	61	61	61	61	60	59	54	49	45	42
	50	56	56	56	56	56	56	56	56	55	54	49	45	42
	60	51	51	51	51	51	51	51	51	51	51	49	45	42
	70	48	48	48	48	48	48	48	48	48	48	47	45	42
	80	45	45	45	45	45	45	45	45	45	45	45	44	42
90	43	43	43	43	43	43	43	43	43	43	43	42	42	
Zones 2n & 3r	0	90	86	82	79	76	72	67	60	54	49	45	41	38
	10	90	86	82	79	76	72	67	60	54	49	45	41	38
	20	80	79	78	78	76	72	67	60	54	49	45	41	38
	30	69	69	69	69	68	68	67	60	54	49	45	41	38
	40	61	61	61	61	61	61	61	60	54	49	45	41	38
	50	56	56	56	56	56	56	56	56	54	49	45	41	38
	60	51	51	51	51	51	51	51	51	51	49	45	41	38
	70	48	48	48	48	48	48	48	48	48	48	45	41	38
	80	45	45	45	45	45	45	45	45	45	45	45	41	38
90	43	43	43	43	43	43	43	43	43	43	43	41	38	
Zone 3e	0	82	78	75	70	65	61	58	52	47	42	39	36	33
	10	82	78	75	70	65	61	58	52	47	42	39	36	33
	20	80	78	75	70	65	61	58	52	47	42	39	36	33
	30	69	69	69	69	65	61	58	52	47	42	39	36	33
	40	61	61	61	61	61	61	58	52	47	42	39	36	33
	50	56	56	56	56	56	56	56	52	47	42	39	36	33
	60	51	51	51	51	51	51	51	51	47	42	39	36	33
	70	48	48	48	48	48	48	48	48	47	42	39	36	33
	80	45	45	45	45	45	45	45	45	45	42	39	36	33
	90	43	43	43	43	43	43	43	43	43	42	39	36	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 252a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	96	91	88	84	78	73	65	59	54	49
	10	92	91	90	88	87	85	83	78	73	65	59	54	49
	20	79	78	77	76	75	74	73	71	68	65	59	54	49
	30	69	69	68	68	67	66	65	64	62	60	59	54	49
	40	61	61	61	61	61	61	60	59	57	56	54	53	49
	50	56	56	56	56	56	56	56	55	53	52	51	50	49
	60	51	51	51	51	51	51	51	51	50	49	48	47	46
	70	48	48	48	48	48	48	48	48	48	47	46	45	44
	80	45	45	45	45	45	45	45	45	45	45	44	43	42
	90	43	43	43	43	43	43	43	43	43	43	42	41	41
Zones 2n & 3r	0	97	96	91	87	84	81	78	71	64	58	53	49	45
	10	92	91	90	87	84	81	78	71	64	58	53	49	45
	20	79	78	77	76	75	74	73	71	64	58	53	49	45
	30	69	69	68	68	67	66	65	64	62	58	53	49	45
	40	61	61	61	61	61	61	60	59	57	56	53	49	45
	50	56	56	56	56	56	56	56	55	53	52	51	49	45
	60	51	51	51	51	51	51	51	51	50	49	48	47	45
	70	48	48	48	48	48	48	48	48	48	47	46	45	44
	80	45	45	45	45	45	45	45	45	45	45	44	43	42
	90	43	43	43	43	43	43	43	43	43	43	42	41	41
Zone 3e	0	91	87	83	80	76	73	69	61	55	50	46	42	39
	10	91	87	83	80	76	73	69	61	55	50	46	42	39
	20	79	78	77	76	75	73	69	61	55	50	46	42	39
	30	69	69	68	68	67	66	65	61	55	50	46	42	39
	40	61	61	61	61	61	61	60	59	55	50	46	42	39
	50	56	56	56	56	56	56	56	55	53	50	46	42	39
	60	51	51	51	51	51	51	51	51	50	49	46	42	39
	70	48	48	48	48	48	48	48	48	48	47	46	42	39
	80	45	45	45	45	45	45	45	45	45	45	44	42	39
	90	43	43	43	43	43	43	43	43	43	43	42	41	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 252b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1.5					
		Exposure Category: D							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	91	87	83	79	76	72	67	59	53	48	44	40	37
	10	91	87	83	79	76	72	67	59	53	48	44	40	37
	20	79	78	77	76	75	72	67	59	53	48	44	40	37
	30	69	69	68	68	67	66	65	59	53	48	44	40	37
	40	61	61	61	61	61	61	60	59	53	48	44	40	37
	50	56	56	56	56	56	56	56	55	53	48	44	40	37
	60	51	51	51	51	51	51	51	51	50	48	44	40	37
	70	48	48	48	48	48	48	48	48	48	47	44	40	37
	80	45	45	45	45	45	45	45	45	45	45	44	40	37
	90	43	43	43	43	43	43	43	43	43	43	42	40	37
Zones 2n & 3r	0	84	80	76	73	68	63	60	53	48	44	40	37	34
	10	84	80	76	73	68	63	60	53	48	44	40	37	34
	20	79	78	76	73	68	63	60	53	48	44	40	37	34
	30	69	69	68	68	67	63	60	53	48	44	40	37	34
	40	61	61	61	61	61	61	60	53	48	44	40	37	34
	50	56	56	56	56	56	56	56	53	48	44	40	37	34
	60	51	51	51	51	51	51	51	51	48	44	40	37	34
	70	48	48	48	48	48	48	48	48	48	44	40	37	34
	80	45	45	45	45	45	45	45	45	45	44	40	37	34
	90	43	43	43	43	43	43	43	43	43	43	40	37	34
Zone 3e	0	76	72	67	62	58	54	51	46	42	38	35	32	30
	10	76	72	67	62	58	54	51	46	42	38	35	32	30
	20	76	72	67	62	58	54	51	46	42	38	35	32	30
	30	69	69	67	62	58	54	51	46	42	38	35	32	30
	40	61	61	61	61	58	54	51	46	42	38	35	32	30
	50	56	56	56	56	56	54	51	46	42	38	35	32	30
	60	51	51	51	51	51	51	51	46	42	38	35	32	30
	70	48	48	48	48	48	48	48	46	42	38	35	32	30
	80	45	45	45	45	45	45	45	45	42	38	35	32	30
	90	43	43	43	43	43	43	43	43	42	38	35	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 253a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support X _E = 1					
		Exposure Category: B							Roof Type : Hip h/B = ≥ 0.8					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	92	86	80	74	68	63
	10	84	84	84	84	84	84	84	84	82	80	74	68	63
	20	65	65	65	65	65	65	65	65	65	65	65	64	63
	30	65	65	65	65	65	65	65	65	65	65	65	64	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	57
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	97	97	97	97	94	90	84	79	72	65	60	55
	10	84	84	84	84	84	84	84	84	79	72	65	60	55
	20	65	65	65	65	65	65	65	65	65	65	65	60	55
	30	65	65	65	65	65	65	65	65	65	65	65	60	55
	40	58	58	58	58	58	58	58	58	58	58	58	58	55
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	97	97	94	91	87	81	75	68	62	57	52
	10	84	84	84	84	84	84	84	81	75	68	62	57	52
	20	65	65	65	65	65	65	65	65	65	65	62	57	52
	30	65	65	65	65	65	65	65	65	65	65	62	57	52
	40	58	58	58	58	58	58	58	58	58	58	58	57	52
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 253b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	93	89	85	82	75	67	62	57	53	49
	10	84	84	84	84	84	84	82	75	67	62	57	53	49
	20	65	65	65	65	65	65	65	65	65	62	57	53	49
	30	65	65	65	65	65	65	65	65	65	62	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	52	52	52	52	52	52	52	52	52	52	52	52	49
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	93	89	85	81	78	74	66	59	54	49	46	42
	10	84	84	84	84	81	78	74	66	59	54	49	46	42
	20	65	65	65	65	65	65	65	65	59	54	49	46	42
	30	65	65	65	65	65	65	65	65	59	54	49	46	42
	40	58	58	58	58	58	58	58	58	58	54	49	46	42
	50	52	52	52	52	52	52	52	52	52	52	49	46	42
	60	48	48	48	48	48	48	48	48	48	48	48	46	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	94	90	85	82	78	74	70	62	56	51	47	43	40
	10	84	84	84	82	78	74	70	62	56	51	47	43	40
	20	65	65	65	65	65	65	65	62	56	51	47	43	40
	30	65	65	65	65	65	65	65	62	56	51	47	43	40
	40	58	58	58	58	58	58	58	58	56	51	47	43	40
	50	52	52	52	52	52	52	52	52	52	51	47	43	40
	60	48	48	48	48	48	48	48	48	48	48	47	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	42	42	42	42	42	42	42	42	42	42	42	42	40
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 254a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	92	88	85	79	70	64	59	55	51
	10	84	84	84	84	84	83	82	79	70	64	59	55	51
	20	65	65	65	65	65	65	65	65	64	63	59	55	51
	30	65	65	65	65	65	65	65	65	64	63	59	55	51
	40	58	58	58	58	58	58	58	58	58	57	56	55	51
	50	52	52	52	52	52	52	52	52	52	52	52	51	51
	60	48	48	48	48	48	48	48	48	48	48	48	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	97	96	92	87	84	81	78	69	62	56	52	48	44
	10	84	84	84	84	84	81	78	69	62	56	52	48	44
	20	65	65	65	65	65	65	65	65	62	56	52	48	44
	30	65	65	65	65	65	65	65	65	62	56	52	48	44
	40	58	58	58	58	58	58	58	58	58	56	52	48	44
	50	52	52	52	52	52	52	52	52	52	52	52	48	44
	60	48	48	48	48	48	48	48	48	48	48	48	48	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e & 3	0	97	93	88	84	81	78	73	65	59	53	49	45	42
	10	84	84	84	84	81	78	73	65	59	53	49	45	42
	20	65	65	65	65	65	65	65	65	59	53	49	45	42
	30	65	65	65	65	65	65	65	65	59	53	49	45	42
	40	58	58	58	58	58	58	58	58	58	53	49	45	42
	50	52	52	52	52	52	52	52	52	52	52	49	45	42
	60	48	48	48	48	48	48	48	48	48	48	48	45	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 254b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1.5					
		Exposure Category: C							Roof Type : Hip h/B = ≥ 0.8					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	92	87	83	79	75	70	66	60	55	50	46	43	40
	10	84	84	83	79	75	70	66	60	55	50	46	43	40
	20	65	65	65	65	65	65	65	60	55	50	46	43	40
	30	65	65	65	65	65	65	65	60	55	50	46	43	40
	40	58	58	58	58	58	58	58	58	55	50	46	43	40
	50	52	52	52	52	52	52	52	52	52	50	46	43	40
	60	48	48	48	48	48	48	48	48	48	48	46	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	42	42	42	42	42	42	42	42	42	42	42	42	40
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	84	80	75	70	66	62	58	52	47	43	40	37	34
	10	84	80	75	70	66	62	58	52	47	43	40	37	34
	20	65	65	65	65	65	62	58	52	47	43	40	37	34
	30	65	65	65	65	65	62	58	52	47	43	40	37	34
	40	58	58	58	58	58	58	58	52	47	43	40	37	34
	50	52	52	52	52	52	52	52	52	47	43	40	37	34
	60	48	48	48	48	48	48	48	48	47	43	40	37	34
	70	45	45	45	45	45	45	45	45	45	43	40	37	34
	80	42	42	42	42	42	42	42	42	42	42	40	37	34
90	40	40	40	40	40	40	40	40	40	40	40	37	34	
Zones 2e & 3	0	81	77	71	66	62	58	55	49	45	41	38	35	33
	10	81	77	71	66	62	58	55	49	45	41	38	35	33
	20	65	65	65	65	62	58	55	49	45	41	38	35	33
	30	65	65	65	65	62	58	55	49	45	41	38	35	33
	40	58	58	58	58	58	58	55	49	45	41	38	35	33
	50	52	52	52	52	52	52	52	49	45	41	38	35	33
	60	48	48	48	48	48	48	48	48	45	41	38	35	33
	70	45	45	45	45	45	45	45	45	45	41	38	35	33
	80	42	42	42	42	42	42	42	42	42	41	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 255a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	93	89	85	81	78	69	63	58	54	50	46
	10	84	84	84	83	82	81	78	69	63	58	54	50	46
	20	65	65	65	65	65	65	65	64	63	58	54	50	46
	30	65	65	65	65	65	65	65	64	63	58	54	50	46
	40	58	58	58	58	58	58	58	58	57	56	54	50	46
	50	52	52	52	52	52	52	52	52	52	52	51	50	46
	60	48	48	48	48	48	48	48	48	48	48	48	47	46
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	93	89	85	81	78	73	69	61	55	50	46	43	40
	10	84	84	84	81	78	73	69	61	55	50	46	43	40
	20	65	65	65	65	65	65	65	61	55	50	46	43	40
	30	65	65	65	65	65	65	65	61	55	50	46	43	40
	40	58	58	58	58	58	58	58	58	55	50	46	43	40
	50	52	52	52	52	52	52	52	52	52	50	46	43	40
	60	48	48	48	48	48	48	48	48	48	48	46	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	42	42	42	42	42	42	42	42	42	42	42	42	40
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	90	86	82	78	73	69	65	58	52	48	44	41	38
	10	84	84	82	78	73	69	65	58	52	48	44	41	38
	20	65	65	65	65	65	65	65	58	52	48	44	41	38
	30	65	65	65	65	65	65	65	58	52	48	44	41	38
	40	58	58	58	58	58	58	58	58	52	48	44	41	38
	50	52	52	52	52	52	52	52	52	52	48	44	41	38
	60	48	48	48	48	48	48	48	48	48	48	44	41	38
	70	45	45	45	45	45	45	45	45	45	45	44	41	38
	80	42	42	42	42	42	42	42	42	42	42	42	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 255b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	85	81	76	70	66	63	59	54	49	45	42	39	37
	10	84	81	76	70	66	63	59	54	49	45	42	39	37
	20	65	65	65	65	65	63	59	54	49	45	42	39	37
	30	65	65	65	65	65	63	59	54	49	45	42	39	37
	40	58	58	58	58	58	58	58	54	49	45	42	39	37
	50	52	52	52	52	52	52	52	52	49	45	42	39	37
	60	48	48	48	48	48	48	48	48	48	45	42	39	37
	70	45	45	45	45	45	45	45	45	45	45	42	39	37
	80	42	42	42	42	42	42	42	42	42	42	42	39	37
	90	40	40	40	40	40	40	40	40	40	40	40	39	37
Zone 2r	0	78	72	67	62	58	55	52	47	42	39	35	33	31
	10	78	72	67	62	58	55	52	47	42	39	35	33	31
	20	65	65	65	62	58	55	52	47	42	39	35	33	31
	30	65	65	65	62	58	55	52	47	42	39	35	33	31
	40	58	58	58	58	58	55	52	47	42	39	35	33	31
	50	52	52	52	52	52	52	52	47	42	39	35	33	31
	60	48	48	48	48	48	48	48	47	42	39	35	33	31
	70	45	45	45	45	45	45	45	45	42	39	35	33	31
	80	42	42	42	42	42	42	42	42	42	39	35	33	31
	90	40	40	40	40	40	40	40	40	40	39	35	33	31
Zones 2e & 3	0	73	68	63	59	55	52	49	44	40	37	34	32	30
	10	73	68	63	59	55	52	49	44	40	37	34	32	30
	20	65	65	63	59	55	52	49	44	40	37	34	32	30
	30	65	65	63	59	55	52	49	44	40	37	34	32	30
	40	58	58	58	58	55	52	49	44	40	37	34	32	30
	50	52	52	52	52	52	52	49	44	40	37	34	32	30
	60	48	48	48	48	48	48	48	44	40	37	34	32	30
	70	45	45	45	45	45	45	45	44	40	37	34	32	30
	80	42	42	42	42	42	42	42	42	40	37	34	32	30
	90	40	40	40	40	40	40	40	40	40	37	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 256a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	97	92	87	82	78
	10	84	84	84	84	84	84	84	84	82	81	79	78	76
	20	65	65	65	65	65	65	65	65	65	64	63	62	61
	30	65	65	65	65	65	65	65	65	65	64	63	62	61
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	97	97	97	97	94	90	84	79	72	65	60	55
	10	84	84	84	84	84	84	84	84	79	72	65	60	55
	20	65	65	65	65	65	65	65	65	65	64	63	60	55
	30	65	65	65	65	65	65	65	65	65	64	63	60	55
	40	58	58	58	58	58	58	58	58	58	58	58	57	55
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	97	97	97	97	97	95	88	83	79	73	67
	10	84	84	84	84	84	84	84	84	82	81	79	73	67
	20	65	65	65	65	65	65	65	65	65	64	63	62	61
	30	65	65	65	65	65	65	65	65	65	64	63	62	61
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 256b		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1.5					
		Exposure Category: B							Roof Type : Hip h/B = ≤ 0.5					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	94	87	82	77	70	65	60
	10	84	84	84	84	84	84	84	84	82	77	70	65	60
	20	65	65	65	65	65	65	65	65	65	64	63	62	60
	30	65	65	65	65	65	65	65	65	65	64	63	62	60
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	93	89	85	81	78	74	66	59	54	49	46	42
	10	84	84	84	84	81	78	74	66	59	54	49	46	42
	20	65	65	65	65	65	65	65	65	59	54	49	46	42
	30	65	65	65	65	65	65	65	65	59	54	49	46	42
	40	58	58	58	58	58	58	58	58	58	54	49	46	42
	50	52	52	52	52	52	52	52	52	52	52	49	46	42
	60	48	48	48	48	48	48	48	48	48	48	48	46	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	97	96	92	88	85	79	72	65	60	55	51
	10	84	84	84	84	84	84	84	79	72	65	60	55	51
	20	65	65	65	65	65	65	65	65	65	64	60	55	51
	30	65	65	65	65	65	65	65	65	65	64	60	55	51
	40	58	58	58	58	58	58	58	58	58	58	58	55	51
	50	52	52	52	52	52	52	52	52	52	52	52	52	51
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 257a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	90	84	79	73	68	63
	10	84	84	84	84	84	83	82	80	78	77	73	68	63
	20	65	65	65	65	65	65	65	64	63	62	60	59	58
	30	65	65	65	65	65	65	65	64	63	62	60	59	58
	40	58	58	58	58	58	58	58	58	57	56	55	54	53
	50	52	52	52	52	52	52	52	52	52	52	52	51	50
	60	48	48	48	48	48	48	48	48	48	48	48	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	96	92	87	84	81	78	69	62	56	52	48	44
	10	84	84	84	84	84	81	78	69	62	56	52	48	44
	20	65	65	65	65	65	65	65	64	62	56	52	48	44
	30	65	65	65	65	65	65	65	64	62	56	52	48	44
	40	58	58	58	58	58	58	58	58	57	56	52	48	44
	50	52	52	52	52	52	52	52	52	52	52	52	48	44
	60	48	48	48	48	48	48	48	48	48	48	48	48	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	97	97	95	91	87	81	75	68	62	57	53
	10	84	84	84	84	84	83	82	80	75	68	62	57	53
	20	65	65	65	65	65	65	65	64	63	62	60	57	53
	30	65	65	65	65	65	65	65	64	63	62	60	57	53
	40	58	58	58	58	58	58	58	58	57	56	55	54	53
	50	52	52	52	52	52	52	52	52	52	52	52	51	50
	60	48	48	48	48	48	48	48	48	48	48	48	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 257b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	95	91	87	84	81	74	67	61	57	52	49
	10	84	84	84	84	84	83	81	74	67	61	57	52	49
	20	65	65	65	65	65	65	65	64	63	61	57	52	49
	30	65	65	65	65	65	65	65	64	63	61	57	52	49
	40	58	58	58	58	58	58	58	58	57	56	55	52	49
	50	52	52	52	52	52	52	52	52	52	52	52	51	49
	60	48	48	48	48	48	48	48	48	48	48	48	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	84	80	75	70	66	62	58	52	47	43	40	37	34
	10	84	80	75	70	66	62	58	52	47	43	40	37	34
	20	65	65	65	65	65	62	58	52	47	43	40	37	34
	30	65	65	65	65	65	62	58	52	47	43	40	37	34
	40	58	58	58	58	58	58	58	52	47	43	40	37	34
	50	52	52	52	52	52	52	52	52	47	43	40	37	34
	60	48	48	48	48	48	48	48	48	47	43	40	37	34
	70	45	45	45	45	45	45	45	45	45	43	40	37	34
	80	42	42	42	42	42	42	42	42	42	42	40	37	34
90	40	40	40	40	40	40	40	40	40	40	40	37	34	
Zones 2e & 3	0	94	90	86	82	79	75	70	63	57	52	48	44	41
	10	84	84	84	82	79	75	70	63	57	52	48	44	41
	20	65	65	65	65	65	65	65	63	57	52	48	44	41
	30	65	65	65	65	65	65	65	63	57	52	48	44	41
	40	58	58	58	58	58	58	58	58	57	52	48	44	41
	50	52	52	52	52	52	52	52	52	52	52	48	44	41
	60	48	48	48	48	48	48	48	48	48	48	48	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	42	42	42	42	42	42	42	42	42	42	42	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 258a		Mean Roof Height: 15 < h ≤ 30 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1					
		Exposure Category: D							Roof Type : Hip h/B = ≤ 0.5					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	93	90	84	78	71	66	61	57
	10	84	84	84	83	82	81	80	78	76	71	66	61	57
	20	65	65	65	65	65	65	64	63	61	60	59	57	56
	30	65	65	65	65	65	65	64	63	61	60	59	57	56
	40	58	58	58	58	58	58	58	57	56	55	54	53	52
	50	52	52	52	52	52	52	52	52	52	51	50	49	49
	60	48	48	48	48	48	48	48	48	48	48	47	47	46
	70	45	45	45	45	45	45	45	45	45	45	45	44	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	93	89	85	81	78	73	69	61	55	50	46	43	40
	10	84	84	84	81	78	73	69	61	55	50	46	43	40
	20	65	65	65	65	65	65	64	61	55	50	46	43	40
	30	65	65	65	65	65	65	64	61	55	50	46	43	40
	40	58	58	58	58	58	58	58	57	55	50	46	43	40
	50	52	52	52	52	52	52	52	52	52	50	46	43	40
	60	48	48	48	48	48	48	48	48	48	48	46	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	42	42	42	42	42	42	42	42	42	42	42	42	40
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	96	91	88	84	81	74	67	61	56	51	48
	10	84	84	84	83	82	81	80	74	67	61	56	51	48
	20	65	65	65	65	65	65	64	63	61	60	56	51	48
	30	65	65	65	65	65	65	64	63	61	60	56	51	48
	40	58	58	58	58	58	58	58	57	56	55	54	51	48
	50	52	52	52	52	52	52	52	52	52	51	50	49	48
	60	48	48	48	48	48	48	48	48	48	48	47	47	46
	70	45	45	45	45	45	45	45	45	45	45	45	44	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 258b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	92	88	84	81	78	73	66	60	55	51	47	44
	10	84	84	84	83	81	78	73	66	60	55	51	47	44
	20	65	65	65	65	65	65	64	63	60	55	51	47	44
	30	65	65	65	65	65	65	64	63	60	55	51	47	44
	40	58	58	58	58	58	58	58	57	56	55	51	47	44
	50	52	52	52	52	52	52	52	52	52	51	50	47	44
	60	48	48	48	48	48	48	48	48	48	48	47	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	44	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 2r	0	78	72	67	62	58	55	52	47	42	39	35	33	31
	10	78	72	67	62	58	55	52	47	42	39	35	33	31
	20	65	65	65	62	58	55	52	47	42	39	35	33	31
	30	65	65	65	62	58	55	52	47	42	39	35	33	31
	40	58	58	58	58	58	55	52	47	42	39	35	33	31
	50	52	52	52	52	52	52	52	47	42	39	35	33	31
	60	48	48	48	48	48	48	48	47	42	39	35	33	31
	70	45	45	45	45	45	45	45	45	42	39	35	33	31
	80	42	42	42	42	42	42	42	42	42	39	35	33	31
	90	40	40	40	40	40	40	40	40	40	39	35	33	31
Zones 2e & 3	0	87	83	80	75	70	66	62	56	51	46	43	39	37
	10	84	83	80	75	70	66	62	56	51	46	43	39	37
	20	65	65	65	65	65	65	62	56	51	46	43	39	37
	30	65	65	65	65	65	65	62	56	51	46	43	39	37
	40	58	58	58	58	58	58	58	56	51	46	43	39	37
	50	52	52	52	52	52	52	52	52	51	46	43	39	37
	60	48	48	48	48	48	48	48	48	48	46	43	39	37
	70	45	45	45	45	45	45	45	45	45	45	43	39	37
	80	42	42	42	42	42	42	42	42	42	42	42	39	37
	90	40	40	40	40	40	40	40	40	40	40	40	39	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 259a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	97	96	90	85	81
	10	92	92	92	92	92	92	92	92	91	89	87	85	81
	20	77	77	77	77	77	77	77	77	76	75	73	72	71
	30	66	66	66	66	66	66	66	66	66	66	65	64	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	97	97	97	97	97	92	86	80	76	69	64
	10	92	92	92	92	92	92	92	92	86	80	76	69	64
	20	77	77	77	77	77	77	77	77	76	75	73	69	64
	30	66	66	66	66	66	66	66	66	66	66	65	64	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 259b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	91	84	79	74	68	62
	10	92	92	92	92	92	92	92	91	84	79	74	68	62
	20	77	77	77	77	77	77	77	77	76	75	73	68	62
	30	66	66	66	66	66	66	66	66	66	66	65	64	62
	40	58	58	58	58	58	58	58	58	58	58	58	58	57
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	97	93	89	85	82	76	69	62	57	52	48
	10	92	92	92	92	89	85	82	76	69	62	57	52	48
	20	77	77	77	77	77	77	77	76	69	62	57	52	48
	30	66	66	66	66	66	66	66	66	66	62	57	52	48
	40	58	58	58	58	58	58	58	58	58	58	57	52	48
	50	53	53	53	53	53	53	53	53	53	53	53	52	48
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 260a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	94	87	82	77	71	65
	10	92	92	92	92	92	91	90	88	86	82	77	71	65
	20	77	77	77	77	77	77	76	74	73	71	70	68	65
	30	66	66	66	66	66	66	66	66	64	63	62	61	60
	40	58	58	58	58	58	58	58	58	58	58	57	56	55
	50	53	53	53	53	53	53	53	53	53	53	53	52	51
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	97	96	92	88	84	79	72	65	59	55	50
	10	92	92	92	92	92	88	84	79	72	65	59	55	50
	20	77	77	77	77	77	77	76	74	72	65	59	55	50
	30	66	66	66	66	66	66	66	66	64	63	59	55	50
	40	58	58	58	58	58	58	58	58	58	58	57	55	50
	50	53	53	53	53	53	53	53	53	53	53	53	52	50
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 260b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	95	90	87	83	78	70	63	58	53	49
	10	92	92	92	92	90	87	83	78	70	63	58	53	49
	20	77	77	77	77	77	77	76	74	70	63	58	53	49
	30	66	66	66	66	66	66	66	66	64	63	58	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	52	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	91	87	83	79	76	72	67	60	54	49	45	41	38
	10	91	87	83	79	76	72	67	60	54	49	45	41	38
	20	77	77	77	77	76	72	67	60	54	49	45	41	38
	30	66	66	66	66	66	66	66	60	54	49	45	41	38
	40	58	58	58	58	58	58	58	58	54	49	45	41	38
	50	53	53	53	53	53	53	53	53	53	49	45	41	38
	60	49	49	49	49	49	49	49	49	49	49	45	41	38
	70	45	45	45	45	45	45	45	45	45	45	45	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 261a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	93	86	81	76	69	63	58
	10	92	92	92	92	90	89	88	85	81	76	69	63	58
	20	77	77	77	77	76	75	74	73	71	69	67	63	58
	30	66	66	66	66	66	66	66	64	63	62	60	59	58
	40	58	58	58	58	58	58	58	58	57	56	55	54	53
	50	53	53	53	53	53	53	53	53	53	52	51	50	50
	60	49	49	49	49	49	49	49	49	49	49	48	47	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	92	88	85	81	78	71	64	58	53	49	45
	10	92	92	92	88	85	81	78	71	64	58	53	49	45
	20	77	77	77	77	76	75	74	71	64	58	53	49	45
	30	66	66	66	66	66	66	66	64	63	58	53	49	45
	40	58	58	58	58	58	58	58	58	57	56	53	49	45
	50	53	53	53	53	53	53	53	53	53	52	51	49	45
	60	49	49	49	49	49	49	49	49	49	49	48	47	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 261b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	96	91	87	84	80	77	69	62	56	51	47	44
	10	92	92	91	87	84	80	77	69	62	56	51	47	44
	20	77	77	77	77	76	75	74	69	62	56	51	47	44
	30	66	66	66	66	66	66	66	64	62	56	51	47	44
	40	58	58	58	58	58	58	58	58	57	56	51	47	44
	50	53	53	53	53	53	53	53	53	53	52	51	47	44
	60	49	49	49	49	49	49	49	49	49	49	48	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	85	81	77	72	67	63	59	53	48	44	40	37	34
	10	85	81	77	72	67	63	59	53	48	44	40	37	34
	20	77	77	77	72	67	63	59	53	48	44	40	37	34
	30	66	66	66	66	66	63	59	53	48	44	40	37	34
	40	58	58	58	58	58	58	58	53	48	44	40	37	34
	50	53	53	53	53	53	53	53	53	48	44	40	37	34
	60	49	49	49	49	49	49	49	49	48	44	40	37	34
	70	45	45	45	45	45	45	45	45	45	44	40	37	34
	80	43	43	43	43	43	43	43	43	43	43	40	37	34
	90	40	40	40	40	40	40	40	40	40	40	40	37	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 262a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	97	91	86	81	77
	10	92	92	92	92	92	92	92	92	92	91	86	81	77
	20	80	80	80	80	80	80	80	80	79	77	76	75	73
	30	69	69	69	69	69	69	69	69	69	69	68	67	66
	40	61	61	61	61	61	61	61	61	61	61	61	61	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	97	97	97	97	97	91	85	80	76
	10	92	92	92	92	92	92	92	92	92	91	85	80	76
	20	80	80	80	80	80	80	80	80	79	77	76	75	73
	30	69	69	69	69	69	69	69	69	69	69	68	67	66
	40	61	61	61	61	61	61	61	61	61	61	61	61	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	97	97	97	97	97	96	88	83	78	73	66	60
	10	92	92	92	92	92	92	92	88	83	78	73	66	60
	20	80	80	80	80	80	80	80	80	79	77	73	66	60
	30	69	69	69	69	69	69	69	69	69	69	68	66	60
	40	61	61	61	61	61	61	61	61	61	61	61	61	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	97	97	97	97	97	97	97	93	86	80	75	68	61
	10	92	92	92	92	92	92	92	92	86	80	75	68	61
	20	80	80	80	80	80	80	80	80	79	77	75	68	61
	30	69	69	69	69	69	69	69	69	69	69	68	67	61
	40	61	61	61	61	61	61	61	61	61	61	61	61	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 262b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	96	92	86	80	76	70	64	59
	10	92	92	92	92	92	92	92	86	80	76	70	64	59
	20	80	80	80	80	80	80	80	80	79	76	70	64	59
	30	69	69	69	69	69	69	69	69	69	69	68	64	59
	40	61	61	61	61	61	61	61	61	61	61	61	61	59
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	97	97	93	85	79	74	67	60	54
	10	92	92	92	92	92	92	92	85	79	74	67	60	54
	20	80	80	80	80	80	80	80	80	79	74	67	60	54
	30	69	69	69	69	69	69	69	69	69	69	67	60	54
	40	61	61	61	61	61	61	61	61	61	61	61	60	54
	50	56	56	56	56	56	56	56	56	56	56	56	56	54
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	97	94	89	86	82	79	73	65	58	53	48	45
	10	92	92	92	89	86	82	79	73	65	58	53	48	45
	20	80	80	80	80	80	80	79	73	65	58	53	48	45
	30	69	69	69	69	69	69	69	69	65	58	53	48	45
	40	61	61	61	61	61	61	61	61	61	58	53	48	45
	50	56	56	56	56	56	56	56	56	56	56	53	48	45
	60	51	51	51	51	51	51	51	51	51	51	51	48	45
	70	48	48	48	48	48	48	48	48	48	48	48	48	45
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	97	97	97	94	89	85	82	75	67	59	52	47	43
	10	92	92	92	92	89	85	82	75	67	59	52	47	43
	20	80	80	80	80	80	80	80	75	67	59	52	47	43
	30	69	69	69	69	69	69	69	69	67	59	52	47	43
	40	61	61	61	61	61	61	61	61	61	59	52	47	43
	50	56	56	56	56	56	56	56	56	56	56	52	47	43
	60	51	51	51	51	51	51	51	51	51	51	51	47	43
	70	48	48	48	48	48	48	48	48	48	48	48	47	43
	80	45	45	45	45	45	45	45	45	45	45	45	45	43
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 263a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1					
		Exposure Category: C								Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)													
		90	95	100	105	110	115	120	130	140	150	160	170	180	
Zone 1	0	97	97	97	97	97	97	97	95	89	83	78	74	68	62
	10	92	92	92	92	92	92	92	92	89	83	78	74	68	62
	20	80	80	80	80	80	80	79	78	77	75	74	72	68	62
	30	69	69	69	69	69	69	69	69	68	67	66	65	64	62
	40	61	61	61	61	61	61	61	61	61	61	60	59	58	57
	50	56	56	56	56	56	56	56	56	56	56	56	55	54	54
	60	51	51	51	51	51	51	51	51	51	51	51	51	51	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	97	97	97	96	88	82	77	71	63	58
	10	92	92	92	92	92	92	92	92	88	82	77	71	63	58
	20	80	80	80	80	80	80	79	78	77	75	74	71	63	58
	30	69	69	69	69	69	69	69	69	68	67	66	65	63	58
	40	61	61	61	61	61	61	61	61	61	61	60	59	58	57
	50	56	56	56	56	56	56	56	56	56	56	56	55	54	54
	60	51	51	51	51	51	51	51	51	51	51	51	51	51	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	97	97	92	88	85	81	76	69	62	56	51	47	
	10	92	92	92	92	88	85	81	76	69	62	56	51	47	
	20	80	80	80	80	80	80	79	78	76	69	62	56	51	47
	30	69	69	69	69	69	69	69	69	68	67	62	56	51	47
	40	61	61	61	61	61	61	61	61	61	61	60	56	51	47
	50	56	56	56	56	56	56	56	56	56	56	56	55	51	47
	60	51	51	51	51	51	51	51	51	51	51	51	51	51	47
	70	48	48	48	48	48	48	48	48	48	48	48	48	48	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	97	97	97	97	93	88	84	78	71	62	55	50	46	
	10	92	92	92	92	92	88	84	78	71	62	55	50	46	
	20	80	80	80	80	80	80	79	78	77	71	62	55	50	46
	30	69	69	69	69	69	69	69	69	68	67	62	55	50	46
	40	61	61	61	61	61	61	61	61	61	61	60	55	50	46
	50	56	56	56	56	56	56	56	56	56	56	56	55	50	46
	60	51	51	51	51	51	51	51	51	51	51	51	51	50	46
	70	48	48	48	48	48	48	48	48	48	48	48	48	48	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 263b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	94	90	86	83	79	74	67	60	55	50	46
	10	92	92	92	90	86	83	79	74	67	60	55	50	46
	20	80	80	80	80	80	79	78	74	67	60	55	50	46
	30	69	69	69	69	69	69	69	68	67	60	55	50	46
	40	61	61	61	61	61	61	61	61	61	60	55	50	46
	50	56	56	56	56	56	56	56	56	56	56	55	50	46
	60	51	51	51	51	51	51	51	51	51	51	51	50	46
	70	48	48	48	48	48	48	48	48	48	48	48	48	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	94	89	85	82	78	72	63	56	50	45	42
	10	92	92	92	89	85	82	78	72	63	56	50	45	42
	20	80	80	80	80	80	79	78	72	63	56	50	45	42
	30	69	69	69	69	69	69	69	68	63	56	50	45	42
	40	61	61	61	61	61	61	61	61	61	56	50	45	42
	50	56	56	56	56	56	56	56	56	56	56	50	45	42
	60	51	51	51	51	51	51	51	51	51	51	50	45	42
	70	48	48	48	48	48	48	48	48	48	48	48	45	42
	80	45	45	45	45	45	45	45	45	45	45	45	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 2r	0	88	84	80	77	73	68	64	56	50	45	41	38	35
	10	88	84	80	77	73	68	64	56	50	45	41	38	35
	20	80	80	80	77	73	68	64	56	50	45	41	38	35
	30	69	69	69	69	69	68	64	56	50	45	41	38	35
	40	61	61	61	61	61	61	61	56	50	45	41	38	35
	50	56	56	56	56	56	56	56	56	50	45	41	38	35
	60	51	51	51	51	51	51	51	51	50	45	41	38	35
	70	48	48	48	48	48	48	48	48	48	45	41	38	35
	80	45	45	45	45	45	45	45	45	45	45	41	38	35
	90	43	43	43	43	43	43	43	43	43	43	41	38	35
Zone 3	0	93	87	83	79	75	70	65	56	49	44	40	36	33
	10	92	87	83	79	75	70	65	56	49	44	40	36	33
	20	80	80	80	79	75	70	65	56	49	44	40	36	33
	30	69	69	69	69	69	69	65	56	49	44	40	36	33
	40	61	61	61	61	61	61	61	56	49	44	40	36	33
	50	56	56	56	56	56	56	56	56	49	44	40	36	33
	60	51	51	51	51	51	51	51	51	49	44	40	36	33
	70	48	48	48	48	48	48	48	48	48	44	40	36	33
	80	45	45	45	45	45	45	45	45	45	44	40	36	33
	90	43	43	43	43	43	43	43	43	43	43	40	36	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 264a		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	96	92	88	82	77	72	65	60	55
	10	92	92	92	92	92	91	88	82	77	72	65	60	55
	20	80	80	80	79	79	78	77	75	73	71	65	60	55
	30	69	69	69	69	69	69	68	67	66	64	63	60	55
	40	61	61	61	61	61	61	61	61	60	59	58	57	55
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	51	51	51	51	51	51	51	51	51	51	51	50	49
	70	48	48	48	48	48	48	48	48	48	48	48	47	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	96	92	88	81	76	68	61	55	50
	10	92	92	92	92	92	91	88	81	76	68	61	55	50
	20	80	80	80	79	79	78	77	75	73	68	61	55	50
	30	69	69	69	69	69	69	68	67	66	64	61	55	50
	40	61	61	61	61	61	61	61	61	60	59	58	55	50
	50	56	56	56	56	56	56	56	56	56	55	54	53	50
	60	51	51	51	51	51	51	51	51	51	51	51	50	49
	70	48	48	48	48	48	48	48	48	48	48	48	47	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	94	89	85	82	78	75	68	60	54	49	45	41
	10	92	92	89	85	82	78	75	68	60	54	49	45	41
	20	80	80	80	79	79	78	75	68	60	54	49	45	41
	30	69	69	69	69	69	69	68	67	60	54	49	45	41
	40	61	61	61	61	61	61	61	61	60	54	49	45	41
	50	56	56	56	56	56	56	56	56	56	54	49	45	41
	60	51	51	51	51	51	51	51	51	51	51	49	45	41
	70	48	48	48	48	48	48	48	48	48	48	48	45	41
	80	45	45	45	45	45	45	45	45	45	45	45	45	41
	90	43	43	43	43	43	43	43	43	43	43	43	43	41
Zone 3	0	97	97	94	89	85	81	78	70	61	54	48	44	40
	10	92	92	92	89	85	81	78	70	61	54	48	44	40
	20	80	80	80	79	79	78	77	70	61	54	48	44	40
	30	69	69	69	69	69	69	68	67	61	54	48	44	40
	40	61	61	61	61	61	61	61	61	60	54	48	44	40
	50	56	56	56	56	56	56	56	56	56	54	48	44	40
	60	51	51	51	51	51	51	51	51	51	51	48	44	40
	70	48	48	48	48	48	48	48	48	48	48	48	44	40
	80	45	45	45	45	45	45	45	45	45	45	45	44	40
	90	43	43	43	43	43	43	43	43	43	43	43	43	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 264b		Mean Roof Height: 15 < h ≤ 30 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	95	91	87	83	80	77	74	66	59	53	49	45	41
	10	92	91	87	83	80	77	74	66	59	53	49	45	41
	20	80	80	80	79	79	77	74	66	59	53	49	45	41
	30	69	69	69	69	69	69	68	66	59	53	49	45	41
	40	61	61	61	61	61	61	61	61	59	53	49	45	41
	50	56	56	56	56	56	56	56	56	56	53	49	45	41
	60	51	51	51	51	51	51	51	51	51	51	49	45	41
	70	48	48	48	48	48	48	48	48	48	48	48	45	41
	80	45	45	45	45	45	45	45	45	45	45	45	45	41
	90	43	43	43	43	43	43	43	43	43	43	43	43	41
Zone 2e	0	96	91	86	82	78	75	71	61	54	48	44	40	37
	10	92	91	86	82	78	75	71	61	54	48	44	40	37
	20	80	80	80	79	78	75	71	61	54	48	44	40	37
	30	69	69	69	69	69	69	68	61	54	48	44	40	37
	40	61	61	61	61	61	61	61	61	54	48	44	40	37
	50	56	56	56	56	56	56	56	56	54	48	44	40	37
	60	51	51	51	51	51	51	51	51	51	48	44	40	37
	70	48	48	48	48	48	48	48	48	48	48	44	40	37
	80	45	45	45	45	45	45	45	45	45	45	44	40	37
	90	43	43	43	43	43	43	43	43	43	43	43	40	37
Zone 2r	0	82	78	74	69	64	60	56	49	44	40	37	34	32
	10	82	78	74	69	64	60	56	49	44	40	37	34	32
	20	80	78	74	69	64	60	56	49	44	40	37	34	32
	30	69	69	69	69	64	60	56	49	44	40	37	34	32
	40	61	61	61	61	61	60	56	49	44	40	37	34	32
	50	56	56	56	56	56	56	56	49	44	40	37	34	32
	60	51	51	51	51	51	51	51	49	44	40	37	34	32
	70	48	48	48	48	48	48	48	48	44	40	37	34	32
	80	45	45	45	45	45	45	45	45	44	40	37	34	32
	90	43	43	43	43	43	43	43	43	43	40	37	34	32
Zone 3	0	85	80	76	71	65	60	56	49	43	39	35	32	30
	10	85	80	76	71	65	60	56	49	43	39	35	32	30
	20	80	80	76	71	65	60	56	49	43	39	35	32	30
	30	69	69	69	69	65	60	56	49	43	39	35	32	30
	40	61	61	61	61	61	60	56	49	43	39	35	32	30
	50	56	56	56	56	56	56	56	49	43	39	35	32	30
	60	51	51	51	51	51	51	51	49	43	39	35	32	30
	70	48	48	48	48	48	48	48	48	43	39	35	32	30
	80	45	45	45	45	45	45	45	45	43	39	35	32	30
	90	43	43	43	43	43	43	43	43	43	39	35	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 265a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	97	97	93	88	84
	10	90	90	90	90	90	90	90	90	90	90	90	88	84
	20	71	71	71	71	71	71	71	71	71	71	71	71	71
	30	70	70	70	70	70	70	70	70	70	70	70	70	70
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	97	97	97	95	88	83	77	70	65	60
	10	90	90	90	90	90	90	90	88	83	77	70	65	60
	20	71	71	71	71	71	71	71	71	71	71	70	65	60
	30	70	70	70	70	70	70	70	70	70	70	70	65	60
	40	61	61	61	61	61	61	61	61	61	61	61	61	60
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	97	97	97	93	89	86	83	76	68	62	57	53	49
	10	90	90	90	90	89	86	83	76	68	62	57	53	49
	20	71	71	71	71	71	71	71	71	68	62	57	53	49
	30	70	70	70	70	70	70	70	70	68	62	57	53	49
	40	61	61	61	61	61	61	61	61	61	61	57	53	49
	50	56	56	56	56	56	56	56	56	56	56	56	53	49
	60	51	51	51	51	51	51	51	51	51	51	51	51	49
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 3	0	94	90	85	82	78	73	69	62	56	51	47	43	40
	10	90	90	85	82	78	73	69	62	56	51	47	43	40
	20	71	71	71	71	71	71	69	62	56	51	47	43	40
	30	70	70	70	70	70	70	69	62	56	51	47	43	40
	40	61	61	61	61	61	61	61	61	56	51	47	43	40
	50	56	56	56	56	56	56	56	56	56	51	47	43	40
	60	51	51	51	51	51	51	51	51	51	51	47	43	40
	70	48	48	48	48	48	48	48	48	48	48	47	43	40
	80	45	45	45	45	45	45	45	45	45	45	45	43	40
	90	42	42	42	42	42	42	42	42	42	42	42	42	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 265b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	93	87	82	78	72	67
	10	90	90	90	90	90	90	90	90	87	82	78	72	67
	20	71	71	71	71	71	71	71	71	71	71	71	71	67
	30	70	70	70	70	70	70	70	70	70	70	70	70	67
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	93	89	85	82	79	71	64	58	54	50	46
	10	90	90	90	89	85	82	79	71	64	58	54	50	46
	20	71	71	71	71	71	71	71	71	64	58	54	50	46
	30	70	70	70	70	70	70	70	70	64	58	54	50	46
	40	61	61	61	61	61	61	61	61	61	58	54	50	46
	50	56	56	56	56	56	56	56	56	56	56	54	50	46
	60	51	51	51	51	51	51	51	51	51	51	51	50	46
	70	48	48	48	48	48	48	48	48	48	48	48	48	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	89	85	81	77	72	68	64	58	52	48	44	41	38
	10	89	85	81	77	72	68	64	58	52	48	44	41	38
	20	71	71	71	71	71	68	64	58	52	48	44	41	38
	30	70	70	70	70	70	68	64	58	52	48	44	41	38
	40	61	61	61	61	61	61	61	58	52	48	44	41	38
	50	56	56	56	56	56	56	56	56	52	48	44	41	38
	60	51	51	51	51	51	51	51	51	51	48	44	41	38
	70	48	48	48	48	48	48	48	48	48	48	44	41	38
	80	45	45	45	45	45	45	45	45	45	45	44	41	38
	90	42	42	42	42	42	42	42	42	42	42	42	41	38
Zone 3	0	78	72	67	63	59	55	52	47	43	39	36	34	32
	10	78	72	67	63	59	55	52	47	43	39	36	34	32
	20	71	71	67	63	59	55	52	47	43	39	36	34	32
	30	70	70	67	63	59	55	52	47	43	39	36	34	32
	40	61	61	61	61	59	55	52	47	43	39	36	34	32
	50	56	56	56	56	56	55	52	47	43	39	36	34	32
	60	51	51	51	51	51	51	51	47	43	39	36	34	32
	70	48	48	48	48	48	48	48	47	43	39	36	34	32
	80	45	45	45	45	45	45	45	45	43	39	36	34	32
	90	42	42	42	42	42	42	42	42	42	39	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 266a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	97	92	87	82	77	72
	10	90	90	90	90	90	90	90	90	90	87	82	77	72
	20	71	71	71	71	71	71	71	71	71	71	71	71	70
	30	70	70	70	70	70	70	70	70	70	70	70	70	69
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	97	97	94	90	87	83	77	69	63	58	54	50
	10	90	90	90	90	90	87	83	77	69	63	58	54	50
	20	71	71	71	71	71	71	71	71	69	63	58	54	50
	30	70	70	70	70	70	70	70	70	69	63	58	54	50
	40	61	61	61	61	61	61	61	61	61	61	58	54	50
	50	56	56	56	56	56	56	56	56	56	56	56	54	50
	60	51	51	51	51	51	51	51	51	51	51	51	51	50
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	94	90	86	82	78	74	69	62	57	52	48	44	41
	10	90	90	86	82	78	74	69	62	57	52	48	44	41
	20	71	71	71	71	71	71	69	62	57	52	48	44	41
	30	70	70	70	70	70	70	69	62	57	52	48	44	41
	40	61	61	61	61	61	61	61	61	57	52	48	44	41
	50	56	56	56	56	56	56	56	56	56	52	48	44	41
	60	51	51	51	51	51	51	51	51	51	51	48	44	41
	70	48	48	48	48	48	48	48	48	48	48	48	44	41
	80	45	45	45	45	45	45	45	45	45	45	45	44	41
	90	42	42	42	42	42	42	42	42	42	42	42	42	41
Zone 3	0	83	78	73	68	64	60	57	51	46	42	39	36	34
	10	83	78	73	68	64	60	57	51	46	42	39	36	34
	20	71	71	71	68	64	60	57	51	46	42	39	36	34
	30	70	70	70	68	64	60	57	51	46	42	39	36	34
	40	61	61	61	61	61	60	57	51	46	42	39	36	34
	50	56	56	56	56	56	56	56	51	46	42	39	36	34
	60	51	51	51	51	51	51	51	51	46	42	39	36	34
	70	48	48	48	48	48	48	48	48	46	42	39	36	34
	80	45	45	45	45	45	45	45	45	45	42	39	36	34
	90	42	42	42	42	42	42	42	42	42	42	39	36	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 266b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	95	92	88	82	77	70	65	60	56
	10	90	90	90	90	90	90	88	82	77	70	65	60	56
	20	71	71	71	71	71	71	71	71	71	70	65	60	56
	30	70	70	70	70	70	70	70	70	70	70	65	60	56
	40	61	61	61	61	61	61	61	61	61	61	61	60	56
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	90	86	82	78	73	69	65	58	53	48	45	41	39
	10	90	86	82	78	73	69	65	58	53	48	45	41	39
	20	71	71	71	71	71	69	65	58	53	48	45	41	39
	30	70	70	70	70	70	69	65	58	53	48	45	41	39
	40	61	61	61	61	61	61	61	58	53	48	45	41	39
	50	56	56	56	56	56	56	56	56	53	48	45	41	39
	60	51	51	51	51	51	51	51	51	51	48	45	41	39
	70	48	48	48	48	48	48	48	48	48	48	45	41	39
	80	45	45	45	45	45	45	45	45	45	45	45	41	39
	90	42	42	42	42	42	42	42	42	42	42	42	41	39
Zone 2	0	78	72	68	63	60	56	53	48	44	40	37	34	32
	10	78	72	68	63	60	56	53	48	44	40	37	34	32
	20	71	71	68	63	60	56	53	48	44	40	37	34	32
	30	70	70	68	63	60	56	53	48	44	40	37	34	32
	40	61	61	61	61	60	56	53	48	44	40	37	34	32
	50	56	56	56	56	56	56	53	48	44	40	37	34	32
	60	51	51	51	51	51	51	51	48	44	40	37	34	32
	70	48	48	48	48	48	48	48	48	44	40	37	34	32
	80	45	45	45	45	45	45	45	45	44	40	37	34	32
	90	42	42	42	42	42	42	42	42	42	40	37	34	32
Zone 3	0	64	59	55	52	49	46	43	39	36	33	31	29	27
	10	64	59	55	52	49	46	43	39	36	33	31	29	27
	20	64	59	55	52	49	46	43	39	36	33	31	29	27
	30	64	59	55	52	49	46	43	39	36	33	31	29	27
	40	61	59	55	52	49	46	43	39	36	33	31	29	27
	50	56	56	55	52	49	46	43	39	36	33	31	29	27
	60	51	51	51	51	49	46	43	39	36	33	31	29	27
	70	48	48	48	48	48	46	43	39	36	33	31	29	27
	80	45	45	45	45	45	45	43	39	36	33	31	29	27
	90	42	42	42	42	42	42	42	39	36	33	31	29	27

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 267a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	97	97	97	97	92	86	82	76	70	66
	10	90	90	90	90	90	90	90	90	86	82	76	70	66
	20	71	71	71	71	71	71	71	71	71	71	71	70	66
	30	70	70	70	70	70	70	70	70	70	70	70	69	66
	40	61	61	61	61	61	61	61	61	61	61	61	61	61
	50	56	56	56	56	56	56	56	56	56	56	56	56	56
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	97	96	92	88	84	81	78	69	63	57	53	49	45
	10	90	90	90	88	84	81	78	69	63	57	53	49	45
	20	71	71	71	71	71	71	71	69	63	57	53	49	45
	30	70	70	70	70	70	70	70	69	63	57	53	49	45
	40	61	61	61	61	61	61	61	61	61	57	53	49	45
	50	56	56	56	56	56	56	56	56	56	56	53	49	45
	60	51	51	51	51	51	51	51	51	51	51	51	49	45
	70	48	48	48	48	48	48	48	48	48	48	48	48	45
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 2	0	88	84	80	75	71	67	63	57	51	47	43	40	37
	10	88	84	80	75	71	67	63	57	51	47	43	40	37
	20	71	71	71	71	71	67	63	57	51	47	43	40	37
	30	70	70	70	70	70	67	63	57	51	47	43	40	37
	40	61	61	61	61	61	61	61	57	51	47	43	40	37
	50	56	56	56	56	56	56	56	56	51	47	43	40	37
	60	51	51	51	51	51	51	51	51	51	47	43	40	37
	70	48	48	48	48	48	48	48	48	48	47	43	40	37
	80	45	45	45	45	45	45	45	45	45	45	43	40	37
	90	42	42	42	42	42	42	42	42	42	42	42	40	37
Zone 3	0	76	71	66	61	58	54	51	46	42	38	35	33	31
	10	76	71	66	61	58	54	51	46	42	38	35	33	31
	20	71	71	66	61	58	54	51	46	42	38	35	33	31
	30	70	70	66	61	58	54	51	46	42	38	35	33	31
	40	61	61	61	61	58	54	51	46	42	38	35	33	31
	50	56	56	56	56	56	54	51	46	42	38	35	33	31
	60	51	51	51	51	51	51	51	46	42	38	35	33	31
	70	48	48	48	48	48	48	48	46	42	38	35	33	31
	80	45	45	45	45	45	45	45	45	42	38	35	33	31
	90	42	42	42	42	42	42	42	42	42	38	35	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 267b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 0 < θ ≤ 7 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1'	0	97	97	97	93	89	86	83	77	70	64	59	55	51
	10	90	90	90	90	89	86	83	77	70	64	59	55	51
	20	71	71	71	71	71	71	71	71	70	64	59	55	51
	30	70	70	70	70	70	70	70	70	70	64	59	55	51
	40	61	61	61	61	61	61	61	61	61	61	59	55	51
	50	56	56	56	56	56	56	56	56	56	56	56	55	51
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	42	42	42	42	42	42	42	42	42	42	42	42	42
Zone 1	0	84	80	75	70	66	62	59	53	48	44	41	38	35
	10	84	80	75	70	66	62	59	53	48	44	41	38	35
	20	71	71	71	70	66	62	59	53	48	44	41	38	35
	30	70	70	70	70	66	62	59	53	48	44	41	38	35
	40	61	61	61	61	61	61	59	53	48	44	41	38	35
	50	56	56	56	56	56	56	56	53	48	44	41	38	35
	60	51	51	51	51	51	51	51	51	48	44	41	38	35
	70	48	48	48	48	48	48	48	48	48	44	41	38	35
	80	45	45	45	45	45	45	45	45	45	44	41	38	35
	90	42	42	42	42	42	42	42	42	42	42	41	38	35
Zone 2	0	71	66	61	57	54	51	48	44	40	37	34	32	30
	10	71	66	61	57	54	51	48	44	40	37	34	32	30
	20	71	66	61	57	54	51	48	44	40	37	34	32	30
	30	70	66	61	57	54	51	48	44	40	37	34	32	30
	40	61	61	61	57	54	51	48	44	40	37	34	32	30
	50	56	56	56	56	54	51	48	44	40	37	34	32	30
	60	51	51	51	51	51	51	48	44	40	37	34	32	30
	70	48	48	48	48	48	48	48	44	40	37	34	32	30
	80	45	45	45	45	45	45	45	44	40	37	34	32	30
	90	42	42	42	42	42	42	42	42	40	37	34	32	30
Zone 3	0	57	53	50	47	44	42	39	36	33	31	29	27	25
	10	57	53	50	47	44	42	39	36	33	31	29	27	25
	20	57	53	50	47	44	42	39	36	33	31	29	27	25
	30	57	53	50	47	44	42	39	36	33	31	29	27	25
	40	57	53	50	47	44	42	39	36	33	31	29	27	25
	50	56	53	50	47	44	42	39	36	33	31	29	27	25
	60	51	51	50	47	44	42	39	36	33	31	29	27	25
	70	48	48	48	47	44	42	39	36	33	31	29	27	25
	80	45	45	45	45	44	42	39	36	33	31	29	27	25
	90	42	42	42	42	42	42	39	36	33	31	29	27	25

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 268a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 7 < θ ≤ 20 degrees							North/South Support Y _E = 1					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	93	88	81	73	66	61	56	53
	10	84	84	84	84	84	84	84	81	73	66	61	56	53
	20	65	65	65	65	65	65	65	65	65	65	61	56	53
	30	65	65	65	65	65	65	65	65	65	65	61	56	53
	40	58	58	58	58	58	58	58	58	58	58	58	56	53
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	97	95	91	87	83	80	76	67	60	54	50	46	42
	10	84	84	84	84	83	80	76	67	60	54	50	46	42
	20	65	65	65	65	65	65	65	65	60	54	50	46	42
	30	65	65	65	65	65	65	65	65	60	54	50	46	42
	40	58	58	58	58	58	58	58	58	58	54	50	46	42
	50	52	52	52	52	52	52	52	52	52	52	50	46	42
	60	48	48	48	48	48	48	48	48	48	48	48	46	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	93	88	84	80	76	71	66	59	53	48	44	40	37
	10	84	84	84	80	76	71	66	59	53	48	44	40	37
	20	65	65	65	65	65	65	65	59	53	48	44	40	37
	30	65	65	65	65	65	65	65	59	53	48	44	40	37
	40	58	58	58	58	58	58	58	58	53	48	44	40	37
	50	52	52	52	52	52	52	52	52	52	48	44	40	37
	60	48	48	48	48	48	48	48	48	48	48	44	40	37
	70	45	45	45	45	45	45	45	45	45	45	44	40	37
	80	42	42	42	42	42	42	42	42	42	42	42	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 268b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	91	86	82	78	72	68	61	56	51	47	44	41
	10	84	84	84	82	78	72	68	61	56	51	47	44	41
	20	65	65	65	65	65	65	65	61	56	51	47	44	41
	30	65	65	65	65	65	65	65	61	56	51	47	44	41
	40	58	58	58	58	58	58	58	58	56	51	47	44	41
	50	52	52	52	52	52	52	52	52	52	51	47	44	41
	60	48	48	48	48	48	48	48	48	48	48	47	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	42	42	42	42	42	42	42	42	42	42	42	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	83	79	73	68	64	60	56	50	45	41	38	35	33
	10	83	79	73	68	64	60	56	50	45	41	38	35	33
	20	65	65	65	65	64	60	56	50	45	41	38	35	33
	30	65	65	65	65	64	60	56	50	45	41	38	35	33
	40	58	58	58	58	58	58	56	50	45	41	38	35	33
	50	52	52	52	52	52	52	52	50	45	41	38	35	33
	60	48	48	48	48	48	48	48	48	45	41	38	35	33
	70	45	45	45	45	45	45	45	45	45	41	38	35	33
	80	42	42	42	42	42	42	42	42	42	41	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33
Zone 3r	0	76	69	64	60	56	52	49	44	40	36	34	32	30
	10	76	69	64	60	56	52	49	44	40	36	34	32	30
	20	65	65	64	60	56	52	49	44	40	36	34	32	30
	30	65	65	64	60	56	52	49	44	40	36	34	32	30
	40	58	58	58	58	56	52	49	44	40	36	34	32	30
	50	52	52	52	52	52	52	49	44	40	36	34	32	30
	60	48	48	48	48	48	48	48	44	40	36	34	32	30
	70	45	45	45	45	45	45	45	44	40	36	34	32	30
	80	42	42	42	42	42	42	42	42	40	36	34	32	30
	90	40	40	40	40	40	40	40	40	40	36	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 269a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	92	87	83	79	75	66	60	55	51	47	44
	10	84	84	84	84	83	79	75	66	60	55	51	47	44
	20	65	65	65	65	65	65	65	65	60	55	51	47	44
	30	65	65	65	65	65	65	65	65	60	55	51	47	44
	40	58	58	58	58	58	58	58	58	58	55	51	47	44
	50	52	52	52	52	52	52	52	52	52	52	51	47	44
	60	48	48	48	48	48	48	48	48	48	48	48	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	88	83	79	75	70	65	61	54	49	45	41	38	35
	10	84	83	79	75	70	65	61	54	49	45	41	38	35
	20	65	65	65	65	65	65	61	54	49	45	41	38	35
	30	65	65	65	65	65	65	61	54	49	45	41	38	35
	40	58	58	58	58	58	58	58	54	49	45	41	38	35
	50	52	52	52	52	52	52	52	52	49	45	41	38	35
	60	48	48	48	48	48	48	48	48	48	45	41	38	35
	70	45	45	45	45	45	45	45	45	45	45	41	38	35
	80	42	42	42	42	42	42	42	42	42	42	41	38	35
	90	40	40	40	40	40	40	40	40	40	40	40	38	35
Zone 3r	0	81	76	70	65	61	57	54	48	43	39	36	34	32
	10	81	76	70	65	61	57	54	48	43	39	36	34	32
	20	65	65	65	65	61	57	54	48	43	39	36	34	32
	30	65	65	65	65	61	57	54	48	43	39	36	34	32
	40	58	58	58	58	58	57	54	48	43	39	36	34	32
	50	52	52	52	52	52	52	52	48	43	39	36	34	32
	60	48	48	48	48	48	48	48	48	43	39	36	34	32
	70	45	45	45	45	45	45	45	45	43	39	36	34	32
	80	42	42	42	42	42	42	42	42	42	39	36	34	32
	90	40	40	40	40	40	40	40	40	40	39	36	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 269b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	83	78	72	67	63	60	57	51	47	43	40	37	35
	10	83	78	72	67	63	60	57	51	47	43	40	37	35
	20	65	65	65	65	63	60	57	51	47	43	40	37	35
	30	65	65	65	65	63	60	57	51	47	43	40	37	35
	40	58	58	58	58	58	58	57	51	47	43	40	37	35
	50	52	52	52	52	52	52	52	51	47	43	40	37	35
	60	48	48	48	48	48	48	48	48	47	43	40	37	35
	70	45	45	45	45	45	45	45	45	45	43	40	37	35
	80	42	42	42	42	42	42	42	42	42	42	40	37	35
	90	40	40	40	40	40	40	40	40	40	40	40	37	35
Zones 2n, 2r, & 3e	0	69	64	59	55	52	49	46	41	37	34	32	30	28
	10	69	64	59	55	52	49	46	41	37	34	32	30	28
	20	65	64	59	55	52	49	46	41	37	34	32	30	28
	30	65	64	59	55	52	49	46	41	37	34	32	30	28
	40	58	58	58	55	52	49	46	41	37	34	32	30	28
	50	52	52	52	52	52	49	46	41	37	34	32	30	28
	60	48	48	48	48	48	48	46	41	37	34	32	30	28
	70	45	45	45	45	45	45	45	41	37	34	32	30	28
	80	42	42	42	42	42	42	42	41	37	34	32	30	28
	90	40	40	40	40	40	40	40	40	37	34	32	30	28
Zone 3r	0	61	56	52	49	46	43	41	36	33	31	29	27	26
	10	61	56	52	49	46	43	41	36	33	31	29	27	26
	20	61	56	52	49	46	43	41	36	33	31	29	27	26
	30	61	56	52	49	46	43	41	36	33	31	29	27	26
	40	58	56	52	49	46	43	41	36	33	31	29	27	26
	50	52	52	52	49	46	43	41	36	33	31	29	27	26
	60	48	48	48	48	46	43	41	36	33	31	29	27	26
	70	45	45	45	45	45	43	41	36	33	31	29	27	26
	80	42	42	42	42	42	42	41	36	33	31	29	27	26
	90	40	40	40	40	40	40	40	36	33	31	29	27	26

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 270a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	96	90	85	81	77	70	66	60	55	50	47	43	41
	10	84	84	84	81	77	70	66	60	55	50	47	43	41
	20	65	65	65	65	65	65	65	60	55	50	47	43	41
	30	65	65	65	65	65	65	65	60	55	50	47	43	41
	40	58	58	58	58	58	58	58	58	55	50	47	43	41
	50	52	52	52	52	52	52	52	52	52	50	47	43	41
	60	48	48	48	48	48	48	48	48	48	48	47	43	41
	70	45	45	45	45	45	45	45	45	45	45	45	43	41
	80	42	42	42	42	42	42	42	42	42	42	42	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	82	78	72	67	62	58	55	49	44	40	37	34	32
	10	82	78	72	67	62	58	55	49	44	40	37	34	32
	20	65	65	65	65	62	58	55	49	44	40	37	34	32
	30	65	65	65	65	62	58	55	49	44	40	37	34	32
	40	58	58	58	58	58	58	55	49	44	40	37	34	32
	50	52	52	52	52	52	52	52	49	44	40	37	34	32
	60	48	48	48	48	48	48	48	48	44	40	37	34	32
	70	45	45	45	45	45	45	45	45	44	40	37	34	32
	80	42	42	42	42	42	42	42	42	42	40	37	34	32
	90	40	40	40	40	40	40	40	40	40	40	37	34	32
Zone 3r	0	74	68	63	59	55	51	48	43	39	36	33	31	29
	10	74	68	63	59	55	51	48	43	39	36	33	31	29
	20	65	65	63	59	55	51	48	43	39	36	33	31	29
	30	65	65	63	59	55	51	48	43	39	36	33	31	29
	40	58	58	58	58	55	51	48	43	39	36	33	31	29
	50	52	52	52	52	52	51	48	43	39	36	33	31	29
	60	48	48	48	48	48	48	48	43	39	36	33	31	29
	70	45	45	45	45	45	45	45	43	39	36	33	31	29
	80	42	42	42	42	42	42	42	42	39	36	33	31	29
	90	40	40	40	40	40	40	40	40	39	36	33	31	29

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 270b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	76	69	65	61	58	54	52	47	43	40	37	34	32
	10	76	69	65	61	58	54	52	47	43	40	37	34	32
	20	65	65	65	61	58	54	52	47	43	40	37	34	32
	30	65	65	65	61	58	54	52	47	43	40	37	34	32
	40	58	58	58	58	58	54	52	47	43	40	37	34	32
	50	52	52	52	52	52	52	52	47	43	40	37	34	32
	60	48	48	48	48	48	48	48	47	43	40	37	34	32
	70	45	45	45	45	45	45	45	45	43	40	37	34	32
	80	42	42	42	42	42	42	42	42	42	40	37	34	32
	90	40	40	40	40	40	40	40	40	40	40	37	34	32
Zones 2n, 2r, & 3e	0	62	57	53	50	47	44	41	37	34	32	30	28	26
	10	62	57	53	50	47	44	41	37	34	32	30	28	26
	20	62	57	53	50	47	44	41	37	34	32	30	28	26
	30	62	57	53	50	47	44	41	37	34	32	30	28	26
	40	58	57	53	50	47	44	41	37	34	32	30	28	26
	50	52	52	52	50	47	44	41	37	34	32	30	28	26
	60	48	48	48	48	47	44	41	37	34	32	30	28	26
	70	45	45	45	45	45	44	41	37	34	32	30	28	26
	80	42	42	42	42	42	42	41	37	34	32	30	28	26
	90	40	40	40	40	40	40	40	37	34	32	30	28	26
Zone 3r	0	55	51	47	44	41	39	37	33	31	29	27	25	24
	10	55	51	47	44	41	39	37	33	31	29	27	25	24
	20	55	51	47	44	41	39	37	33	31	29	27	25	24
	30	55	51	47	44	41	39	37	33	31	29	27	25	24
	40	55	51	47	44	41	39	37	33	31	29	27	25	24
	50	52	51	47	44	41	39	37	33	31	29	27	25	24
	60	48	48	47	44	41	39	37	33	31	29	27	25	24
	70	45	45	45	44	41	39	37	33	31	29	27	25	24
	80	42	42	42	42	41	39	37	33	31	29	27	25	24
	90	40	40	40	40	40	39	37	33	31	29	27	25	24

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 271a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	97	97	97	97	90	84	79	74	68	63
	10	92	92	92	92	92	92	92	90	84	79	74	68	63
	20	77	77	77	77	77	77	77	77	76	75	74	68	63
	30	66	66	66	66	66	66	66	66	66	66	65	64	63
	40	58	58	58	58	58	58	58	58	58	58	58	58	58
	50	53	53	53	53	53	53	53	53	53	53	53	53	53
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	97	97	97	93	89	86	82	77	69	62	57	52	48
	10	92	92	92	92	89	86	82	77	69	62	57	52	48
	20	77	77	77	77	77	77	77	77	69	62	57	52	48
	30	66	66	66	66	66	66	66	66	66	62	57	52	48
	40	58	58	58	58	58	58	58	58	58	58	57	52	48
	50	53	53	53	53	53	53	53	53	53	53	53	52	48
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	97	97	93	89	85	81	78	70	63	56	51	47	43
	10	92	92	92	89	85	81	78	70	63	56	51	47	43
	20	77	77	77	77	77	77	77	70	63	56	51	47	43
	30	66	66	66	66	66	66	66	66	63	56	51	47	43
	40	58	58	58	58	58	58	58	58	58	56	51	47	43
	50	53	53	53	53	53	53	53	53	53	53	51	47	43
	60	49	49	49	49	49	49	49	49	49	49	49	47	43
	70	45	45	45	45	45	45	45	45	45	45	45	45	43
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 271b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	95	91	87	84	81	75	67	62	57	53	49
	10	92	92	92	91	87	84	81	75	67	62	57	53	49
	20	77	77	77	77	77	77	77	75	67	62	57	53	49
	30	66	66	66	66	66	66	66	66	66	62	57	53	49
	40	58	58	58	58	58	58	58	58	58	58	57	53	49
	50	53	53	53	53	53	53	53	53	53	53	53	53	49
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	89	85	81	77	73	68	64	57	51	47	43	39	36
	10	89	85	81	77	73	68	64	57	51	47	43	39	36
	20	77	77	77	77	73	68	64	57	51	47	43	39	36
	30	66	66	66	66	66	66	64	57	51	47	43	39	36
	40	58	58	58	58	58	58	58	57	51	47	43	39	36
	50	53	53	53	53	53	53	53	53	51	47	43	39	36
	60	49	49	49	49	49	49	49	49	49	47	43	39	36
	70	45	45	45	45	45	45	45	45	45	45	43	39	36
	80	43	43	43	43	43	43	43	43	43	43	43	39	36
	90	40	40	40	40	40	40	40	40	40	40	40	39	36
Zone 3r	0	85	80	77	72	66	62	58	52	46	42	38	35	33
	10	85	80	77	72	66	62	58	52	46	42	38	35	33
	20	77	77	77	72	66	62	58	52	46	42	38	35	33
	30	66	66	66	66	66	62	58	52	46	42	38	35	33
	40	58	58	58	58	58	58	58	52	46	42	38	35	33
	50	53	53	53	53	53	53	53	52	46	42	38	35	33
	60	49	49	49	49	49	49	49	49	46	42	38	35	33
	70	45	45	45	45	45	45	45	45	45	42	38	35	33
	80	43	43	43	43	43	43	43	43	43	42	38	35	33
	90	40	40	40	40	40	40	40	40	40	40	38	35	33

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 272a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	97	96	92	89	85	79	73	67	61	57	53
	10	92	92	92	92	92	89	85	79	73	67	61	57	53
	20	77	77	77	77	77	77	76	75	73	67	61	57	53
	30	66	66	66	66	66	66	66	66	65	64	61	57	53
	40	58	58	58	58	58	58	58	58	58	58	57	56	53
	50	53	53	53	53	53	53	53	53	53	53	53	52	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	94	90	85	82	78	75	70	62	56	51	46	43	40
	10	92	90	85	82	78	75	70	62	56	51	46	43	40
	20	77	77	77	77	77	75	70	62	56	51	46	43	40
	30	66	66	66	66	66	66	66	62	56	51	46	43	40
	40	58	58	58	58	58	58	58	58	56	51	46	43	40
	50	53	53	53	53	53	53	53	53	53	51	46	43	40
	60	49	49	49	49	49	49	49	49	49	49	46	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	43	43	43	43	43	43	43	43	43	43	43	43	40
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zone 3r	0	90	85	81	78	73	68	64	56	50	46	42	38	35
	10	90	85	81	78	73	68	64	56	50	46	42	38	35
	20	77	77	77	77	73	68	64	56	50	46	42	38	35
	30	66	66	66	66	66	66	64	56	50	46	42	38	35
	40	58	58	58	58	58	58	58	56	50	46	42	38	35
	50	53	53	53	53	53	53	53	53	50	46	42	38	35
	60	49	49	49	49	49	49	49	49	49	46	42	38	35
	70	45	45	45	45	45	45	45	45	45	45	42	38	35
	80	43	43	43	43	43	43	43	43	43	43	42	38	35
	90	40	40	40	40	40	40	40	40	40	40	40	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 272b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support Y _E = 1.5					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	92	88	84	80	77	73	68	62	56	52	48	44	41
	10	92	88	84	80	77	73	68	62	56	52	48	44	41
	20	77	77	77	77	77	73	68	62	56	52	48	44	41
	30	66	66	66	66	66	66	66	62	56	52	48	44	41
	40	58	58	58	58	58	58	58	58	56	52	48	44	41
	50	53	53	53	53	53	53	53	53	53	52	48	44	41
	60	49	49	49	49	49	49	49	49	49	49	48	44	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	43	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	78	74	68	63	59	55	52	47	42	38	35	33	31
	10	78	74	68	63	59	55	52	47	42	38	35	33	31
	20	77	74	68	63	59	55	52	47	42	38	35	33	31
	30	66	66	66	63	59	55	52	47	42	38	35	33	31
	40	58	58	58	58	58	55	52	47	42	38	35	33	31
	50	53	53	53	53	53	53	52	47	42	38	35	33	31
	60	49	49	49	49	49	49	49	47	42	38	35	33	31
	70	45	45	45	45	45	45	45	45	42	38	35	33	31
	80	43	43	43	43	43	43	43	43	42	38	35	33	31
	90	40	40	40	40	40	40	40	40	40	38	35	33	31
Zone 3r	0	73	67	62	57	53	50	47	42	38	34	32	30	28
	10	73	67	62	57	53	50	47	42	38	34	32	30	28
	20	73	67	62	57	53	50	47	42	38	34	32	30	28
	30	66	66	62	57	53	50	47	42	38	34	32	30	28
	40	58	58	58	57	53	50	47	42	38	34	32	30	28
	50	53	53	53	53	53	50	47	42	38	34	32	30	28
	60	49	49	49	49	49	49	47	42	38	34	32	30	28
	70	45	45	45	45	45	45	45	42	38	34	32	30	28
	80	43	43	43	43	43	43	43	42	38	34	32	30	28
	90	40	40	40	40	40	40	40	40	38	34	32	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 273a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	97	97	94	90	86	83	80	73	66	61	56	52	48
	10	92	92	92	90	86	83	80	73	66	61	56	52	48
	20	77	77	77	77	77	76	75	73	66	61	56	52	48
	30	66	66	66	66	66	66	66	65	64	61	56	52	48
	40	58	58	58	58	58	58	58	58	58	57	56	52	48
	50	53	53	53	53	53	53	53	53	53	53	52	51	48
	60	49	49	49	49	49	49	49	49	49	49	49	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2n, 2r, & 3e	0	88	84	80	76	72	67	63	56	50	46	42	39	36
	10	88	84	80	76	72	67	63	56	50	46	42	39	36
	20	77	77	77	76	72	67	63	56	50	46	42	39	36
	30	66	66	66	66	66	66	63	56	50	46	42	39	36
	40	58	58	58	58	58	58	58	56	50	46	42	39	36
	50	53	53	53	53	53	53	53	53	50	46	42	39	36
	60	49	49	49	49	49	49	49	49	49	46	42	39	36
	70	45	45	45	45	45	45	45	45	45	45	42	39	36
	80	43	43	43	43	43	43	43	43	43	43	42	39	36
	90	40	40	40	40	40	40	40	40	40	40	40	39	36
Zone 3r	0	84	79	76	70	65	61	57	50	45	41	38	35	32
	10	84	79	76	70	65	61	57	50	45	41	38	35	32
	20	77	77	76	70	65	61	57	50	45	41	38	35	32
	30	66	66	66	66	65	61	57	50	45	41	38	35	32
	40	58	58	58	58	58	58	57	50	45	41	38	35	32
	50	53	53	53	53	53	53	53	50	45	41	38	35	32
	60	49	49	49	49	49	49	49	49	45	41	38	35	32
	70	45	45	45	45	45	45	45	45	45	41	38	35	32
	80	43	43	43	43	43	43	43	43	43	41	38	35	32
	90	40	40	40	40	40	40	40	40	40	40	38	35	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 273b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1 & 2e	0	86	82	78	75	70	66	62	56	51	47	44	41	38
	10	86	82	78	75	70	66	62	56	51	47	44	41	38
	20	77	77	77	75	70	66	62	56	51	47	44	41	38
	30	66	66	66	66	66	66	62	56	51	47	44	41	38
	40	58	58	58	58	58	58	58	56	51	47	44	41	38
	50	53	53	53	53	53	53	53	53	51	47	44	41	38
	60	49	49	49	49	49	49	49	49	49	47	44	41	38
	70	45	45	45	45	45	45	45	45	45	45	44	41	38
	80	43	43	43	43	43	43	43	43	43	43	43	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38
Zones 2n, 2r, & 3e	0	71	66	61	57	53	50	47	42	38	35	33	31	29
	10	71	66	61	57	53	50	47	42	38	35	33	31	29
	20	71	66	61	57	53	50	47	42	38	35	33	31	29
	30	66	66	61	57	53	50	47	42	38	35	33	31	29
	40	58	58	58	57	53	50	47	42	38	35	33	31	29
	50	53	53	53	53	53	50	47	42	38	35	33	31	29
	60	49	49	49	49	49	49	47	42	38	35	33	31	29
	70	45	45	45	45	45	45	45	42	38	35	33	31	29
	80	43	43	43	43	43	43	43	42	38	35	33	31	29
	90	40	40	40	40	40	40	40	40	38	35	33	31	29
Zone 3r	0	65	60	55	51	48	45	42	38	34	32	29	27	25
	10	65	60	55	51	48	45	42	38	34	32	29	27	25
	20	65	60	55	51	48	45	42	38	34	32	29	27	25
	30	65	60	55	51	48	45	42	38	34	32	29	27	25
	40	58	58	55	51	48	45	42	38	34	32	29	27	25
	50	53	53	53	51	48	45	42	38	34	32	29	27	25
	60	49	49	49	49	48	45	42	38	34	32	29	27	25
	70	45	45	45	45	45	45	42	38	34	32	29	27	25
	80	43	43	43	43	43	43	42	38	34	32	29	27	25
	90	40	40	40	40	40	40	40	38	34	32	29	27	25

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 274a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1					
		Exposure Category: B							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	97	97	97	97	90	84	79	75	68	62
	10	92	92	92	92	91	90	89	86	83	79	75	68	62
	20	80	80	80	79	78	77	76	75	73	71	69	67	62
	30	69	69	69	69	69	69	68	67	65	64	63	61	60
	40	61	61	61	61	61	61	61	61	60	59	58	56	55
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	51	51	51	51	51	51	51	51	51	51	51	50	49
	70	48	48	48	48	48	48	48	48	48	48	48	47	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zones 2n & 3r	0	97	97	97	97	97	93	89	83	78	73	66	61	56
	10	92	92	92	92	91	90	89	83	78	73	66	61	56
	20	80	80	80	79	78	77	76	75	73	71	66	61	56
	30	69	69	69	69	69	69	68	67	65	64	63	61	56
	40	61	61	61	61	61	61	61	61	60	59	58	56	55
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	51	51	51	51	51	51	51	51	51	51	51	50	49
	70	48	48	48	48	48	48	48	48	48	48	48	47	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3e	0	97	97	96	91	88	84	81	76	69	62	57	52	48
	10	92	92	92	91	88	84	81	76	69	62	57	52	48
	20	80	80	80	79	78	77	76	75	69	62	57	52	48
	30	69	69	69	69	69	69	68	67	65	62	57	52	48
	40	61	61	61	61	61	61	61	61	60	59	57	52	48
	50	56	56	56	56	56	56	56	56	56	55	54	52	48
	60	51	51	51	51	51	51	51	51	51	51	51	50	48
	70	48	48	48	48	48	48	48	48	48	48	48	47	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 274b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	96	91	87	84	81	75	67	60	55	50	46
	10	92	92	92	91	87	84	81	75	67	60	55	50	46
	20	80	80	80	79	78	77	76	75	67	60	55	50	46
	30	69	69	69	69	69	69	68	67	65	60	55	50	46
	40	61	61	61	61	61	61	61	61	60	59	55	50	46
	50	56	56	56	56	56	56	56	56	56	55	54	50	46
	60	51	51	51	51	51	51	51	51	51	51	51	50	46
	70	48	48	48	48	48	48	48	48	48	48	48	47	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zones 2n & 3r	0	96	92	88	84	80	77	75	67	60	54	50	46	42
	10	92	92	88	84	80	77	75	67	60	54	50	46	42
	20	80	80	80	79	78	77	75	67	60	54	50	46	42
	30	69	69	69	69	69	69	68	67	60	54	50	46	42
	40	61	61	61	61	61	61	61	61	60	54	50	46	42
	50	56	56	56	56	56	56	56	56	56	54	50	46	42
	60	51	51	51	51	51	51	51	51	51	51	50	46	42
	70	48	48	48	48	48	48	48	48	48	48	48	46	42
	80	45	45	45	45	45	45	45	45	45	45	45	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 3e	0	88	83	80	76	73	68	64	57	51	47	43	39	37
	10	88	83	80	76	73	68	64	57	51	47	43	39	37
	20	80	80	80	76	73	68	64	57	51	47	43	39	37
	30	69	69	69	69	69	68	64	57	51	47	43	39	37
	40	61	61	61	61	61	61	61	57	51	47	43	39	37
	50	56	56	56	56	56	56	56	56	51	47	43	39	37
	60	51	51	51	51	51	51	51	51	51	47	43	39	37
	70	48	48	48	48	48	48	48	48	48	47	43	39	37
	80	45	45	45	45	45	45	45	45	45	45	43	39	37
	90	43	43	43	43	43	43	43	43	43	43	43	39	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 275a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	97	97	93	89	85	79	74	66	60	55	50
	10	92	91	90	88	87	85	84	79	74	66	60	55	50
	20	79	78	77	76	75	74	73	71	69	66	60	55	50
	30	69	69	69	68	67	66	66	64	62	61	59	55	50
	40	61	61	61	61	61	61	60	59	57	56	55	53	50
	50	56	56	56	56	56	56	56	55	54	53	51	50	49
	60	51	51	51	51	51	51	51	51	51	50	49	48	47
	70	48	48	48	48	48	48	48	48	48	47	46	45	44
	80	45	45	45	45	45	45	45	45	45	45	44	43	43
	90	43	43	43	43	43	43	43	43	43	43	42	42	41
Zones 2n & 3r	0	97	97	92	88	85	82	79	73	65	59	54	50	46
	10	92	91	90	88	85	82	79	73	65	59	54	50	46
	20	79	78	77	76	75	74	73	71	65	59	54	50	46
	30	69	69	69	68	67	66	66	64	62	59	54	50	46
	40	61	61	61	61	61	61	60	59	57	56	54	50	46
	50	56	56	56	56	56	56	56	55	54	53	51	50	46
	60	51	51	51	51	51	51	51	51	51	50	49	48	46
	70	48	48	48	48	48	48	48	48	48	47	46	45	44
	80	45	45	45	45	45	45	45	45	45	45	44	43	43
	90	43	43	43	43	43	43	43	43	43	43	42	42	41
Zone 3e	0	92	88	84	81	77	74	70	62	56	51	46	43	40
	10	92	88	84	81	77	74	70	62	56	51	46	43	40
	20	79	78	77	76	75	74	70	62	56	51	46	43	40
	30	69	69	69	68	67	66	66	62	56	51	46	43	40
	40	61	61	61	61	61	61	60	59	56	51	46	43	40
	50	56	56	56	56	56	56	56	55	54	51	46	43	40
	60	51	51	51	51	51	51	51	51	51	50	46	43	40
	70	48	48	48	48	48	48	48	48	48	47	46	43	40
	80	45	45	45	45	45	45	45	45	45	45	44	43	40
	90	43	43	43	43	43	43	43	43	43	43	42	42	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 275b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 27 < θ ≤ 45 degrees							North/South Support Y _E = 1.5					
		Exposure Category: C							Roof Type : Gable					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	92	88	84	80	77	73	69	60	54	49	44	41	38
	10	92	88	84	80	77	73	69	60	54	49	44	41	38
	20	79	78	77	76	75	73	69	60	54	49	44	41	38
	30	69	69	69	68	67	66	66	60	54	49	44	41	38
	40	61	61	61	61	61	61	60	59	54	49	44	41	38
	50	56	56	56	56	56	56	56	55	54	49	44	41	38
	60	51	51	51	51	51	51	51	51	51	49	44	41	38
	70	48	48	48	48	48	48	48	48	48	47	44	41	38
	80	45	45	45	45	45	45	45	45	45	45	44	41	38
	90	43	43	43	43	43	43	43	43	43	43	42	41	38
Zones 2n & 3r	0	85	81	77	74	69	65	61	54	49	45	41	38	35
	10	85	81	77	74	69	65	61	54	49	45	41	38	35
	20	79	78	77	74	69	65	61	54	49	45	41	38	35
	30	69	69	69	68	67	65	61	54	49	45	41	38	35
	40	61	61	61	61	61	61	60	54	49	45	41	38	35
	50	56	56	56	56	56	56	56	54	49	45	41	38	35
	60	51	51	51	51	51	51	51	51	49	45	41	38	35
	70	48	48	48	48	48	48	48	48	48	45	41	38	35
	80	45	45	45	45	45	45	45	45	45	45	41	38	35
	90	43	43	43	43	43	43	43	43	43	43	41	38	35
Zone 3e	0	77	73	68	63	59	55	52	47	42	39	35	33	31
	10	77	73	68	63	59	55	52	47	42	39	35	33	31
	20	77	73	68	63	59	55	52	47	42	39	35	33	31
	30	69	69	68	63	59	55	52	47	42	39	35	33	31
	40	61	61	61	61	59	55	52	47	42	39	35	33	31
	50	56	56	56	56	56	55	52	47	42	39	35	33	31
	60	51	51	51	51	51	51	51	47	42	39	35	33	31
	70	48	48	48	48	48	48	48	47	42	39	35	33	31
	80	45	45	45	45	45	45	45	45	42	39	35	33	31
	90	43	43	43	43	43	43	43	43	42	39	35	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 276a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	97	97	95	90	86	83	80	74	66	59	54	49	45
	10	91	89	88	86	84	83	80	74	66	59	54	49	45
	20	78	77	76	74	73	72	71	69	66	59	54	49	45
	30	69	68	68	67	66	65	64	62	61	59	54	49	45
	40	61	61	61	61	60	60	59	57	56	55	53	49	45
	50	56	56	56	56	56	55	55	54	52	51	50	49	45
	60	51	51	51	51	51	51	51	51	49	48	47	46	45
	70	48	48	48	48	48	48	48	48	47	46	45	44	43
	80	45	45	45	45	45	45	45	45	45	44	43	42	41
	90	43	43	43	43	43	43	43	43	43	42	41	41	40
Zones 2n & 3r	0	95	91	86	83	80	77	74	65	59	53	49	45	42
	10	91	89	86	83	80	77	74	65	59	53	49	45	42
	20	78	77	76	74	73	72	71	65	59	53	49	45	42
	30	69	68	68	67	66	65	64	62	59	53	49	45	42
	40	61	61	61	61	60	60	59	57	56	53	49	45	42
	50	56	56	56	56	56	55	55	54	52	51	49	45	42
	60	51	51	51	51	51	51	51	51	49	48	47	45	42
	70	48	48	48	48	48	48	48	48	47	46	45	44	42
	80	45	45	45	45	45	45	45	45	45	44	43	42	41
	90	43	43	43	43	43	43	43	43	43	42	41	41	40
Zone 3e	0	86	82	79	76	71	67	63	56	50	46	42	39	36
	10	86	82	79	76	71	67	63	56	50	46	42	39	36
	20	78	77	76	74	71	67	63	56	50	46	42	39	36
	30	69	68	68	67	66	65	63	56	50	46	42	39	36
	40	61	61	61	61	60	60	59	56	50	46	42	39	36
	50	56	56	56	56	56	55	55	54	50	46	42	39	36
	60	51	51	51	51	51	51	51	51	49	46	42	39	36
	70	48	48	48	48	48	48	48	48	47	46	42	39	36
	80	45	45	45	45	45	45	45	45	45	44	42	39	36
	90	43	43	43	43	43	43	43	43	43	42	41	39	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 276b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Gable				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zones 1, 2e, & 2r	0	86	82	78	75	70	65	61	54	48	44	40	37	34
	10	86	82	78	75	70	65	61	54	48	44	40	37	34
	20	78	77	76	74	70	65	61	54	48	44	40	37	34
	30	69	68	68	67	66	65	61	54	48	44	40	37	34
	40	61	61	61	61	60	60	59	54	48	44	40	37	34
	50	56	56	56	56	56	55	55	54	48	44	40	37	34
	60	51	51	51	51	51	51	51	51	48	44	40	37	34
	70	48	48	48	48	48	48	48	48	47	44	40	37	34
	80	45	45	45	45	45	45	45	45	45	44	40	37	34
	90	43	43	43	43	43	43	43	43	43	42	40	37	34
Zones 2n & 3r	0	79	76	71	66	62	58	55	49	44	40	37	34	32
	10	79	76	71	66	62	58	55	49	44	40	37	34	32
	20	78	76	71	66	62	58	55	49	44	40	37	34	32
	30	69	68	68	66	62	58	55	49	44	40	37	34	32
	40	61	61	61	61	60	58	55	49	44	40	37	34	32
	50	56	56	56	56	56	55	55	49	44	40	37	34	32
	60	51	51	51	51	51	51	51	49	44	40	37	34	32
	70	48	48	48	48	48	48	48	48	44	40	37	34	32
	80	45	45	45	45	45	45	45	45	44	40	37	34	32
	90	43	43	43	43	43	43	43	43	43	40	37	34	32
Zone 3e	0	71	66	61	57	53	50	47	42	38	35	32	30	28
	10	71	66	61	57	53	50	47	42	38	35	32	30	28
	20	71	66	61	57	53	50	47	42	38	35	32	30	28
	30	69	66	61	57	53	50	47	42	38	35	32	30	28
	40	61	61	61	57	53	50	47	42	38	35	32	30	28
	50	56	56	56	56	53	50	47	42	38	35	32	30	28
	60	51	51	51	51	51	50	47	42	38	35	32	30	28
	70	48	48	48	48	48	48	47	42	38	35	32	30	28
	80	45	45	45	45	45	45	45	42	38	35	32	30	28
	90	43	43	43	43	43	43	43	42	38	35	32	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 277a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	95	91	84	78	71	65	60	56
	10	84	84	84	84	84	84	84	82	78	71	65	60	56
	20	65	65	65	65	65	65	65	65	65	64	63	60	56
	30	65	65	65	65	65	65	65	65	65	64	63	60	56
	40	58	58	58	58	58	58	58	58	58	58	57	57	56
	50	52	52	52	52	52	52	52	52	52	52	52	52	52
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	97	97	93	89	86	83	77	69	62	57	52	49
	10	84	84	84	84	84	84	83	77	69	62	57	52	49
	20	65	65	65	65	65	65	65	65	65	62	57	52	49
	30	65	65	65	65	65	65	65	65	65	62	57	52	49
	40	58	58	58	58	58	58	58	58	58	58	57	52	49
	50	52	52	52	52	52	52	52	52	52	52	52	52	49
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	94	90	86	83	80	72	65	59	54	50	46
	10	84	84	84	84	84	83	80	72	65	59	54	50	46
	20	65	65	65	65	65	65	65	65	65	59	54	50	46
	30	65	65	65	65	65	65	65	65	65	59	54	50	46
	40	58	58	58	58	58	58	58	58	58	58	54	50	46
	50	52	52	52	52	52	52	52	52	52	52	52	50	46
	60	48	48	48	48	48	48	48	48	48	48	48	48	46
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 277b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	94	89	85	81	78	73	65	60	55	51	47	44
	10	84	84	84	84	81	78	73	65	60	55	51	47	44
	20	65	65	65	65	65	65	65	65	60	55	51	47	44
	30	65	65	65	65	65	65	65	65	60	55	51	47	44
	40	58	58	58	58	58	58	58	58	58	55	51	47	44
	50	52	52	52	52	52	52	52	52	52	52	51	47	44
	60	48	48	48	48	48	48	48	48	48	48	48	47	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	89	85	81	78	73	68	64	57	52	47	43	40	37
	10	84	84	81	78	73	68	64	57	52	47	43	40	37
	20	65	65	65	65	65	65	64	57	52	47	43	40	37
	30	65	65	65	65	65	65	64	57	52	47	43	40	37
	40	58	58	58	58	58	58	58	57	52	47	43	40	37
	50	52	52	52	52	52	52	52	52	52	47	43	40	37
	60	48	48	48	48	48	48	48	48	48	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	42	42	42	42	42	42	42	42	42	42	42	40	37
90	40	40	40	40	40	40	40	40	40	40	40	40	37	
Zones 2e & 3	0	86	82	78	73	69	64	61	54	49	45	41	38	35
	10	84	82	78	73	69	64	61	54	49	45	41	38	35
	20	65	65	65	65	65	64	61	54	49	45	41	38	35
	30	65	65	65	65	65	64	61	54	49	45	41	38	35
	40	58	58	58	58	58	58	58	54	49	45	41	38	35
	50	52	52	52	52	52	52	52	52	49	45	41	38	35
	60	48	48	48	48	48	48	48	48	48	45	41	38	35
	70	45	45	45	45	45	45	45	45	45	45	41	38	35
	80	42	42	42	42	42	42	42	42	42	42	41	38	35
	90	40	40	40	40	40	40	40	40	40	40	40	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 278a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	94	90	86	82	79	71	64	59	54	51	47
	10	84	84	84	83	82	82	79	71	64	59	54	51	47
	20	65	65	65	65	65	65	65	64	63	59	54	51	47
	30	65	65	65	65	65	65	65	64	63	59	54	51	47
	40	58	58	58	58	58	58	58	58	57	56	54	51	47
	50	52	52	52	52	52	52	52	52	52	52	51	50	47
	60	48	48	48	48	48	48	48	48	48	48	48	47	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	95	90	86	82	79	74	70	62	56	51	47	43	40
	10	84	84	84	82	79	74	70	62	56	51	47	43	40
	20	65	65	65	65	65	65	65	62	56	51	47	43	40
	30	65	65	65	65	65	65	65	62	56	51	47	43	40
	40	58	58	58	58	58	58	58	58	56	51	47	43	40
	50	52	52	52	52	52	52	52	52	52	51	47	43	40
	60	48	48	48	48	48	48	48	48	48	48	47	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	42	42	42	42	42	42	42	42	42	42	42	42	40
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	91	87	83	79	75	70	66	59	53	49	45	41	38
	10	84	84	83	79	75	70	66	59	53	49	45	41	38
	20	65	65	65	65	65	65	65	59	53	49	45	41	38
	30	65	65	65	65	65	65	65	59	53	49	45	41	38
	40	58	58	58	58	58	58	58	58	53	49	45	41	38
	50	52	52	52	52	52	52	52	52	52	49	45	41	38
	60	48	48	48	48	48	48	48	48	48	48	45	41	38
	70	45	45	45	45	45	45	45	45	45	45	45	41	38
	80	42	42	42	42	42	42	42	42	42	42	42	41	38
	90	40	40	40	40	40	40	40	40	40	40	40	40	38

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 278b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	86	82	78	72	67	64	60	55	50	46	43	40	37
	10	84	82	78	72	67	64	60	55	50	46	43	40	37
	20	65	65	65	65	65	64	60	55	50	46	43	40	37
	30	65	65	65	65	65	64	60	55	50	46	43	40	37
	40	58	58	58	58	58	58	58	55	50	46	43	40	37
	50	52	52	52	52	52	52	52	52	50	46	43	40	37
	60	48	48	48	48	48	48	48	48	48	46	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	42	42	42	42	42	42	42	42	42	42	42	40	37
90	40	40	40	40	40	40	40	40	40	40	40	40	37	
Zone 2r	0	79	73	68	63	59	56	53	47	43	39	36	34	32
	10	79	73	68	63	59	56	53	47	43	39	36	34	32
	20	65	65	65	63	59	56	53	47	43	39	36	34	32
	30	65	65	65	63	59	56	53	47	43	39	36	34	32
	40	58	58	58	58	58	56	53	47	43	39	36	34	32
	50	52	52	52	52	52	52	52	47	43	39	36	34	32
	60	48	48	48	48	48	48	48	47	43	39	36	34	32
	70	45	45	45	45	45	45	45	45	43	39	36	34	32
	80	42	42	42	42	42	42	42	42	42	39	36	34	32
90	40	40	40	40	40	40	40	40	40	39	36	34	32	
Zones 2e & 3	0	75	69	64	60	56	53	50	45	41	37	34	32	30
	10	75	69	64	60	56	53	50	45	41	37	34	32	30
	20	65	65	64	60	56	53	50	45	41	37	34	32	30
	30	65	65	64	60	56	53	50	45	41	37	34	32	30
	40	58	58	58	58	56	53	50	45	41	37	34	32	30
	50	52	52	52	52	52	52	50	45	41	37	34	32	30
	60	48	48	48	48	48	48	48	45	41	37	34	32	30
	70	45	45	45	45	45	45	45	45	41	37	34	32	30
	80	42	42	42	42	42	42	42	42	41	37	34	32	30
	90	40	40	40	40	40	40	40	40	40	37	34	32	30

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 279a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	92	88	84	80	76	71	64	59	54	50	46	43
	10	84	84	83	82	80	76	71	64	59	54	50	46	43
	20	65	65	65	65	65	65	64	63	59	54	50	46	43
	30	65	65	65	65	65	65	64	63	59	54	50	46	43
	40	58	58	58	58	58	58	58	57	56	54	50	46	43
	50	52	52	52	52	52	52	52	52	52	51	50	46	43
	60	48	48	48	48	48	48	48	48	48	48	47	46	43
	70	45	45	45	45	45	45	45	45	45	45	45	44	43
	80	42	42	42	42	42	42	42	42	42	42	42	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	39
Zone 2r	0	88	84	80	76	71	67	63	56	51	46	43	39	37
	10	84	84	80	76	71	67	63	56	51	46	43	39	37
	20	65	65	65	65	65	65	63	56	51	46	43	39	37
	30	65	65	65	65	65	65	63	56	51	46	43	39	37
	40	58	58	58	58	58	58	58	56	51	46	43	39	37
	50	52	52	52	52	52	52	52	52	51	46	43	39	37
	60	48	48	48	48	48	48	48	48	48	46	43	39	37
	70	45	45	45	45	45	45	45	45	45	45	43	39	37
	80	42	42	42	42	42	42	42	42	42	42	42	39	37
	90	40	40	40	40	40	40	40	40	40	40	40	39	37
Zones 2e & 3	0	85	81	77	72	67	63	60	53	48	44	40	37	35
	10	84	81	77	72	67	63	60	53	48	44	40	37	35
	20	65	65	65	65	65	63	60	53	48	44	40	37	35
	30	65	65	65	65	65	63	60	53	48	44	40	37	35
	40	58	58	58	58	58	58	58	53	48	44	40	37	35
	50	52	52	52	52	52	52	52	52	48	44	40	37	35
	60	48	48	48	48	48	48	48	48	48	44	40	37	35
	70	45	45	45	45	45	45	45	45	45	44	40	37	35
	80	42	42	42	42	42	42	42	42	42	42	40	37	35
	90	40	40	40	40	40	40	40	40	40	40	40	37	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 279b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≥ 0.8				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	80	75	69	65	61	58	55	50	46	42	39	36	34
	10	80	75	69	65	61	58	55	50	46	42	39	36	34
	20	65	65	65	65	61	58	55	50	46	42	39	36	34
	30	65	65	65	65	61	58	55	50	46	42	39	36	34
	40	58	58	58	58	58	58	55	50	46	42	39	36	34
	50	52	52	52	52	52	52	52	50	46	42	39	36	34
	60	48	48	48	48	48	48	48	48	46	42	39	36	34
	70	45	45	45	45	45	45	45	45	45	42	39	36	34
	80	42	42	42	42	42	42	42	42	42	42	39	36	34
	90	40	40	40	40	40	40	40	40	40	40	39	36	34
Zone 2r	0	71	66	61	57	54	51	48	43	39	36	33	31	29
	10	71	66	61	57	54	51	48	43	39	36	33	31	29
	20	65	65	61	57	54	51	48	43	39	36	33	31	29
	30	65	65	61	57	54	51	48	43	39	36	33	31	29
	40	58	58	58	57	54	51	48	43	39	36	33	31	29
	50	52	52	52	52	52	51	48	43	39	36	33	31	29
	60	48	48	48	48	48	48	48	43	39	36	33	31	29
	70	45	45	45	45	45	45	45	43	39	36	33	31	29
	80	42	42	42	42	42	42	42	42	39	36	33	31	29
	90	40	40	40	40	40	40	40	40	39	36	33	31	29
Zones 2e & 3	0	67	62	58	54	51	48	45	41	37	34	32	30	28
	10	67	62	58	54	51	48	45	41	37	34	32	30	28
	20	65	62	58	54	51	48	45	41	37	34	32	30	28
	30	65	62	58	54	51	48	45	41	37	34	32	30	28
	40	58	58	58	54	51	48	45	41	37	34	32	30	28
	50	52	52	52	52	51	48	45	41	37	34	32	30	28
	60	48	48	48	48	48	48	45	41	37	34	32	30	28
	70	45	45	45	45	45	45	45	41	37	34	32	30	28
	80	42	42	42	42	42	42	42	41	37	34	32	30	28
	90	40	40	40	40	40	40	40	40	37	34	32	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 280a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	96	90	85	80	74	69
	10	84	84	84	84	84	84	84	82	80	78	77	74	69
	20	65	65	65	65	65	65	65	65	64	63	62	61	59
	30	65	65	65	65	65	65	65	65	64	63	62	61	59
	40	58	58	58	58	58	58	58	58	58	57	57	56	55
	50	52	52	52	52	52	52	52	52	52	52	52	52	51
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	97	97	97	93	89	86	83	77	69	62	57	52	49
	10	84	84	84	84	84	84	83	77	69	62	57	52	49
	20	65	65	65	65	65	65	65	65	64	62	57	52	49
	30	65	65	65	65	65	65	65	65	64	62	57	52	49
	40	58	58	58	58	58	58	58	58	58	57	57	52	49
	50	52	52	52	52	52	52	52	52	52	52	52	52	49
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	97	97	97	97	93	87	81	76	69	63	59
	10	84	84	84	84	84	84	84	82	80	76	69	63	59
	20	65	65	65	65	65	65	65	65	64	63	62	61	59
	30	65	65	65	65	65	65	65	65	64	63	62	61	59
	40	58	58	58	58	58	58	58	58	58	57	57	56	55
	50	52	52	52	52	52	52	52	52	52	52	52	52	51
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 280b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: B								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	93	89	86	80	74	67	62	57	53
	10	84	84	84	84	84	84	84	80	74	67	62	57	53
	20	65	65	65	65	65	65	65	65	64	63	62	57	53
	30	65	65	65	65	65	65	65	65	64	63	62	57	53
	40	58	58	58	58	58	58	58	58	58	57	57	56	53
	50	52	52	52	52	52	52	52	52	52	52	52	52	51
	60	48	48	48	48	48	48	48	48	48	48	48	48	48
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	89	85	81	78	73	68	64	57	52	47	43	40	37
	10	84	84	81	78	73	68	64	57	52	47	43	40	37
	20	65	65	65	65	65	65	64	57	52	47	43	40	37
	30	65	65	65	65	65	65	64	57	52	47	43	40	37
	40	58	58	58	58	58	58	58	57	52	47	43	40	37
	50	52	52	52	52	52	52	52	52	52	47	43	40	37
	60	48	48	48	48	48	48	48	48	48	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	42	42	42	42	42	42	42	42	42	42	42	40	37
90	40	40	40	40	40	40	40	40	40	40	40	40	37	
Zones 2e & 3	0	97	96	91	87	84	81	78	69	63	57	52	48	45
	10	84	84	84	84	84	81	78	69	63	57	52	48	45
	20	65	65	65	65	65	65	65	65	63	57	52	48	45
	30	65	65	65	65	65	65	65	65	63	57	52	48	45
	40	58	58	58	58	58	58	58	58	58	57	52	48	45
	50	52	52	52	52	52	52	52	52	52	52	52	48	45
	60	48	48	48	48	48	48	48	48	48	48	48	48	45
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 281a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	95	91	85	79	73	67	62	57
	10	84	84	84	83	82	82	81	79	76	73	67	62	57
	20	65	65	65	65	65	65	64	63	62	60	59	57	56
	30	65	65	65	65	65	65	64	63	62	60	59	57	56
	40	58	58	58	58	58	58	58	57	56	55	54	53	52
	50	52	52	52	52	52	52	52	52	52	51	51	50	49
	60	48	48	48	48	48	48	48	48	48	48	48	47	46
	70	45	45	45	45	45	45	45	45	45	45	45	44	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	95	90	86	82	79	74	70	62	56	51	47	43	40
	10	84	84	84	82	79	74	70	62	56	51	47	43	40
	20	65	65	65	65	65	65	64	62	56	51	47	43	40
	30	65	65	65	65	65	65	64	62	56	51	47	43	40
	40	58	58	58	58	58	58	58	57	56	51	47	43	40
	50	52	52	52	52	52	52	52	52	52	51	47	43	40
	60	48	48	48	48	48	48	48	48	48	48	47	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	42	42	42	42	42	42	42	42	42	42	42	42	40
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zones 2e & 3	0	97	97	97	92	89	85	82	76	68	62	57	52	48
	10	84	84	84	83	82	82	81	76	68	62	57	52	48
	20	65	65	65	65	65	65	64	63	62	60	57	52	48
	30	65	65	65	65	65	65	64	63	62	60	57	52	48
	40	58	58	58	58	58	58	58	57	56	55	54	52	48
	50	52	52	52	52	52	52	52	52	52	51	51	50	48
	60	48	48	48	48	48	48	48	48	48	48	48	47	46
	70	45	45	45	45	45	45	45	45	45	45	45	44	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 281b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: C								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	94	89	85	82	79	75	67	61	56	52	48	45
	10	84	84	84	83	82	79	75	67	61	56	52	48	45
	20	65	65	65	65	65	65	64	63	61	56	52	48	45
	30	65	65	65	65	65	65	64	63	61	56	52	48	45
	40	58	58	58	58	58	58	58	57	56	55	52	48	45
	50	52	52	52	52	52	52	52	52	52	51	51	48	45
	60	48	48	48	48	48	48	48	48	48	48	48	47	45
	70	45	45	45	45	45	45	45	45	45	45	45	44	44
	80	42	42	42	42	42	42	42	42	42	42	42	42	42
90	40	40	40	40	40	40	40	40	40	40	40	40	40	
Zone 2r	0	79	73	68	63	59	56	53	47	43	39	36	34	32
	10	79	73	68	63	59	56	53	47	43	39	36	34	32
	20	65	65	65	63	59	56	53	47	43	39	36	34	32
	30	65	65	65	63	59	56	53	47	43	39	36	34	32
	40	58	58	58	58	58	56	53	47	43	39	36	34	32
	50	52	52	52	52	52	52	52	47	43	39	36	34	32
	60	48	48	48	48	48	48	48	47	43	39	36	34	32
	70	45	45	45	45	45	45	45	45	43	39	36	34	32
	80	42	42	42	42	42	42	42	42	42	39	36	34	32
90	40	40	40	40	40	40	40	40	40	39	36	34	32	
Zones 2e & 3	0	88	84	80	77	72	67	64	57	52	47	43	40	37
	10	84	84	80	77	72	67	64	57	52	47	43	40	37
	20	65	65	65	65	65	65	64	57	52	47	43	40	37
	30	65	65	65	65	65	65	64	57	52	47	43	40	37
	40	58	58	58	58	58	58	58	57	52	47	43	40	37
	50	52	52	52	52	52	52	52	52	52	47	43	40	37
	60	48	48	48	48	48	48	48	48	48	47	43	40	37
	70	45	45	45	45	45	45	45	45	45	45	43	40	37
	80	42	42	42	42	42	42	42	42	42	42	42	40	37
	90	40	40	40	40	40	40	40	40	40	40	40	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 282a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	96	92	88	85	79	72	66	61	56	53
	10	84	84	83	82	81	80	79	76	72	66	61	56	53
	20	65	65	65	65	64	64	63	62	60	59	57	56	53
	30	65	65	65	65	64	64	63	62	60	59	57	56	53
	40	58	58	58	58	58	58	58	56	55	54	53	52	51
	50	52	52	52	52	52	52	52	52	51	50	49	48	47
	60	48	48	48	48	48	48	48	48	48	47	47	46	45
	70	45	45	45	45	45	45	45	45	45	45	44	44	43
	80	42	42	42	42	42	42	42	42	42	42	42	42	41
90	40	40	40	40	40	40	40	40	40	40	40	40	39	
Zone 2r	0	88	84	80	76	71	67	63	56	51	46	43	39	37
	10	84	84	80	76	71	67	63	56	51	46	43	39	37
	20	65	65	65	65	64	64	63	56	51	46	43	39	37
	30	65	65	65	65	64	64	63	56	51	46	43	39	37
	40	58	58	58	58	58	58	58	56	51	46	43	39	37
	50	52	52	52	52	52	52	52	52	51	46	43	39	37
	60	48	48	48	48	48	48	48	48	48	46	43	39	37
	70	45	45	45	45	45	45	45	45	45	45	43	39	37
	80	42	42	42	42	42	42	42	42	42	42	42	39	37
90	40	40	40	40	40	40	40	40	40	40	40	39	37	
Zones 2e & 3	0	97	95	90	86	83	80	76	68	61	56	51	47	44
	10	84	84	83	82	81	80	76	68	61	56	51	47	44
	20	65	65	65	65	64	64	63	62	60	56	51	47	44
	30	65	65	65	65	64	64	63	62	60	56	51	47	44
	40	58	58	58	58	58	58	58	56	55	54	51	47	44
	50	52	52	52	52	52	52	52	52	51	50	49	47	44
	60	48	48	48	48	48	48	48	48	48	47	47	46	44
	70	45	45	45	45	45	45	45	45	45	45	44	44	43
	80	42	42	42	42	42	42	42	42	42	42	42	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	39

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 282b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 7 < θ ≤ 20 degrees								North/South Support Y _E = 1.5				
		Exposure Category: D								Roof Type : Hip h/B = ≤ 0.5				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	92	87	83	80	76	72	68	61	56	51	47	44	41
	10	84	84	83	80	76	72	68	61	56	51	47	44	41
	20	65	65	65	65	64	64	63	61	56	51	47	44	41
	30	65	65	65	65	64	64	63	61	56	51	47	44	41
	40	58	58	58	58	58	58	58	56	55	51	47	44	41
	50	52	52	52	52	52	52	52	52	51	50	47	44	41
	60	48	48	48	48	48	48	48	48	48	47	47	44	41
	70	45	45	45	45	45	45	45	45	45	45	44	44	41
	80	42	42	42	42	42	42	42	42	42	42	42	42	41
90	40	40	40	40	40	40	40	40	40	40	40	40	39	
Zone 2r	0	71	66	61	57	54	51	48	43	39	36	33	31	29
	10	71	66	61	57	54	51	48	43	39	36	33	31	29
	20	65	65	61	57	54	51	48	43	39	36	33	31	29
	30	65	65	61	57	54	51	48	43	39	36	33	31	29
	40	58	58	58	57	54	51	48	43	39	36	33	31	29
	50	52	52	52	52	52	51	48	43	39	36	33	31	29
	60	48	48	48	48	48	48	48	43	39	36	33	31	29
	70	45	45	45	45	45	45	45	43	39	36	33	31	29
	80	42	42	42	42	42	42	42	42	39	36	33	31	29
90	40	40	40	40	40	40	40	40	39	36	33	31	29	
Zones 2e & 3	0	83	79	74	69	65	61	57	52	47	43	39	36	34
	10	83	79	74	69	65	61	57	52	47	43	39	36	34
	20	65	65	65	65	64	61	57	52	47	43	39	36	34
	30	65	65	65	65	64	61	57	52	47	43	39	36	34
	40	58	58	58	58	58	58	57	52	47	43	39	36	34
	50	52	52	52	52	52	52	52	52	47	43	39	36	34
	60	48	48	48	48	48	48	48	48	47	43	39	36	34
	70	45	45	45	45	45	45	45	45	45	43	39	36	34
	80	42	42	42	42	42	42	42	42	42	42	39	36	34
	90	40	40	40	40	40	40	40	40	40	40	39	36	34

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 283a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	97	93	87	82	78	73
	10	92	92	92	92	92	92	92	90	88	86	82	78	73
	20	77	77	77	77	77	77	77	76	74	73	71	70	68
	30	66	66	66	66	66	66	66	66	66	65	63	62	61
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	97	97	97	94	90	84	78	72	66	60	56
	10	92	92	92	92	92	92	90	84	78	72	66	60	56
	20	77	77	77	77	77	77	77	76	74	72	66	60	56
	30	66	66	66	66	66	66	66	66	66	65	63	60	56
	40	58	58	58	58	58	58	58	58	58	58	58	57	56
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 283b		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1.5					
		Exposure Category: B							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	93	89	83	77	71	64	59	54
	10	92	92	92	92	92	92	89	83	77	71	64	59	54
	20	77	77	77	77	77	77	77	76	74	71	64	59	54
	30	66	66	66	66	66	66	66	66	66	65	63	59	54
	40	58	58	58	58	58	58	58	58	58	58	58	57	54
	50	53	53	53	53	53	53	53	53	53	53	53	53	52
	60	49	49	49	49	49	49	49	49	49	49	49	49	49
	70	45	45	45	45	45	45	45	45	45	45	45	45	45
	80	43	43	43	43	43	43	43	43	43	43	43	43	43
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	93	88	85	81	78	75	66	60	54	49	46	42
	10	92	92	88	85	81	78	75	66	60	54	49	46	42
	20	77	77	77	77	77	77	75	66	60	54	49	46	42
	30	66	66	66	66	66	66	66	66	60	54	49	46	42
	40	58	58	58	58	58	58	58	58	58	54	49	46	42
	50	53	53	53	53	53	53	53	53	53	53	49	46	42
	60	49	49	49	49	49	49	49	49	49	49	49	46	42
	70	45	45	45	45	45	45	45	45	45	45	45	45	42
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 284a		Mean Roof Height: 30 < h ≤ 60 ft							Panel Orientation: Portrait					
		Roof Angle: 20 < θ ≤ 27 degrees							North/South Support X _E = 1					
		Exposure Category: C							Roof Type : Hip					
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	94	87	82	77	70	64	59
	10	92	92	92	92	91	89	88	86	82	77	70	64	59
	20	77	77	77	77	76	75	74	73	71	69	68	64	59
	30	66	66	66	66	66	66	66	65	63	62	61	59	58
	40	58	58	58	58	58	58	58	58	58	57	56	54	53
	50	53	53	53	53	53	53	53	53	53	52	52	51	50
	60	49	49	49	49	49	49	49	49	49	49	48	48	47
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	97	94	89	86	82	79	73	65	59	54	49	46
	10	92	92	92	89	86	82	79	73	65	59	54	49	46
	20	77	77	77	77	76	75	74	73	65	59	54	49	46
	30	66	66	66	66	66	66	66	65	63	59	54	49	46
	40	58	58	58	58	58	58	58	58	58	57	54	49	46
	50	53	53	53	53	53	53	53	53	53	52	52	49	46
	60	49	49	49	49	49	49	49	49	49	49	48	48	46
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 284b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	93	88	85	81	78	71	63	57	52	48	44
	10	92	92	92	88	85	81	78	71	63	57	52	48	44
	20	77	77	77	77	76	75	74	71	63	57	52	48	44
	30	66	66	66	66	66	66	66	65	63	57	52	48	44
	40	58	58	58	58	58	58	58	58	58	57	52	48	44
	50	53	53	53	53	53	53	53	53	53	52	52	48	44
	60	49	49	49	49	49	49	49	49	49	49	48	48	44
	70	45	45	45	45	45	45	45	45	45	45	45	45	44
	80	43	43	43	43	43	43	43	43	43	43	43	43	42
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	86	81	78	74	69	64	61	54	49	44	41	38	35
	10	86	81	78	74	69	64	61	54	49	44	41	38	35
	20	77	77	77	74	69	64	61	54	49	44	41	38	35
	30	66	66	66	66	66	64	61	54	49	44	41	38	35
	40	58	58	58	58	58	58	58	54	49	44	41	38	35
	50	53	53	53	53	53	53	53	53	49	44	41	38	35
	60	49	49	49	49	49	49	49	49	49	44	41	38	35
	70	45	45	45	45	45	45	45	45	45	44	41	38	35
	80	43	43	43	43	43	43	43	43	43	43	41	38	35
	90	40	40	40	40	40	40	40	40	40	40	40	38	35

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 285a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	96	92	88	82	76	69	63	58	53
	10	92	92	91	90	89	87	86	82	76	69	63	58	53
	20	77	77	76	76	75	74	73	71	69	67	63	58	53
	30	66	66	66	66	66	65	65	63	62	60	59	57	53
	40	58	58	58	58	58	58	58	58	57	55	54	53	52
	50	53	53	53	53	53	53	53	53	52	51	50	49	48
	60	49	49	49	49	49	49	49	49	49	48	47	47	46
	70	45	45	45	45	45	45	45	45	45	45	45	44	43
	80	43	43	43	43	43	43	43	43	43	43	43	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	97	92	87	84	80	77	73	65	58	53	49	45	41
	10	92	92	87	84	80	77	73	65	58	53	49	45	41
	20	77	77	76	76	75	74	73	65	58	53	49	45	41
	30	66	66	66	66	66	65	65	63	58	53	49	45	41
	40	58	58	58	58	58	58	58	58	57	53	49	45	41
	50	53	53	53	53	53	53	53	53	52	51	49	45	41
	60	49	49	49	49	49	49	49	49	49	48	47	45	41
	70	45	45	45	45	45	45	45	45	45	45	45	44	41
	80	43	43	43	43	43	43	43	43	43	43	43	42	41
	90	40	40	40	40	40	40	40	40	40	40	40	40	40

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 285b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 20 < θ ≤ 27 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	95	91	86	83	79	76	71	63	57	52	47	43	40
	10	92	91	86	83	79	76	71	63	57	52	47	43	40
	20	77	77	76	76	75	74	71	63	57	52	47	43	40
	30	66	66	66	66	66	65	65	63	57	52	47	43	40
	40	58	58	58	58	58	58	58	58	57	52	47	43	40
	50	53	53	53	53	53	53	53	53	52	51	47	43	40
	60	49	49	49	49	49	49	49	49	49	48	47	43	40
	70	45	45	45	45	45	45	45	45	45	45	45	43	40
	80	43	43	43	43	43	43	43	43	43	43	43	42	40
	90	40	40	40	40	40	40	40	40	40	40	40	40	40
Zones 2e, 2r, & 3	0	80	76	71	66	62	58	55	49	44	40	37	34	32
	10	80	76	71	66	62	58	55	49	44	40	37	34	32
	20	77	76	71	66	62	58	55	49	44	40	37	34	32
	30	66	66	66	66	62	58	55	49	44	40	37	34	32
	40	58	58	58	58	58	58	55	49	44	40	37	34	32
	50	53	53	53	53	53	53	53	49	44	40	37	34	32
	60	49	49	49	49	49	49	49	49	44	40	37	34	32
	70	45	45	45	45	45	45	45	45	44	40	37	34	32
	80	43	43	43	43	43	43	43	43	43	40	37	34	32
	90	40	40	40	40	40	40	40	40	40	40	37	34	32

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 286a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	97	97	95	88	83	79	75	69
	10	92	92	92	92	92	92	92	92	88	83	79	75	69
	20	80	80	80	80	80	80	80	78	77	75	74	72	69
	30	69	69	69	69	69	69	69	69	68	67	66	65	64
	40	61	61	61	61	61	61	61	61	61	61	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	55	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	97	97	97	95	88	82	77	72	65
	10	92	92	92	92	92	92	92	92	88	82	77	72	65
	20	80	80	80	80	80	80	80	78	77	75	74	72	65
	30	69	69	69	69	69	69	69	69	68	67	66	65	64
	40	61	61	61	61	61	61	61	61	61	61	61	60	59
	50	56	56	56	56	56	56	56	56	56	56	56	55	55
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	97	97	97	95	91	87	81	76	69	62	57	52
	10	92	92	92	92	92	91	87	81	76	69	62	57	52
	20	80	80	80	80	80	80	80	78	76	69	62	57	52
	30	69	69	69	69	69	69	69	69	68	67	62	57	52
	40	61	61	61	61	61	61	61	61	61	61	61	57	52
	50	56	56	56	56	56	56	56	56	56	56	56	55	52
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 3	0	97	97	97	97	97	96	91	84	78	71	63	57	51
	10	92	92	92	92	92	92	91	84	78	71	63	57	51
	20	80	80	80	80	80	80	80	78	77	71	63	57	51
	30	69	69	69	69	69	69	69	69	68	67	63	57	51
	40	61	61	61	61	61	61	61	61	61	61	61	57	51
	50	56	56	56	56	56	56	56	56	56	56	56	55	51
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 286b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: B								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	96	92	88	85	79	74	67	61	56	51
	10	92	92	92	92	92	88	85	79	74	67	61	56	51
	20	80	80	80	80	80	80	80	78	74	67	61	56	51
	30	69	69	69	69	69	69	69	69	68	67	61	56	51
	40	61	61	61	61	61	61	61	61	61	61	61	56	51
	50	56	56	56	56	56	56	56	56	56	56	56	55	51
	60	51	51	51	51	51	51	51	51	51	51	51	51	51
	70	48	48	48	48	48	48	48	48	48	48	48	48	48
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	96	92	88	84	78	71	63	56	51	46
	10	92	92	92	92	92	88	84	78	71	63	56	51	46
	20	80	80	80	80	80	80	80	78	71	63	56	51	46
	30	69	69	69	69	69	69	69	69	68	63	56	51	46
	40	61	61	61	61	61	61	61	61	61	61	56	51	46
	50	56	56	56	56	56	56	56	56	56	56	56	51	46
	60	51	51	51	51	51	51	51	51	51	51	51	51	46
	70	48	48	48	48	48	48	48	48	48	48	48	48	46
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	94	90	85	82	78	75	71	63	56	50	46	42	39
	10	92	90	85	82	78	75	71	63	56	50	46	42	39
	20	80	80	80	80	78	75	71	63	56	50	46	42	39
	30	69	69	69	69	69	69	69	63	56	50	46	42	39
	40	61	61	61	61	61	61	61	61	56	50	46	42	39
	50	56	56	56	56	56	56	56	56	56	50	46	42	39
	60	51	51	51	51	51	51	51	51	51	50	46	42	39
	70	48	48	48	48	48	48	48	48	48	48	46	42	39
	80	45	45	45	45	45	45	45	45	45	45	45	42	39
	90	43	43	43	43	43	43	43	43	43	43	43	42	39
Zone 3	0	97	94	89	85	81	77	74	64	56	50	45	40	37
	10	92	92	89	85	81	77	74	64	56	50	45	40	37
	20	80	80	80	80	80	77	74	64	56	50	45	40	37
	30	69	69	69	69	69	69	69	64	56	50	45	40	37
	40	61	61	61	61	61	61	61	61	56	50	45	40	37
	50	56	56	56	56	56	56	56	56	56	50	45	40	37
	60	51	51	51	51	51	51	51	51	51	50	45	40	37
	70	48	48	48	48	48	48	48	48	48	48	45	40	37
	80	45	45	45	45	45	45	45	45	45	45	45	40	37
	90	43	43	43	43	43	43	43	43	43	43	43	40	37

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 287a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support Y _E = 1				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	97	97	93	89	83	78	73	67	61	56
	10	92	92	92	92	92	91	89	83	78	73	67	61	56
	20	80	80	80	80	79	78	77	75	74	72	67	61	56
	30	69	69	69	69	69	69	69	67	66	65	63	61	56
	40	61	61	61	61	61	61	61	61	60	59	58	57	56
	50	56	56	56	56	56	56	56	56	56	55	54	53	52
	60	51	51	51	51	51	51	51	51	51	51	51	50	49
	70	48	48	48	48	48	48	48	48	48	48	48	48	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2e	0	97	97	97	97	97	93	89	82	77	70	62	56	51
	10	92	92	92	92	92	91	89	82	77	70	62	56	51
	20	80	80	80	80	79	78	77	75	74	70	62	56	51
	30	69	69	69	69	69	69	69	67	66	65	62	56	51
	40	61	61	61	61	61	61	61	61	60	59	58	56	51
	50	56	56	56	56	56	56	56	56	56	55	54	53	51
	60	51	51	51	51	51	51	51	51	51	51	51	50	49
	70	48	48	48	48	48	48	48	48	48	48	48	48	47
	80	45	45	45	45	45	45	45	45	45	45	45	45	45
	90	43	43	43	43	43	43	43	43	43	43	43	43	43
Zone 2r	0	97	95	90	86	83	79	76	69	61	55	50	46	42
	10	92	92	90	86	83	79	76	69	61	55	50	46	42
	20	80	80	80	80	79	78	76	69	61	55	50	46	42
	30	69	69	69	69	69	69	69	67	61	55	50	46	42
	40	61	61	61	61	61	61	61	61	60	55	50	46	42
	50	56	56	56	56	56	56	56	56	56	55	50	46	42
	60	51	51	51	51	51	51	51	51	51	51	50	46	42
	70	48	48	48	48	48	48	48	48	48	48	48	46	42
	80	45	45	45	45	45	45	45	45	45	45	45	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 3	0	97	97	95	90	86	82	79	72	62	55	49	45	41
	10	92	92	92	90	86	82	79	72	62	55	49	45	41
	20	80	80	80	80	79	78	77	72	62	55	49	45	41
	30	69	69	69	69	69	69	69	67	62	55	49	45	41
	40	61	61	61	61	61	61	61	61	60	55	49	45	41
	50	56	56	56	56	56	56	56	56	56	55	49	45	41
	60	51	51	51	51	51	51	51	51	51	51	49	45	41
	70	48	48	48	48	48	48	48	48	48	48	48	45	41
	80	45	45	45	45	45	45	45	45	45	45	45	45	41
	90	43	43	43	43	43	43	43	43	43	43	43	43	41

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 287b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: C								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	92	88	84	81	78	75	67	60	54	50	46	42
	10	92	92	88	84	81	78	75	67	60	54	50	46	42
	20	80	80	80	80	79	78	75	67	60	54	50	46	42
	30	69	69	69	69	69	69	69	67	60	54	50	46	42
	40	61	61	61	61	61	61	61	61	60	54	50	46	42
	50	56	56	56	56	56	56	56	56	56	54	50	46	42
	60	51	51	51	51	51	51	51	51	51	51	50	46	42
	70	48	48	48	48	48	48	48	48	48	48	48	46	42
	80	45	45	45	45	45	45	45	45	45	45	45	45	42
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 2e	0	97	92	87	83	79	76	73	63	55	49	45	41	37
	10	92	92	87	83	79	76	73	63	55	49	45	41	37
	20	80	80	80	80	79	76	73	63	55	49	45	41	37
	30	69	69	69	69	69	69	69	63	55	49	45	41	37
	40	61	61	61	61	61	61	61	61	55	49	45	41	37
	50	56	56	56	56	56	56	56	56	55	49	45	41	37
	60	51	51	51	51	51	51	51	51	51	49	45	41	37
	70	48	48	48	48	48	48	48	48	48	48	45	41	37
	80	45	45	45	45	45	45	45	45	45	45	45	41	37
	90	43	43	43	43	43	43	43	43	43	43	43	41	37
Zone 2r	0	83	79	75	70	65	61	57	50	45	41	37	34	32
	10	83	79	75	70	65	61	57	50	45	41	37	34	32
	20	80	79	75	70	65	61	57	50	45	41	37	34	32
	30	69	69	69	69	65	61	57	50	45	41	37	34	32
	40	61	61	61	61	61	61	57	50	45	41	37	34	32
	50	56	56	56	56	56	56	56	50	45	41	37	34	32
	60	51	51	51	51	51	51	51	50	45	41	37	34	32
	70	48	48	48	48	48	48	48	48	45	41	37	34	32
	80	45	45	45	45	45	45	45	45	45	41	37	34	32
	90	43	43	43	43	43	43	43	43	43	41	37	34	32
Zone 3	0	86	81	77	73	67	61	57	50	44	39	36	33	31
	10	86	81	77	73	67	61	57	50	44	39	36	33	31
	20	80	80	77	73	67	61	57	50	44	39	36	33	31
	30	69	69	69	69	67	61	57	50	44	39	36	33	31
	40	61	61	61	61	61	61	57	50	44	39	36	33	31
	50	56	56	56	56	56	56	56	50	44	39	36	33	31
	60	51	51	51	51	51	51	51	50	44	39	36	33	31
	70	48	48	48	48	48	48	48	48	44	39	36	33	31
	80	45	45	45	45	45	45	45	45	44	39	36	33	31
	90	43	43	43	43	43	43	43	43	43	39	36	33	31

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 288a		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	97	97	97	94	90	87	84	78	73	66	60	55	50
	10	92	92	92	92	90	87	84	78	73	66	60	55	50
	20	80	80	79	78	77	76	76	74	72	66	60	55	50
	30	69	69	69	69	69	68	67	66	65	63	60	55	50
	40	61	61	61	61	61	61	61	60	59	58	57	55	50
	50	56	56	56	56	56	56	56	56	55	54	53	52	50
	60	51	51	51	51	51	51	51	51	51	51	50	49	48
	70	48	48	48	48	48	48	48	48	48	48	47	47	46
	80	45	45	45	45	45	45	45	45	45	45	45	44	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 2e	0	97	97	97	95	90	86	83	77	69	61	55	50	45
	10	92	92	92	92	90	86	83	77	69	61	55	50	45
	20	80	80	79	78	77	76	76	74	69	61	55	50	45
	30	69	69	69	69	69	68	67	66	65	61	55	50	45
	40	61	61	61	61	61	61	61	60	59	58	55	50	45
	50	56	56	56	56	56	56	56	56	55	54	53	50	45
	60	51	51	51	51	51	51	51	51	51	51	50	49	45
	70	48	48	48	48	48	48	48	48	48	48	47	47	45
	80	45	45	45	45	45	45	45	45	45	45	45	44	44
	90	43	43	43	43	43	43	43	43	43	43	43	43	42
Zone 2r	0	93	88	84	81	77	74	70	61	55	49	45	41	38
	10	92	88	84	81	77	74	70	61	55	49	45	41	38
	20	80	80	79	78	77	74	70	61	55	49	45	41	38
	30	69	69	69	69	69	68	67	61	55	49	45	41	38
	40	61	61	61	61	61	61	61	60	55	49	45	41	38
	50	56	56	56	56	56	56	56	56	55	49	45	41	38
	60	51	51	51	51	51	51	51	51	51	49	45	41	38
	70	48	48	48	48	48	48	48	48	48	48	45	41	38
	80	45	45	45	45	45	45	45	45	45	45	45	41	38
	90	43	43	43	43	43	43	43	43	43	43	43	41	38
Zone 3	0	97	93	88	83	80	76	73	62	54	48	44	40	36
	10	92	92	88	83	80	76	73	62	54	48	44	40	36
	20	80	80	79	78	77	76	73	62	54	48	44	40	36
	30	69	69	69	69	69	68	67	62	54	48	44	40	36
	40	61	61	61	61	61	61	61	60	54	48	44	40	36
	50	56	56	56	56	56	56	56	56	54	48	44	40	36
	60	51	51	51	51	51	51	51	51	51	48	44	40	36
	70	48	48	48	48	48	48	48	48	48	48	44	40	36
	80	45	45	45	45	45	45	45	45	45	45	44	40	36
	90	43	43	43	43	43	43	43	43	43	43	43	40	36

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"

Max Rail Spans for Quick Mount PV QRail Standard System

Table 288b		Mean Roof Height: 30 < h ≤ 60 ft								Panel Orientation: Portrait				
		Roof Angle: 27 < θ ≤ 45 degrees								North/South Support X _E = 1.5				
		Exposure Category: D								Roof Type : Hip				
Roof Wind Zone	Ground Snow Load (psf)	Wind Speed (mph)												
		90	95	100	105	110	115	120	130	140	150	160	170	180
Zone 1	0	90	86	82	79	76	72	68	60	54	49	45	41	38
	10	90	86	82	79	76	72	68	60	54	49	45	41	38
	20	80	80	79	78	76	72	68	60	54	49	45	41	38
	30	69	69	69	69	69	68	67	60	54	49	45	41	38
	40	61	61	61	61	61	61	61	60	54	49	45	41	38
	50	56	56	56	56	56	56	56	56	54	49	45	41	38
	60	51	51	51	51	51	51	51	51	51	49	45	41	38
	70	48	48	48	48	48	48	48	48	48	48	45	41	38
	80	45	45	45	45	45	45	45	45	45	45	45	41	38
	90	43	43	43	43	43	43	43	43	43	43	43	41	38
Zone 2e	0	90	85	81	77	74	69	64	55	49	44	40	36	34
	10	90	85	81	77	74	69	64	55	49	44	40	36	34
	20	80	80	79	77	74	69	64	55	49	44	40	36	34
	30	69	69	69	69	69	68	64	55	49	44	40	36	34
	40	61	61	61	61	61	61	61	55	49	44	40	36	34
	50	56	56	56	56	56	56	56	55	49	44	40	36	34
	60	51	51	51	51	51	51	51	51	49	44	40	36	34
	70	48	48	48	48	48	48	48	48	48	44	40	36	34
	80	45	45	45	45	45	45	45	45	45	44	40	36	34
	90	43	43	43	43	43	43	43	43	43	43	40	36	34
Zone 2r	0	77	73	68	62	58	54	51	45	41	37	34	32	30
	10	77	73	68	62	58	54	51	45	41	37	34	32	30
	20	77	73	68	62	58	54	51	45	41	37	34	32	30
	30	69	69	68	62	58	54	51	45	41	37	34	32	30
	40	61	61	61	61	58	54	51	45	41	37	34	32	30
	50	56	56	56	56	56	54	51	45	41	37	34	32	30
	60	51	51	51	51	51	51	51	45	41	37	34	32	30
	70	48	48	48	48	48	48	48	45	41	37	34	32	30
	80	45	45	45	45	45	45	45	45	41	37	34	32	30
	90	43	43	43	43	43	43	43	43	41	37	34	32	30
Zone 3	0	79	75	70	63	58	54	50	44	39	35	32	30	28
	10	79	75	70	63	58	54	50	44	39	35	32	30	28
	20	79	75	70	63	58	54	50	44	39	35	32	30	28
	30	69	69	69	63	58	54	50	44	39	35	32	30	28
	40	61	61	61	61	58	54	50	44	39	35	32	30	28
	50	56	56	56	56	56	54	50	44	39	35	32	30	28
	60	51	51	51	51	51	51	50	44	39	35	32	30	28
	70	48	48	48	48	48	48	48	44	39	35	32	30	28
	80	45	45	45	45	45	45	45	44	39	35	32	30	28
	90	43	43	43	43	43	43	43	43	39	35	32	30	28

Notes:

1. Tables are based on critical rail span for load combinations as specified in chapter 2 of the ASCE 7-16 and allowable design loads per the 2015 Aluminum Design Manual.
2. Panels are assumed to be in portrait orientation with a maximum length of 82"