

SnapNrack Series 200 Ground Mount System

COVER LETTER

The loading criteria used in this report is from ASCE 7-10. For codes that reference ASCE 7-05, Appendix A is provided to convert the wind speeds in ASCE 7-05 to the wind speeds used in this report. Instructions for this conversion are provided in Appendix A. This report covers wind speeds (V_{ult}) to 170 MPH and ground snow to 120 PSF.

The following codes are covered in this report:

- IBC 2015
- IBC 2012
- IBC 2009
- IBC 2006

The mounting system structural submittal package shall consist of the following:

- Pages 1 – 18 of the report (this includes this cover letter).
- Only the applicable configuration table from pages 19 – 96.
- Pages C1 – C29.
- Appendix A (if applicable).
- The applicable installation details.

This report provides structural engineering calculations and installation criteria for the mounting system only. It does not certify the capacity of the supporting soil. The soil criteria are based on soil class 4 (IBC Chapter 18). This is the generally accepted code minimum. The capacity of the supporting soil is to be approved by the Authority Having Jurisdiction (AHJ). For unusual soil conditions or where required by the AHJ, a geotechnical investigation shall be performed.

Please contact SnapNrack at (877) 732-2860, or Contact@snapnrack.com, for questions regarding this report.

Norman Scheel, PE, SE
Fellow ASCE
Fellow SEAOC
LEED AP BD+C, LEED AP HOMES
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Structural Report and Calculations

Series 200 Ground Mount

For

SnapNrack
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San Luis Obispo, CA 93401

Prepared By

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July 6, 2016

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Structural Report and Calculations



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Introduction

This summary letter is referencing the Structural Calculation Packet for the SnapNrack Series 200 Mounting System. We performed the calculations in accordance with the International Building Code (IBC) and the ASCE 7-10. The racking system has been designed to withstand code-prescribed forces due to the racking system's own weight, the weight of the solar panels, the snow loads, and both the wind and seismic forces. The limits of the structural design are as listed below.

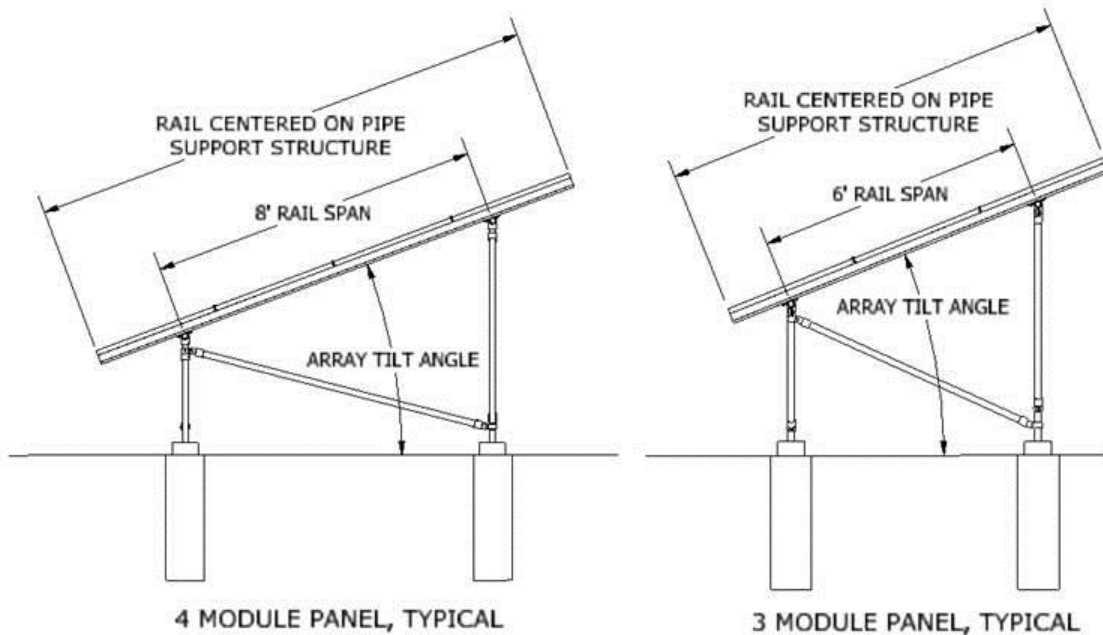
- Wind Speed from 100 mph to 170 mph (Page C3 of calculations)
- Seismic Design Category D (Page C4 of calculations)
- Ground Snow Loads from 0 to 120 psf (Page C5 of calculations)

In our opinion, the racking system, outlined in the SnapNrack Series 200 PV Mounting System Code Compliant Installation Manual, is acceptable and meets the loading requirements stated above.

It should also be noted that the provided summary charts assume the site has a slope less than 15:1 or 15%. For sites with slopes greater than 15%, the listed foundation depths will be required to be increased as per the soils engineer or, if the project does not involve a soils engineer, SnapNrack's drawing S200-D06.

Aluminum Ground Rail Spans

The aluminum ground rails used to connect the PV panels to the racking system should be installed per the dimensions on the following detail for all tilt angles. With these lengths being constant the horizontal span between the footings will be different for every tilt angle. See detail and chart on page C2 for dimensions. The standard installation of the aluminum rail is two rails per row of PV panels. See chart located on page C14 for conditions where three rails per row of PV panels are required. The rails are to be connected to horizontal pipes with SnapNrack pipe clamps on the bottom of the rail and module clamps on the top in order to secure the PV panels.



Pipe Rails, Braces, and Vertical Post

The racking system is composed of either a schedule 40 or a schedule 80 pipe, both of which are 1 1/2" in diameter and have a minimum yield strength of 35 ksi. See following details for labels for individual pieces. The 50 ksi Flo-Coat Tube may be used as an alternative for the typical schedule 40 and 80 pipe as listed in these calculations. See manufacturer's specifications for this pipe.

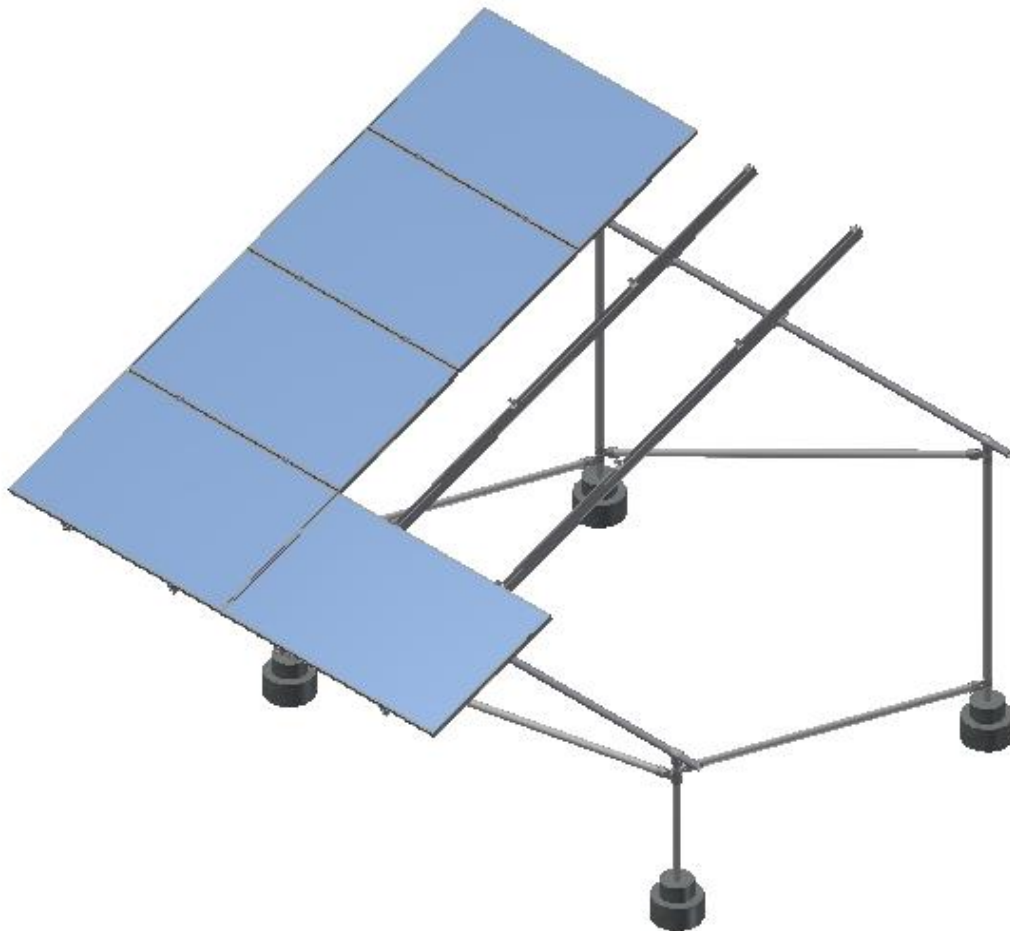
There are two different kinds on installations: standard and braced. Each option comes with a 4 module panel or a 3 module panel choice. Using 2 rails is standard at the more common lower loads, but higher wind and snow loads will require 3 rails per panel. This makes for a total of 8 possible installation configurations.

Each configuration has unique load capabilities for the wind and snow loads specific to each project. Pages C6-C13 illustrate the minimum number of rails required for every snow and wind load combination as well as for every tilt angle. Pages 7 through 14 show each of the 8 possible system configurations.

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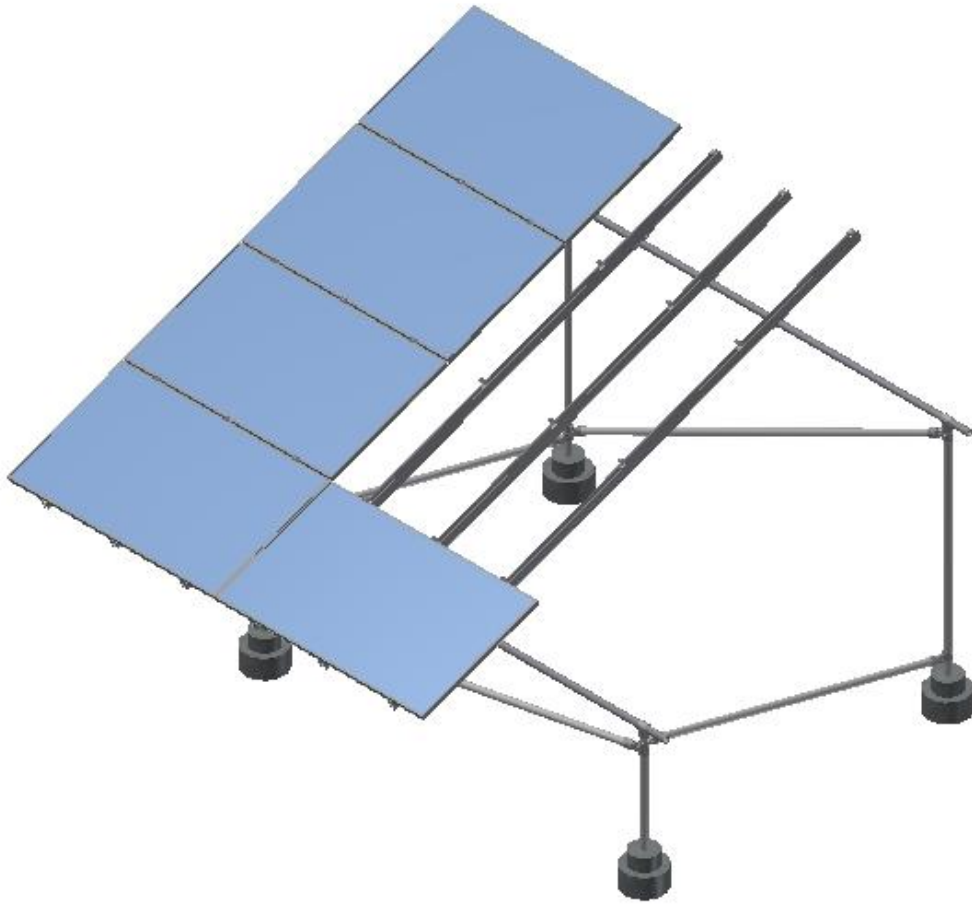


Standard Installation (4 Module Panels and 2 Rails per Panel)

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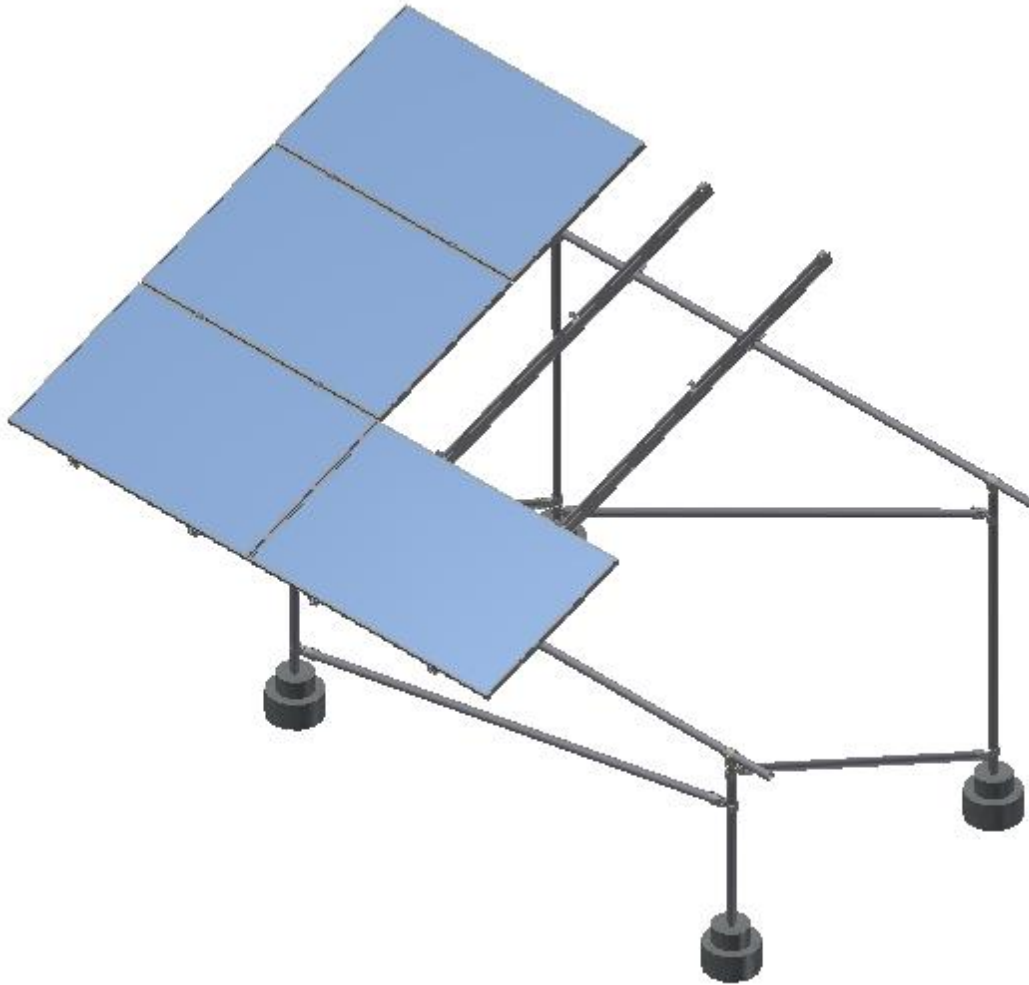


Standard Installation (4 Module Panels and 3 Rails per Panel)

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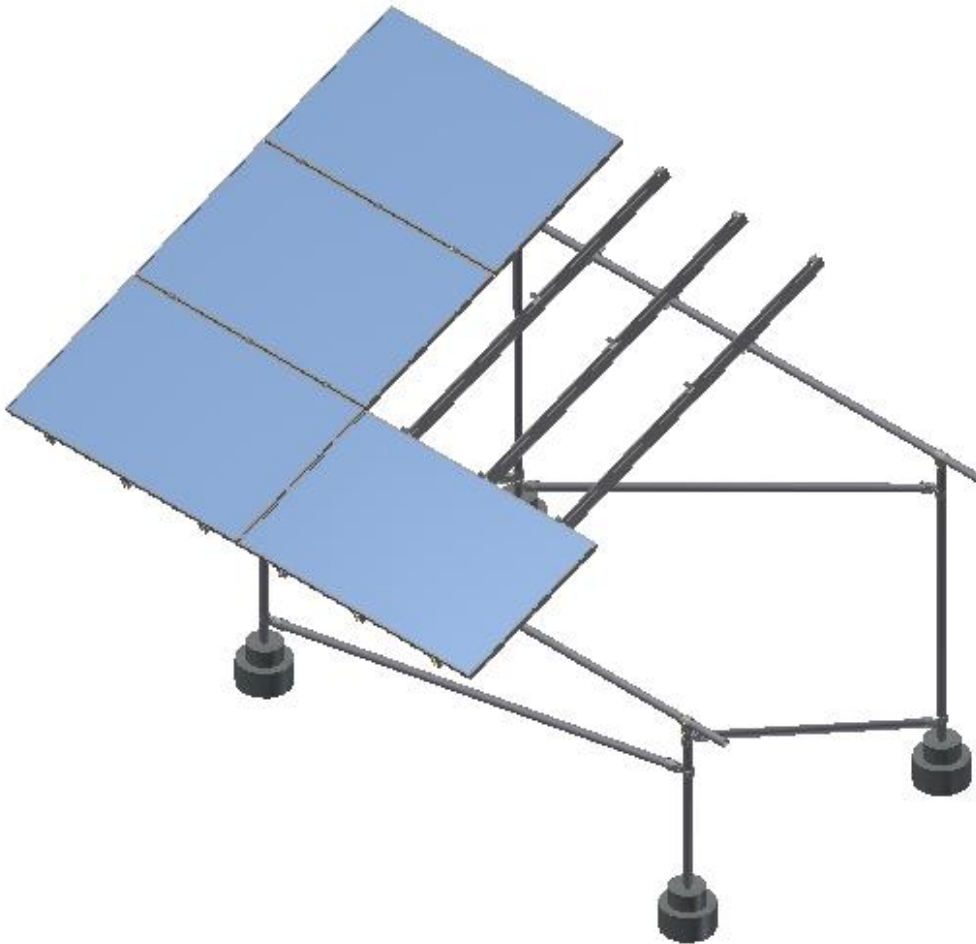


Standard Installation (3 Module Panels and 2 Rails per Panel)

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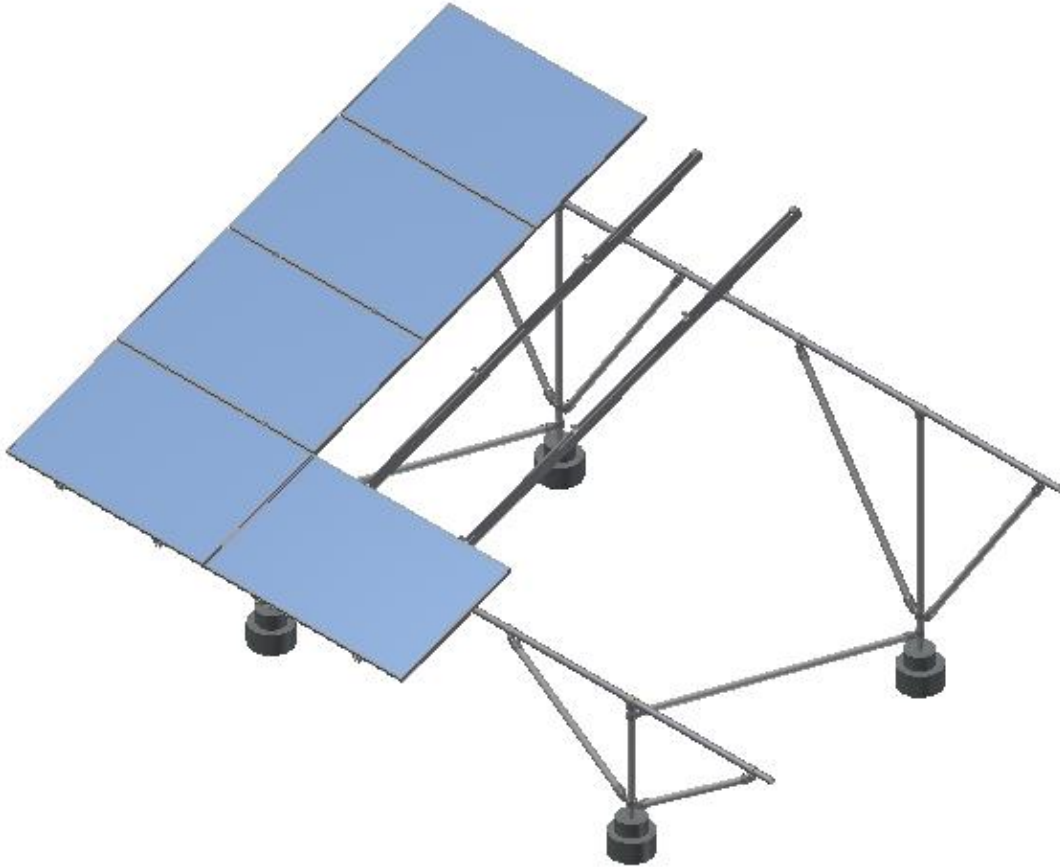
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Standard Installation (3 Module Panels and 3 Rails per Panel)

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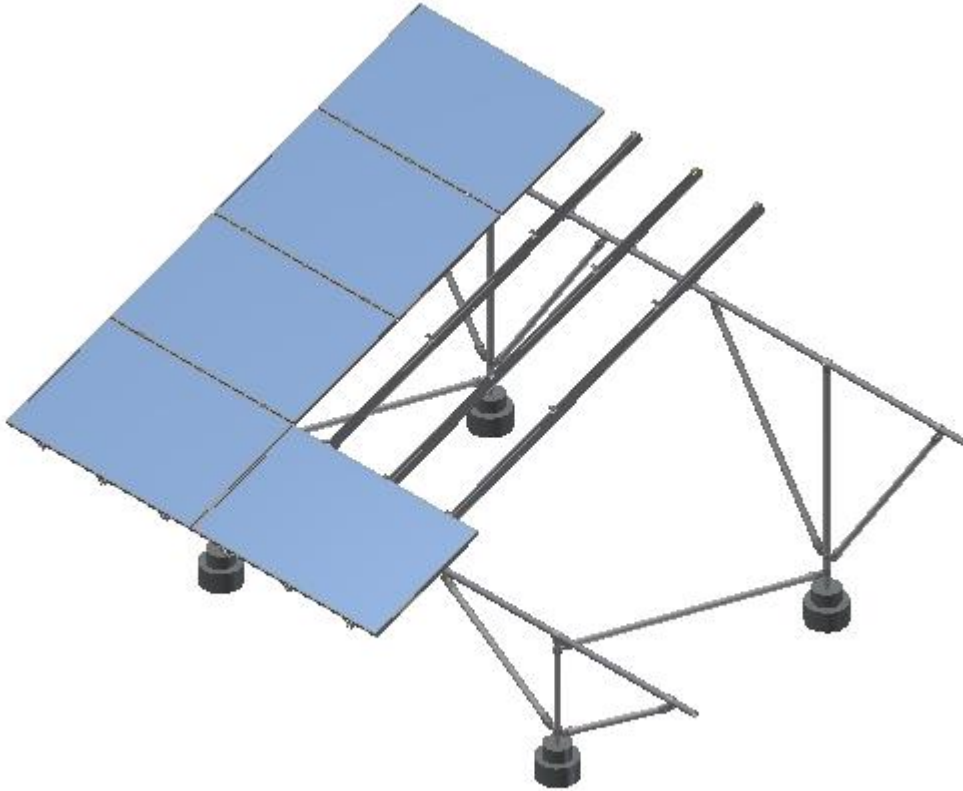


Braced Installation (4 Module Panels and 2 Rails per Panel)

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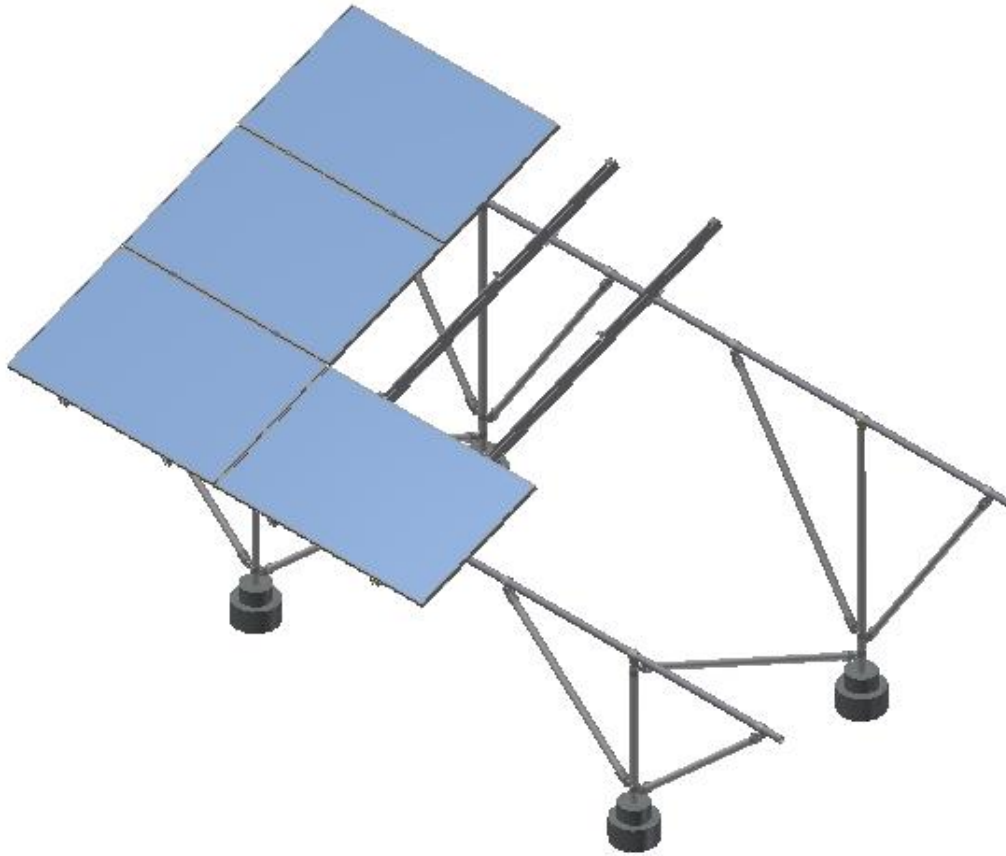
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Braced Installation (4 Module Panels and 3 Rails per Panel)

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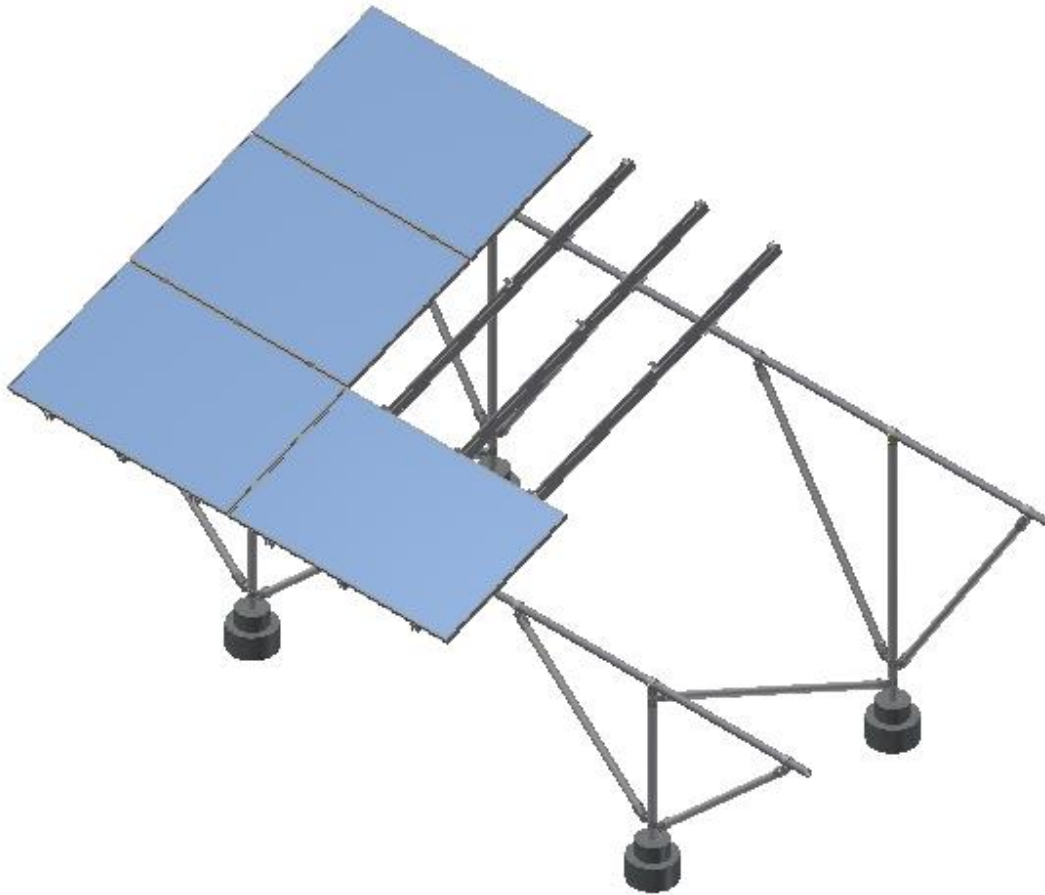
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Braced Installation (3 Module Panels and 2 Rails per Panel)

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Braced Installation (3 Module Panels and 3 Rails per Panel)

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Configuration Tables

See pages 19 thru 96 for installation of racking system per wind and snow load requirements. See example below for instructions on how to read tables. All dimensions are in inches.

100 mph Wind Load 0 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces			Module Size	
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	39" x 65"	39" x 78"
$\theta = 0$	135	154	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	114	130	30	30	Yes	Every 3rd Bay	No	180	180	30	31	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	107	122	30	33	Yes	Every 3rd Bay	No	180	180	30	40	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	101	115	30	38	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	47	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	96	110	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	50	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	98	112	30	51	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	63	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	101	115	30	51	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	63	Yes	Yes	Yes	2	2

Standard Installation

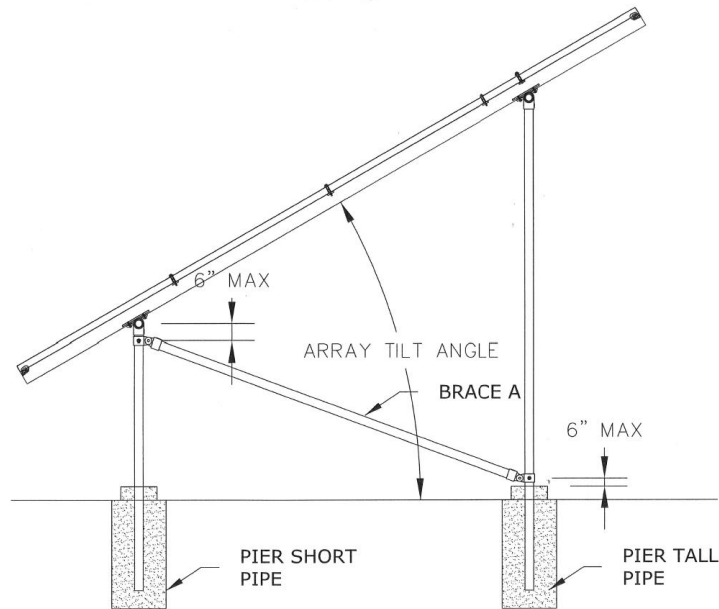
Tilt Angle θ	Standard Installation						
	Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D
$\theta = 0$	135	154	30	30	No	Every 3rd Bay	No
$0 > \theta < 7.5$	114	130	30	30	Yes	Every 3rd Bay	No
$7.5 > \theta < 15$	107	122	30	33	Yes	Every 3rd Bay	No
$15 > \theta < 22.5$	101	115	30	38	Yes	Every 3rd Bay	Every 3rd Bay
$22.5 > \theta < 30$	96	110	30	41	Yes	Every 3rd Bay	Every 3rd Bay
$30 > \theta < 37.5$	98	112	30	51	Yes	Every 3rd Bay	Every 3rd Bay
$37.5 > \theta < 45$	101	115	30	51	Yes	Every 3rd Bay	Every 3rd Bay

Braced Installation

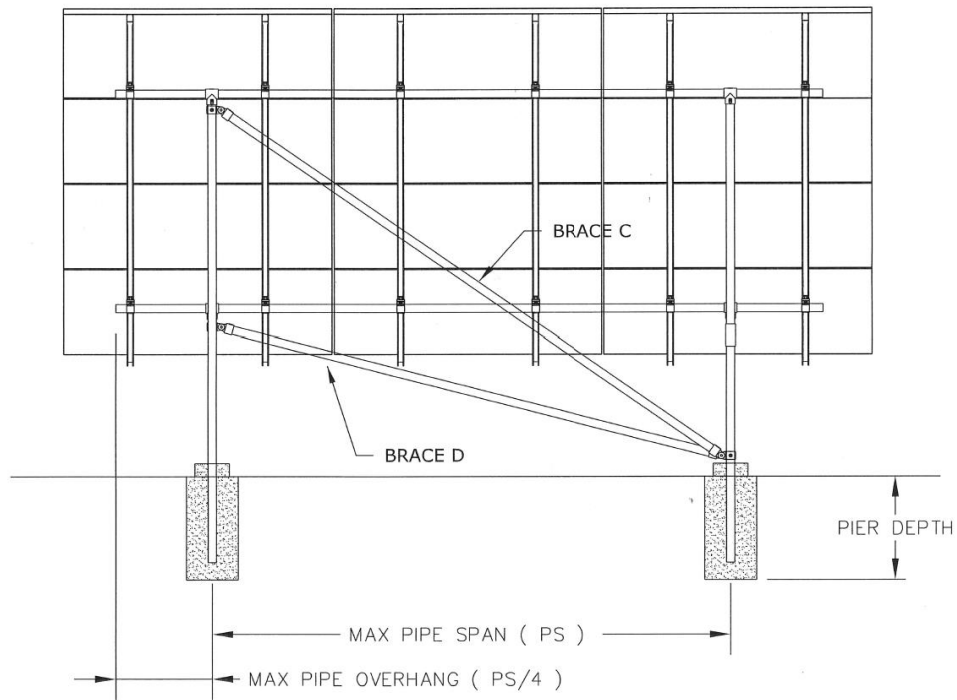
	Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	E	F
	180	180	30	30	Yes	Yes	Yes
	180	180	30	31	Yes	Yes	Yes
	180	180	30	40	Yes	Yes	Yes
	180	180	30	47	Yes	Yes	Yes
	180	180	30	50	Yes	Yes	Yes
	180	180	30	63	Yes	Yes	Yes
	180	180	30	63	Yes	Yes	Yes

Number of aluminum ground rails required for either the standard or braced options per panel size. See pages C6 through C13 for 2 or 3 rail configurations.

Number of Rails Required Per Panel	
Module Size	
39" x 65"	39" x 78"
2	2
2	2
2	2
2	2
2	2
2	2



Frame Section



Standard Installation Rear View Bracing

Foundation Options

- Pier foundations: piers will be 12" in diameter and be at the depth required in the following charts based on wind speed, panel tilt, and snow load. The minimum depth of the footings is set to 30 inches and the concrete will be 2500 psi minimum.
- Grade beam option: a grade beam may be used in place of the pier foundations. See SnapNrack's drawing S200 D07 for grade beam configuration. Grade beams will be a minimum of 12" wide x 12" deep and will run a minimum of 12'-0" centered under the posts. Two #4 Bars will be used at the top and the bottom of the grade beam, one on each side for the vertical pipe. These must have a minimum of 3" clear concrete cover and shall be Grade 40 minimum. See table on page C16 for grade beam sizes.

SOIL BEARING CAPACITY ALLOWABLE FOUNDATION AND LATERAL PRESSURE

Class of Materials	Allowable Foundation Pressure (psf) ^d	Lateral Bearing (psf/f below natural grade) ^d	Lateral Sliding	
			Coefficient of friction	Resistance (psf) ^b
1. Crystalline bedrock	12,000	1,200	0.70	—
2. Sedimentary and foliated rock	4,000	400	0.35	—
3. Sandy gravel and/or gravel (GW and GP)	3,000	200	0.35	—
4. Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC)	2,000	150	0.25	—
5. Clay, sandy clay, silty clay, clayey silt, silt and sand silt (CL, ML, MH and CH)	1,500 ^c	100	—	130

Referring to page C15, this report uses 1500 pcf foundation pressure into the calculations. In addition, it uses a footing diameter of 1 ft., making the foundation pressure 1500 psf. From these calculations, which are in terms of the worst-possible conditions, any of the choices for the Class of Materials listed above in the table would work for the ground-mount solar panels.

Site – Specific Analysis

A site-specific analysis will be required if the location of the solar panel installation corresponds to any of the following criteria:

- The pitch of the solar panel is greater than 45 degrees above the horizontal.
- A topographic factor applies to the location. Topographic factors apply, for general purposes, when the structure is on a hill, mesa or bluff, or is adjacent to a large body of water. For complete descriptions of topographic, factors please refer to ASCE 7-10 section 26.8
- A combination of loads and/or site conditions applies when not addressed in the attached charts.

If one or more of these factors applies to the project location, please contact NSSE, and we will analyze the site conditions and recommend post spacing for each specific site.

Topographic Factors and Limits

It must be noted for any site location where the topographic factor is applied (e.g. hills, mesas, and seashore) the configurations listed in this packet may not be adequate for the given site. A registered structural engineer should evaluate the exact topographic conditions for this specific site prior to construction.

Please note all sizes, material specifications, and weights have been provided by SnapNrack. Please see SnapNrack's plans for limits on the bolt parameters. Torque all 5/16" diameter hardware as specified in SnapNrack's plans (10-16 ft-lbs for Silver Stainless Steel and 7-9 ft-lbs for black Stainless Steel). SnapNrack has also provided estimated soil values, referenced on page 17, used to calculate the optimized size and depths of the footings. It is the responsibility of SnapNrack's customer, otherwise known as the contractor or professional solar installer, to verify, that the site specific soil conditions match or exceed the estimated values given within this report. Installation of Series 200 is to be conducted in accordance with SnapNrack's drawings S200 D01 thru D09 (all drawings are REV G).

Please feel free to contact me with any questions or concerns, Thank you.

Sincerely,

Norman Scheel PE, SE
LEED-AP BD+C, LEED-AP Homes
Fellow SEAOC
Fellow A.S.C.E.

Series 200

Configuration Tables for Ground Mount System 0 psf Snow Loads (4 Module Panels)

100 mph Wind Load 0 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces	
	Sch 40	Sch 80	Short	Tall	A	C	Sch 40	Sch 80	Short	Tall	A	E
	119	136	30	30	No	Every 3rd Bay	180	180	30	30	Yes	Yes
θ = 0	102	116	30	30	Yes	Every 3rd Bay	180	180	30	35	Yes	Yes
0 > θ < 7.5	96	109	30	34	Yes	Every 3rd Bay	180	180	30	44	Yes	Yes
7.5 > θ < 15	91	104	30	40	Yes	Every 3rd Bay	180	180	30	52	Yes	Yes
15 > θ < 22.5	87	100	30	43	Yes	Every 3rd Bay	180	180	30	56	Yes	Yes
22.5 > θ < 30	90	103	30	46	Yes	Every 3rd Bay	179	180	30	59	Yes	Yes
30 > θ < 37.5	92	105	30	49	Yes	Every 3rd Bay	168	180	30	62	Yes	Yes
37.5 > θ < 45												

110 mph Wind Load 0 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces	
	Sch 40	Sch 80	Short	Tall	A	C	Sch 40	Sch 80	Short	Tall	A	E
	115	132	30	30	No	Every 3rd Bay	180	180	30	30	Yes	Yes
θ = 0	98	112	30	30	Yes	Every 3rd Bay	180	180	30	38	Yes	Yes
0 > θ < 7.5	92	105	30	37	Yes	Every 3rd Bay	180	180	30	48	Yes	Yes
7.5 > θ < 15	87	100	30	43	Yes	Every 3rd Bay	180	180	30	57	Yes	Yes
15 > θ < 22.5	84	96	30	46	Yes	Every 3rd Bay	174	180	30	61	Yes	Yes
22.5 > θ < 30	87	99	30	49	Yes	Every 3rd Bay	163	180	30	63	Yes	Yes
30 > θ < 37.5	66	101	30	52	Yes	Every 3rd Bay	153	175	30	66	Yes	Yes
37.5 > θ < 45												

120 mph Wind Load 0 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A			E	
$\theta = 0$	112	128	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	F	40" x 66"	40" x 78"
$0 > \theta < 7.5$	95	108	30	31	Yes	Every 3rd Bay	No	180	180	30	41	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	89	101	30	39	Yes	Every 3rd Bay	No	180	180	30	52	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	84	96	30	45	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	62	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	81	92	30	49	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	64	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	83	95	30	52	Yes	Every 3rd Bay	Every 3rd Bay	149	170	30	66	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	85	97	30	55	Yes	Every 3rd Bay	Every 3rd Bay	140	160	30	69	Yes	Yes	Yes	2	2

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Configuration Tables for Ground Mount System 0 psf Snow Loads (4 Module Panels)

130 mph Wind Load 0 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier			Required Braces		Max (PS)		12" Dia Pier			Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	108	124	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	91	104	30	33	Yes	Every 3rd Bay	No	180	180	30	44	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	86	98	30	41	Yes	Every 3rd Bay	No	180	180	30	56	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	81	93	30	48	Yes	Every 3rd Bay	Every 3rd Bay	178	180	30	65	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	77	88	30	52	Yes	Every 3rd Bay	Every 3rd Bay	147	168	30	67	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	80	91	30	55	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	82	93	30	58	Yes	Every 3rd Bay	Every 3rd Bay	129	148	30	68	Yes	Yes	Yes	2	2

140 mph Wind Load 0 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier			Required Braces		Max (PS)		12" Dia Pier			Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	40" x 66"	40" x 78"														
$\theta = 0$	105	120	30	30	No	Every 3rd Bay	No	180	180	32	32	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	88	101	30	35	Yes	Every 3rd Bay	No	180	180	32	47	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	83	94	30	44	Yes	Every 3rd Bay	No	180	180	32	61	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	78	89	30	51	Yes	Every 3rd Bay	Every 3rd Bay	166	180	32	67	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	75	85	30	55	Yes	Every 3rd Bay	Every 3rd Bay	137	156	32	69	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	77	88	30	59	Yes	Every 3rd Bay	Every 3rd Bay	128	146	32	71	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	79	90	30	62	Yes	Every 3rd Bay	Every 3rd Bay	120	137	32	74	Yes	Yes	Yes	2	3

150 mph Wind Load 0 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier			Required Braces		Max (PS)		12" Dia Pier			Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	40" x 66"	40" x 78"														
$\theta = 0$	102	117	30	30	No	Every 3rd Bay	No	180	180	35	35	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	85	97	30	37	Yes	Every 3rd Bay	No	180	180	35	51	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	80	91	30	46	Yes	Every 3rd Bay	No	180	180	35	65	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	76	86	30	54	Yes	Every 3rd Bay	Every 3rd Bay	155	176	35	70	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	72	82	30	58	Yes	Every 3rd Bay	Every 3rd Bay	128	146	35	72	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	74	85	30	59	Yes	Every 3rd Bay	Every 3rd Bay	119	136	35	72	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	76	86	30	62	Yes	Every 3rd Bay	Every 3rd Bay	118	135	35	75	Yes	Yes	Yes	3	3

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Configuration Tables for Ground Mount System 0 psf Snow Loads (4 Module Panels)



160 mph Wind Load 0 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)			Required Braces			Max (psf)			12" Dia Pier			Number of Rails Required Per Panel
	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	D	Short	Tall	A	
	99	113	30	No	Every 3rd Bay	No	180	180	No	37	37	Yes	
$\theta = 0$	83	94	30	Yes	Every 3rd Bay	No	180	180	No	37	55	Yes	2
$0 > \theta < 7.5$	77	88	30	Yes	Every 3rd Bay	No	180	180	No	37	68	Yes	2
$7.5 > \theta < 15$	73	83	30	Yes	Every 3rd Bay	Every 3rd Bay	145	165	37	37	73	Yes	3
$15 > \theta < 22.5$	70	79	30	Yes	Every 3rd Bay	Every 3rd Bay	120	136	37	37	74	Yes	3
$22.5 > \theta < 30$	72	82	30	Yes	Every 3rd Bay	Every 3rd Bay	112	128	37	37	76	Yes	3
$30 > \theta < 37.5$	73	83	30	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	37	79	Yes	3

170 mph Wind Load 0 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			Required Braces					
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F	40" x 66"	40" x 78"	
			Short	Tall						Short	Tall				
$\theta = 0$	96	110	30	30	No	Every 3rd Bay	No	180	180	40	40	Yes	Yes	2	2
$0 > \theta < 7.5$	80	91	30	41	Yes	Every 3rd Bay	No	180	180	40	59	Yes	Yes	2	2
$7.5 > \theta < 15$	75	86	30	51	Yes	Every 3rd Bay	No	178	180	40	70	Yes	Yes	3	3
$15 > \theta < 22.5$	71	81	30	59	Yes	Every 3rd Bay	Every 3rd Bay	136	156	40	75	Yes	Yes	3	3
$22.5 > \theta < 30$	67	77	30	64	Yes	Every 3rd Bay	Every 3rd Bay	113	128	40	77	Yes	Yes	3	NG
$30 > \theta < 37.5$	70	79	30	69	Yes	Every 3rd Bay	Every 3rd Bay	105	120	40	79	Yes	Yes	3	NG
$37.5 > \theta < 45$	71	81	30	72	Yes	Every 3rd Bay	Every 3rd Bay	99	113	40	82	Yes	Yes	3	NG

Series 200

Configuration Tables for Ground Mount System 1 to 10 psf Snow Loads (4 Module Panels)

100 mph Wind Load 1-10 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces	
	Sch 40	121	Short	Tall	A	C	Sch 40	Sch 80	Short	Tall	A	E
	106	121	30	30	No	Every 3rd Bay	180	180	30	30	Yes	Yes
θ = 0	95	108	30	30	Yes	Every 3rd Bay	180	180	30	35	Yes	Yes
0 > θ < 7.5	91	104	30	34	Yes	Every 3rd Bay	180	180	30	44	Yes	Yes
7.5 > θ < 15	88	101	30	40	Yes	Every 3rd Bay	180	180	30	52	Yes	Yes
15 > θ < 22.5	87	99	30	43	Yes	Every 3rd Bay	180	180	30	56	Yes	Yes
22.5 > θ < 30	90	103	30	46	Yes	Every 3rd Bay	179	180	30	59	Yes	Yes
30 > θ < 37.5	92	105	30	49	Yes	Every 3rd Bay	168	180	30	62	Yes	Yes
37.5 > θ < 45												

110 mph Wind Load 1-10 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation								
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	Sch 40	Sch 80	Short	Tall	A	E			
	104	119	30	30	No	Every 3rd Bay	180	180	30	30	Yes	Yes			
$\theta = 0$	92	105	30	30	Yes	Every 3rd Bay	No	180	180	30	38	Yes	Yes	2	2
$0 > \theta < 7.5$	88	101	30	36	Yes	Every 3rd Bay	No	180	180	30	48	Yes	Yes	2	2
$7.5 > \theta < 15$	85	97	30	43	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	57	Yes	Yes	2	2
$15 > \theta < 22.5$	83	95	30	46	Yes	Every 3rd Bay	Every 3rd Bay	174	180	30	61	Yes	Yes	2	2
$22.5 > \theta < 30$	87	99	30	49	Yes	Every 3rd Bay	Every 3rd Bay	163	180	30	63	Yes	Yes	2	2
$30 > \theta < 37.5$	88	101	30	52	Yes	Every 3rd Bay	Every 3rd Bay	153	175	30	66	Yes	Yes	2	2
$37.5 > \theta < 45$															

120 mph Wind Load 1-10 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces	
	Sch 40	Sch 80	Short	Tall	A	C	Sch 40	Sch 80	Short	Tall	A	E
	102	117	30	30	No	Every 3rd Bay	180	180	30	30	Yes	Yes
θ = 0	89	102	30	30	Yes	Every 3rd Bay	180	180	30	41	Yes	Yes
0 > θ < 7.5	85	97	30	36	Yes	Every 3rd Bay	180	180	30	52	Yes	Yes
7.5 > θ < 15	82	94	30	43	Yes	Every 3rd Bay	180	180	30	62	Yes	Yes
15 > θ < 22.5	80	92	30	47	Yes	Every 3rd Bay	159	180	30	64	Yes	Yes
22.5 > θ < 30	83	95	30	51	Yes	Every 3rd Bay	149	170	30	66	Yes	Yes
30 > θ < 37.5	85	97	30	54	Yes	Every 3rd Bay	140	160	30	69	Yes	Yes
37.5 > θ < 45												

Series 200

Configuration Tables for Ground Mount System 1 to 10 psf Snow Loads (4 Module Panels)

130 mph Wind Load 1-10 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		Required Braces				Max (PS)		Required Braces			
	Sch 40	Sch 80	12" Dia Pier	A		C	D	Sch 40	Sch 80	12" Dia Pier	A	
			Short	Tall						Short	Tall	F
θ = 0	100	114	30	30	No	Every 3rd Bay	No	180	180	30	Yes	Yes
0 > θ < 7.5	86	75	30	30	Yes	Every 3rd Bay	No	180	180	30	41	Yes
7.5 > θ < 15	83	76	30	36	Yes	Every 3rd Bay	No	180	180	30	52	Yes
15 > θ < 22.5	79	79	30	43	Yes	Every 3rd Bay	Every 3rd Bay	178	180	30	62	Yes
22.5 > θ < 30	77	81	30	47	Yes	Every 3rd Bay	Every 3rd Bay	147	168	30	64	Yes
30 > θ < 37.5	80	87	30	51	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	66	Yes
37.5 > θ < 45	82	93	30	54	Yes	Every 3rd Bay	Every 3rd Bay	129	148	30	69	Yes

140 mph Wind Load 1-10 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		Required Braces				Max (PS)		Required Braces			
	Sch 40	Sch 80	12" Dia Pier	A		C	D	Sch 40	Sch 80	12" Dia Pier	A	
			Short	Tall						Short	Tall	F
θ = 0	98	111	30	30	No	Every 3rd Bay	No	180	180	30	Yes	Yes
0 > θ < 7.5	84	96	30	30	Yes	Every 3rd Bay	No	180	180	30	44	Yes
7.5 > θ < 15	80	91	30	38	Yes	Every 3rd Bay	No	180	180	30	56	Yes
15 > θ < 22.5	77	88	30	46	Yes	Every 3rd Bay	Every 3rd Bay	166	180	30	65	Yes
22.5 > θ < 30	75	85	30	51	Yes	Every 3rd Bay	Every 3rd Bay	137	156	30	67	Yes
30 > θ < 37.5	77	88	30	55	Yes	Every 3rd Bay	Every 3rd Bay	128	146	30	68	Yes
37.5 > θ < 45	79	90	30	58	Yes	Every 3rd Bay	Every 3rd Bay	120	137	30	68	Yes

150 mph Wind Load 1-10 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		Required Braces				Max (PS)		Required Braces			
	Sch 40	Sch 80	12" Dia Pier	A		C	D	Sch 40	Sch 80	12" Dia Pier	A	
			Short	Tall						Short	Tall	F
θ = 0	95	108	30	30	No	Every 3rd Bay	No	180	180	32	Yes	Yes
0 > θ < 7.5	81	93	30	35	Yes	Every 3rd Bay	No	180	180	32	47	Yes
7.5 > θ < 15	77	88	30	43	Yes	Every 3rd Bay	No	180	180	32	61	Yes
15 > θ < 22.5	74	85	30	51	Yes	Every 3rd Bay	Every 3rd Bay	155	176	32	67	Yes
22.5 > θ < 30	72	82	30	55	Yes	Every 3rd Bay	Every 3rd Bay	128	146	32	69	Yes
30 > θ < 37.5	74	85	30	59	Yes	Every 3rd Bay	Every 3rd Bay	119	136	32	71	Yes
37.5 > θ < 45	76	86	30	62	Yes	Every 3rd Bay	Every 3rd Bay	118	135	32	74	Yes

Series 200

Configuration Tables for Ground Mount System 1 to 10 psf Snow Loads (4 Module Panels)

160 mph Wind Load 1-10 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	93	106	30	No	Every 3rd Bay	No	180	180	37	37	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	79	90	30	Yes	Every 3rd Bay	No	180	180	37	55	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	75	86	30	Yes	Every 3rd Bay	No	180	180	37	68	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	72	82	30	Yes	Every 3rd Bay	Every 3rd Bay	145	165	37	73	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	70	79	30	Yes	Every 3rd Bay	Every 3rd Bay	120	136	37	74	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	72	82	30	Yes	Every 3rd Bay	Every 3rd Bay	112	128	37	76	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	73	83	30	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	79	Yes	Yes	Yes	3	3

170 mph Wind Load 1-10 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
$\theta = 0$	90	103	30	30	No	Every 3rd Bay	No	180	180	40	40	Yes	Yes	Yes
$0 > \theta < 7.5$	77	88	30	40	Yes	Every 3rd Bay	No	180	180	40	59	Yes	Yes	Yes
$7.5 > \theta < 15$	73	83	30	51	Yes	Every 3rd Bay	No	178	180	40	70	Yes	Yes	Yes
$15 > \theta < 22.5$	70	80	30	59	Yes	Every 3rd Bay	Every 3rd Bay	136	156	40	75	Yes	Yes	Yes
$22.5 > \theta < 30$	67	77	30	64	Yes	Every 3rd Bay	Every 3rd Bay	113	128	40	77	Yes	Yes	Yes
$30 > \theta < 37.5$	70	79	30	69	Yes	Every 3rd Bay	Every 3rd Bay	105	120	40	79	Yes	Yes	Yes
$37.5 > \theta < 45$	71	81	30	72	Yes	Every 3rd Bay	Every 3rd Bay	99	113	40	82	Yes	Yes	Yes

Series 200

Configuration Tables for Ground Mount System 11 to 20 psf Snow Loads (4 Module Panels)

100 mph Wind Load 11-20 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)		12" Dia Pier			Required Braces			Max (psf)		12" Dia Pier		
	Sch 40	Sch 80	Short	Tall	A	C	D		Sch 40	Sch 80	Short	Tall	
	88	101	30	30	No	Every 3rd Bay	No		180	180	30	30	Yes
θ = 0	83	95	30	30	Yes	Every 3rd Bay	No		180	180	30	35	Yes
0 > θ < 7.5	83	95	30	33	Yes	Every 3rd Bay	No		180	180	30	44	Yes
7.5 > θ < 15	85	97	30	39	Yes	Every 3rd Bay	Every 3rd Bay		180	180	30	52	Yes
15 > θ < 22.5	84	96	30	43	Yes	Every 3rd Bay	Every 3rd Bay		180	180	30	56	Yes
22.5 > θ < 30	89	101	30	46	Yes	Every 3rd Bay	Every 3rd Bay		179	180	30	59	Yes
30 > θ < 37.5	92	105	30	49	Yes	Every 3rd Bay	Every 3rd Bay		168	180	30	62	Yes
37.5 > θ < 45													

110 mph Wind Load 11-20 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)		12" Dia Pier			Required Braces			Max (psf)		12" Dia Pier		
	Sch 40	Sch 80	Short	Tall	A	C	D		Sch 40	Sch 80	Short	Tall	
	87	100	30	30	No	Every 3rd Bay	No		180	180	30	30	Yes
θ = 0	81	93	30	30	Yes	Every 3rd Bay	No		180	180	30	38	Yes
0 > θ < 7.5	82	93	30	36	Yes	Every 3rd Bay	No		180	180	30	48	Yes
7.5 > θ < 15	82	94	30	42	Yes	Every 3rd Bay	Every 3rd Bay		180	180	30	57	Yes
15 > θ < 22.5	81	92	30	46	Yes	Every 3rd Bay	Every 3rd Bay		174	180	30	61	Yes
22.5 > θ < 30	86	98	30	49	Yes	Every 3rd Bay	Every 3rd Bay		163	180	30	63	Yes
30 > θ < 37.5	88	101	30	52	Yes	Every 3rd Bay	Every 3rd Bay		153	175	30	66	Yes
37.5 > θ < 45													

120 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Required Braces		Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	86	98	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	80	91	30	30	Yes	Every 3rd Bay	No	180	180	30	41	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	80	91	30	38	Yes	Every 3rd Bay	No	180	180	30	52	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	79	91	30	45	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	62	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	78	89	30	49	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	64	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	83	94	30	52	Yes	Every 3rd Bay	Every 3rd Bay	149	170	30	66	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	85	97	30	55	Yes	Every 3rd Bay	Every 3rd Bay	140	160	30	69	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 11 to 20 psf Snow Loads (4 Module Panels)

130 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	85	97	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2	2
$\theta = 0$	79	90	30	32	Yes	Every 3rd Bay	No	180	180	30	44	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	79	90	30	40	Yes	Every 3rd Bay	No	180	180	30	56	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	77	88	30	48	Yes	Every 3rd Bay	Every 3rd Bay	178	180	30	65	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	76	86	30	52	Yes	Every 3rd Bay	Every 3rd Bay	147	168	30	67	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	80	91	30	55	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	82	93	30	58	Yes	Every 3rd Bay	Every 3rd Bay	129	148	30	68	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$																

140 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	84	95	30	30	No	Every 3rd Bay	No	180	180	32	32	Yes	Yes	Yes	40" x 66"	40" x 78"
$0 > \theta < 7.5$	77	88	30	34	Yes	Every 3rd Bay	No	180	180	32	47	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	76	87	30	43	Yes	Every 3rd Bay	No	180	180	32	61	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	75	85	30	50	Yes	Every 3rd Bay	Every 3rd Bay	166	180	32	67	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	73	83	30	55	Yes	Every 3rd Bay	Every 3rd Bay	137	156	32	69	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	77	88	30	59	Yes	Every 3rd Bay	Every 3rd Bay	128	146	32	71	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	79	90	30	62	Yes	Every 3rd Bay	Every 3rd Bay	120	137	32	74	Yes	Yes	Yes	2	3

150 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	82	94	30	30	No	Every 3rd Bay	No	180	180	35	35	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	76	86	30	36	Yes	Every 3rd Bay	No	180	180	35	51	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	74	85	30	45	Yes	Every 3rd Bay	No	180	180	35	65	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	72	82	30	53	Yes	Every 3rd Bay	Every 3rd Bay	155	176	35	70	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	71	81	30	58	Yes	Every 3rd Bay	Every 3rd Bay	128	146	35	72	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	74	85	30	59	Yes	Every 3rd Bay	Every 3rd Bay	119	136	35	72	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	76	86	30	62	Yes	Every 3rd Bay	Every 3rd Bay	118	135	35	75	Yes	Yes	Yes	3	3

Series 200

Configuration Tables for Ground Mount System 11 to 20 psf Snow Loads (4 Module Panels)

160 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	81	93	30	30	No	Every 3rd Bay	No	180	180	37	37	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	74	85	30	38	Yes	Every 3rd Bay	No	180	180	37	55	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	72	83	30	48	Yes	Every 3rd Bay	No	180	180	37	68	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	70	80	30	56	Yes	Every 3rd Bay	Every 3rd Bay	145	165	37	73	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	69	78	30	61	Yes	Every 3rd Bay	Every 3rd Bay	120	136	37	74	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	72	82	30	65	Yes	Every 3rd Bay	Every 3rd Bay	112	128	37	76	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	73	83	30	68	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	79	Yes	Yes	Yes	3	3

170 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	80	91	30	30	No	Every 3rd Bay	No	180	180	40	40	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	72	83	30	40	Yes	Every 3rd Bay	No	180	180	40	59	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	71	80	30	50	Yes	Every 3rd Bay	No	178	180	40	70	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	68	78	30	59	Yes	Every 3rd Bay	Every 3rd Bay	136	156	40	75	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	66	76	30	64	Yes	Every 3rd Bay	Every 3rd Bay	113	128	40	77	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	70	79	30	69	Yes	Every 3rd Bay	Every 3rd Bay	105	120	40	79	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	71	81	30	72	Yes	Every 3rd Bay	Every 3rd Bay	99	113	40	82	Yes	Yes	Yes	3	NG

Series 200

Configuration Tables for Ground Mount System 21 to 30 psf Snow Loads (4 Module Panels)

100 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	79	90	30	30	No	Every 3rd Bay	No	180	180	35	35	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	75	85	30	30	Yes	Every 3rd Bay	No	180	180	35	35	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	76	87	30	32	Yes	Every 3rd Bay	No	180	180	35	44	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	79	90	30	39	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	52	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	80	92	30	42	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	56	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	86	98	30	46	Yes	Every 3rd Bay	Every 3rd Bay	179	180	30	59	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	92	105	30	49	Yes	Every 3rd Bay	Every 3rd Bay	168	180	30	62	Yes	Yes	Yes	2	2

110 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	78	89	30	30	No	Every 3rd Bay	No	180	180	38	38	Yes	Yes	2	40" x 66"	40" x 78"
$0 > \theta < 7.5$	74	84	30	30	Yes	Every 3rd Bay	No	180	180	38	38	Yes	Yes	2	2	2
$7.5 > \theta < 15$	75	85	30	35	Yes	Every 3rd Bay	No	180	180	30	48	Yes	Yes	2	2	2
$15 > \theta < 22.5$	77	88	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	57	Yes	Yes	2	2	2
$22.5 > \theta < 30$	78	89	30	45	Yes	Every 3rd Bay	Every 3rd Bay	174	180	30	61	Yes	Yes	2	2	2
$30 > \theta < 37.5$	84	95	30	49	Yes	Every 3rd Bay	Every 3rd Bay	163	180	30	63	Yes	Yes	2	2	2
$37.5 > \theta < 45$	88	101	30	52	Yes	Every 3rd Bay	Every 3rd Bay	153	175	30	66	Yes	Yes	2	2	2

120 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	77	88	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	2	40" x 65"	40" x 78"
$0 > \theta < 7.5$	72	83	30	30	Yes	Every 3rd Bay	No	180	180	30	41	Yes	Yes	2	2	2
$7.5 > \theta < 15$	73	84	30	37	Yes	Every 3rd Bay	No	180	180	30	52	Yes	Yes	2	2	2
$15 > \theta < 22.5$	75	86	30	44	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	62	Yes	Yes	2	2	2
$22.5 > \theta < 30$	76	87	30	48	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	64	Yes	Yes	2	2	2
$30 > \theta < 37.5$	81	92	30	52	Yes	Every 3rd Bay	Every 3rd Bay	149	170	30	66	Yes	Yes	2	2	2
$37.5 > \theta < 45$	85	97	30	55	Yes	Every 3rd Bay	Every 3rd Bay	140	160	30	69	Yes	Yes	2	2	2

Series 200

Configuration Tables for Ground Mount System 21 to 30 psf Snow Loads (4 Module Panels)

130 mph Wind Load 21-30 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)		12" Dia Pier			Required Braces	Max (psf)		12" Dia Pier			Required Braces
	Sch 40	Sch 80	Short	Tall	A		Sch 40	Sch 80	Short	Tall	A	
	76	87	30	30	No		180	180	30	30	Yes	
θ = 0	71	81	30	31	Yes	Every 3rd Bay	180	180	30	44	Yes	Yes
0 > θ < 7.5	72	82	30	39	Yes	Every 3rd Bay	180	180	30	56	Yes	Yes
7.5 > θ < 15	74	84	30	47	Yes	Every 3rd Bay	178	180	30	65	Yes	Yes
15 > θ < 22.5	74	84	30	51	Yes	Every 3rd Bay	147	168	30	67	Yes	Yes
22.5 > θ < 30	78	89	30	55	Yes	Every 3rd Bay	138	157	30	68	Yes	Yes
30 > θ < 37.5	82	93	30	58	Yes	Every 3rd Bay	129	148	30	68	Yes	Yes
37.5 > θ < 45												

140 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces		Module Size			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	75	86	30	30	No	Every 3rd Bay	No	180	180	32	32	Yes	Yes	Yes	2	2
$\theta = 0$	70	80	30	33	Yes	Every 3rd Bay	No	180	180	32	47	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	71	81	30	42	Yes	Every 3rd Bay	No	180	180	32	61	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	72	82	30	50	Yes	Every 3rd Bay	Every 3rd Bay	166	180	32	67	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	71	82	30	54	Yes	Every 3rd Bay	Every 3rd Bay	137	156	32	69	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	76	86	30	59	Yes	Every 3rd Bay	Every 3rd Bay	128	146	32	71	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	79	90	30	62	Yes	Every 3rd Bay	Every 3rd Bay	120	137	32	74	Yes	Yes	Yes	2	3

150 mph Wind Load 21-30 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	
	Module Size														
$\theta = 0$	74	85	30	30	No	Every 3rd Bay	No	180	180	35	35	Yes	Yes	40" x 66"	40" x 78"
$0 > \theta < 7.5$	69	79	30	35	Yes	Every 3rd Bay	No	180	180	35	51	Yes	Yes	2	2
$7.5 > \theta < 15$	70	79	30	45	Yes	Every 3rd Bay	No	180	180	35	65	Yes	Yes	2	2
$15 > \theta < 22.5$	70	80	30	53	Yes	Every 3rd Bay	Every 3rd Bay	155	176	35	70	Yes	Yes	2	3
$22.5 > \theta < 30$	69	79	30	58	Yes	Every 3rd Bay	Every 3rd Bay	128	146	35	72	Yes	Yes	2	3
$30 > \theta < 37.5$	73	84	30	59	Yes	Every 3rd Bay	Every 3rd Bay	119	136	35	72	Yes	Yes	3	3
$37.5 > \theta < 45$	76	86	30	62	Yes	Every 3rd Bay	Every 3rd Bay	118	135	35	75	Yes	Yes	3	3

Series 200

Configuration Tables for Ground Mount System 21 to 30 psf Snow Loads (4 Module Panels)

160 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces			Module Size	
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	73	84	30	30	No	Every 3rd Bay	No	180	180	37	37	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	68	78	30	37	Yes	Every 3rd Bay	No	180	180	37	55	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	68	78	30	47	Yes	Every 3rd Bay	No	180	180	37	68	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	68	78	30	56	Yes	Every 3rd Bay	Every 3rd Bay	145	165	37	73	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	67	77	30	61	Yes	Every 3rd Bay	Every 3rd Bay	120	136	37	74	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	71	81	30	65	Yes	Every 3rd Bay	Every 3rd Bay	112	128	37	76	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	73	83	30	68	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	79	Yes	Yes	Yes	3	3

170 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	73	83	30	30	No	Every 3rd Bay	No	180	180	40	40	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	67	77	30	39	Yes	Every 3rd Bay	No	180	180	40	59	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	67	77	30	50	Yes	Every 3rd Bay	No	178	180	40	70	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	66	76	30	59	Yes	Every 3rd Bay	Every 3rd Bay	136	156	40	75	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	65	74	30	64	Yes	Every 3rd Bay	Every 3rd Bay	113	128	40	77	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	69	79	30	69	Yes	Every 3rd Bay	Every 3rd Bay	105	120	40	79	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	71	81	30	72	Yes	Every 3rd Bay	Every 3rd Bay	99	113	40	82	Yes	Yes	Yes	3	NG

Series 200

Configuration Tables for Ground Mount System 31 to 40 psf Snow Loads (4 Module Panels)

100 mph Wind Load 31-40 psf Snow																		
Tilt Angle θ	Standard Installation								Braced Installation								Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D		Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"	
$\theta = 0$	71	81	30	30	No	Every 3rd Bay	No		180	180	44	44	Yes	Yes	Yes	2	2	
$0 > \theta < 7.5$	68	78	30	30	Yes	Every 3rd Bay	No		180	180	35	35	Yes	Yes	Yes	2	2	
$7.5 > \theta < 15$	70	80	30	31	Yes	Every 3rd Bay	No		180	180	35	44	Yes	Yes	Yes	2	2	
$15 > \theta < 22.5$	73	84	30	38	Yes	Every 3rd Bay	Every 3rd Bay		180	180	35	52	Yes	Yes	Yes	2	2	
$22.5 > \theta < 30$	76	87	30	41	Yes	Every 3rd Bay	Every 3rd Bay		180	180	30	56	Yes	Yes	Yes	2	2	
$30 > \theta < 37.5$	82	94	30	45	Yes	Every 3rd Bay	Every 3rd Bay		179	180	30	59	Yes	Yes	Yes	2	2	
$37.5 > \theta < 45$	89	101	30	48	Yes	Every 3rd Bay	Every 3rd Bay		168	180	30	62	Yes	Yes	Yes	2	2	

110 mph Wind Load 31-40 psf Snow																
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces		Module Size	
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	71	81	30	30	No	Every 3rd Bay	No	180	180	38	38	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	68	77	30	30	Yes	Every 3rd Bay	No	180	180	38	38	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	69	79	30	34	Yes	Every 3rd Bay	No	180	180	38	48	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	72	82	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	38	57	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	74	85	30	44	Yes	Every 3rd Bay	Every 3rd Bay	174	180	30	61	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	80	92	30	49	Yes	Every 3rd Bay	Every 3rd Bay	163	180	30	63	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	86	98	30	52	Yes	Every 3rd Bay	Every 3rd Bay	153	175	30	66	Yes	Yes	Yes	2	2

120 mph Wind Load 31-40 psf Snow																		
Tilt Angle θ	Standard Installation								Braced Installation								Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D		Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"	
$\theta = 0$	70	80	30	30	No	Every 3rd Bay	No		180	180	41	41	Yes	Yes	Yes	2	2	
$0 > \theta < 7.5$	67	76	30	30	Yes	Every 3rd Bay	No		180	180	41	41	Yes	Yes	Yes	2	2	
$7.5 > \theta < 15$	68	78	30	36	Yes	Every 3rd Bay	No		180	180	41	52	Yes	Yes	Yes	2	2	
$15 > \theta < 22.5$	71	81	30	43	Yes	Every 3rd Bay	Every 3rd Bay		180	180	30	62	Yes	Yes	Yes	2	2	
$22.5 > \theta < 30$	73	83	30	48	Yes	Every 3rd Bay	Every 3rd Bay		159	180	30	64	Yes	Yes	Yes	2	2	
$30 > \theta < 37.5$	78	89	30	52	Yes	Every 3rd Bay	Every 3rd Bay		149	170	30	66	Yes	Yes	Yes	2	2	
$37.5 > \theta < 45$	84	95	30	55	Yes	Every 3rd Bay	Every 3rd Bay		140	160	30	69	Yes	Yes	Yes	2	2	

Series 200

Configuration Tables for Ground Mount System 31 to 40 psf Snow Loads (4 Module Panels)

130 mph Wind Load 31-40 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	69	79	30	30	No	Every 3rd Bay	No	180	180	44	44	Yes	Yes	Yes	2	2
$\theta = 0$	66	75	30	30	Yes	Every 3rd Bay	No	180	180 <td>44</td> <td>44</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>2</td> <td>2</td>	44	44	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	67	76	30	39	Yes	Every 3rd Bay	No	180	180 <td>44</td> <td>56</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>2</td> <td>3</td>	44	56	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	70	79	30	46	Yes	Every 3rd Bay	Every 3rd Bay	178	180 <td>30</td> <td>65</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>2</td> <td>3</td>	30	65	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	71	81	30	51	Yes	Every 3rd Bay	Every 3rd Bay	147	168 <td>30</td> <td>67</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>2</td> <td>2</td>	30	67	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	76	87	30	55	Yes	Every 3rd Bay	Every 3rd Bay	138	157 <td>30</td> <td>68</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>2</td> <td>2</td>	30	68	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	81	93	30	58	Yes	Every 3rd Bay	Every 3rd Bay	129	148 <td>30</td> <td>68</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>2</td> <td>2</td>	30	68	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$																

140 mph Wind Load 31-40 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	69	78	30	30	No	Every 3rd Bay	No	180	180	47	47	Yes	Yes	Yes	40" x 66"	40" x 78"
$0 > \theta < 7.5$	65	74	30	32	Yes	Every 3rd Bay	No	180	180	47	47	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	66	75	30	41	Yes	Every 3rd Bay	No	180	180	32	61	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	68	78	30	49	Yes	Every 3rd Bay	Every 3rd Bay	166	180	32	67	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	69	79	30	54	Yes	Every 3rd Bay	Every 3rd Bay	137	156	32	69	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	74	85	30	59	Yes	Every 3rd Bay	Every 3rd Bay	128	146	32	71	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	79	90	30	62	Yes	Every 3rd Bay	Every 3rd Bay	120	137	32	74	Yes	Yes	Yes	2	3

150 mph Wind Load 31-40 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	68	78	30	30	No	Every 3rd Bay	No	180	180	51	51	Yes	Yes	Yes	2	3
$0 > \theta < 7.5$	64	73	30	34	Yes	Every 3rd Bay	No	180	180	35	51	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	65	74	30	44	Yes	Every 3rd Bay	No	180	180	35	65	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	67	76	30	52	Yes	Every 3rd Bay	Every 3rd Bay	155	176	35	70	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	68	77	30	57	Yes	Every 3rd Bay	Every 3rd Bay	128	146	35	72	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	72	82	30	59	Yes	Every 3rd Bay	Every 3rd Bay	119	136	35	72	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	76	86	30	62	Yes	Every 3rd Bay	Every 3rd Bay	118	135	35	75	Yes	Yes	Yes	3	3

Series 200

Configuration Tables for Ground Mount System 31 to 40 psf Snow Loads (4 Module Panels)

160 mph Wind Load 31-40 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	67	77	30	30	No	Every 3rd Bay	No	180	180	37	37	Yes	Yes	Yes	2	3
$0 > \theta < 7.5$	63	72	30	36	Yes	Every 3rd Bay	No	180	180	37	55	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	64	73	30	46	Yes	Every 3rd Bay	No	180	180	37	68	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	66	75	30	56	Yes	Every 3rd Bay	Every 3rd Bay	145	165	37	73	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	66	75	30	61	Yes	Every 3rd Bay	Every 3rd Bay	120	136	37	74	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	70	80	30	65	Yes	Every 3rd Bay	Every 3rd Bay	112	128	37	76	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	73	83	30	68	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	79	Yes	Yes	Yes	3	3

170 mph Wind Load 31-40 psf Snow																	
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F			
$\theta = 0$	67	76	30	30	No	Every 3rd Bay	No	180	180	40	40	Yes	Yes	Yes	3	40" x 66"	40" x 78"
$0 > \theta < 7.5$	62	71	30	38	Yes	Every 3rd Bay	No	180	180	40	59	Yes	Yes	Yes	3	3	3
$7.5 > \theta < 15$	63	72	30	49	Yes	Every 3rd Bay	No	178	180	40	70	Yes	Yes	Yes	3	3	3
$15 > \theta < 22.5$	64	73	30	59	Yes	Every 3rd Bay	Every 3rd Bay	136	156	40	75	Yes	Yes	Yes	3	3	3
$22.5 > \theta < 30$	64	73	30	64	Yes	Every 3rd Bay	Every 3rd Bay	113	128	40	77	Yes	Yes	Yes	3	NG	NG
$30 > \theta < 37.5$	68	78	30	69	Yes	Every 3rd Bay	Every 3rd Bay	105	120	40	79	Yes	Yes	Yes	3	NG	NG
$37.5 > \theta < 45$	71	81	30	72	Yes	Every 3rd Bay	Every 3rd Bay	99	113	40	82	Yes	Yes	Yes	3	NG	NG

Series 200

Configuration Tables for Ground Mount System 41 to 50 psf Snow Loads (4 Module Panels)

100 mph Wind Load 41-50 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel
	Max (psf)		12" Dia Pier		Required Braces		Max (psf)		12" Dia Pier		Required Braces		Module Size
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	
	66	75	30	30	No	Every 3rd Bay	No	180	180	44	44	Yes	
θ = 0	64	73	30	30	Yes	Every 3rd Bay	No	180	180	44	44	Yes	2
0 > θ < 7.5	65	74	30	31	Yes	Every 3rd Bay	No	180	180	44	44	Yes	2
7.5 > θ < 15	69	78	30	37	Yes	Every 3rd Bay	Every 3rd Bay	180	180	35	52	Yes	2
15 > θ < 22.5	73	83	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	35	56	Yes	2
22.5 > θ < 30	79	90	30	45	Yes	Every 3rd Bay	Every 3rd Bay	179	180	30	59	Yes	2
30 > θ < 37.5	86	98	30	48	Yes	Every 3rd Bay	Every 3rd Bay	168	180	30	62	Yes	2
37.5 > θ < 45													2

110 mph Wind Load 41-50 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel
	Max (psf)		12" Dia Pier		Required Braces		Max (psf)		12" Dia Pier		Required Braces		Module Size
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	
	65	75	30	30	No	Every 3rd Bay	No	180	180	48	48	Yes	
θ = 0	63	72	30	30	Yes	Every 3rd Bay	No	180	180	48	48	Yes	2
0 > θ < 7.5	64	74	30	33	Yes	Every 3rd Bay	No	180	180	48	48	Yes	2
7.5 > θ < 15	68	77	30	40	Yes	Every 3rd Bay	Every 3rd Bay	180	180	38	57	Yes	2
15 > θ < 22.5	71	81	30	44	Yes	Every 3rd Bay	Every 3rd Bay	174	180	38	61	Yes	2
22.5 > θ < 30	77	88	30	48	Yes	Every 3rd Bay	Every 3rd Bay	163	180	30	63	Yes	2
30 > θ < 37.5	83	95	30	51	Yes	Every 3rd Bay	Every 3rd Bay	153	175	30	66	Yes	2
37.5 > θ < 45													2

120 mph Wind Load 41-50 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel
	Max (psf)		12" Dia Pier		Required Braces		Max (psf)		12" Dia Pier		Required Braces		Module Size
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	
	65	74	30	30	No	Every 3rd Bay	No	180	180	52	52	Yes	
θ = 0	62	71	30	30	Yes	Every 3rd Bay	No	180	180	52	52	Yes	2
0 > θ < 7.5	64	73	30	35	Yes	Every 3rd Bay	No	180	180	41	52	Yes	2
7.5 > θ < 15	67	76	30	42	Yes	Every 3rd Bay	Every 3rd Bay	180	180	41	62	Yes	2
15 > θ < 22.5	70	79	30	47	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	64	Yes	2
22.5 > θ < 30	75	86	30	51	Yes	Every 3rd Bay	Every 3rd Bay	149	170	30	66	Yes	2
30 > θ < 37.5	81	93	30	54	Yes	Every 3rd Bay	Every 3rd Bay	140	160	30	69	Yes	2
37.5 > θ < 45													2

Series 200

Configuration Tables for Ground Mount System 41 to 50 psf Snow Loads (4 Module Panels)

130 mph Wind Load 41-50 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)		12" Dia Pier			Required Braces	Max (psf)		12" Dia Pier			Required Braces
	Sch 40	Sch 80	Short	Tall	A		Sch 40	Sch 80	Short	Tall	A	
	64	73	30	30	No		180	180	44	44	Yes	
θ = 0	62	70	30	30	Yes	Every 3rd Bay	180	180	44	44	Yes	Yes
0 > θ < 7.5	63	72	30	38	Yes	Every 3rd Bay	180	180	44	56	Yes	Yes
7.5 > θ < 15	66	75	30	45	Yes	Every 3rd Bay	178	180	44	65	Yes	Yes
15 > θ < 22.5	68	78	30	50	Yes	Every 3rd Bay	147	168	30	67	Yes	Yes
22.5 > θ < 30	74	84	30	55	Yes	Every 3rd Bay	138	157	30	68	Yes	Yes
30 > θ < 37.5	79	90	30	58	Yes	Every 3rd Bay	129	148	30	68	Yes	Yes
37.5 > θ < 45												

140 mph Wind Load 41-50 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	64	73	30	30	No	Every 3rd Bay	No	180	180	47	47	Yes	Yes	Yes	40" x 66"	40" x 78"
$0 > \theta < 7.5$	61	69	30	31	Yes	Every 3rd Bay	No	180	180	47	47	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	62	71	30	40	Yes	Every 3rd Bay	No	180	180	47	61	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	65	74	30	48	Yes	Every 3rd Bay	Every 3rd Bay	166	180	32	67	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	67	76	30	53	Yes	Every 3rd Bay	Every 3rd Bay	137	156	32	69	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	72	82	30	58	Yes	Every 3rd Bay	Every 3rd Bay	128	146	32	71	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	77	88	30	61	Yes	Every 3rd Bay	Every 3rd Bay	120	137	32	74	Yes	Yes	Yes	2	3

150 mph Wind Load 41-50 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	
	Module Size														
$\theta = 0$	63	72	30	30	No	Every 3rd Bay	No	180	180	51	51	Yes	Yes	40" x 66"	40" x 78"
$0 > \theta < 7.5$	60	69	30	33	Yes	Every 3rd Bay	No	180	180	51	51	Yes	Yes	3	3
$7.5 > \theta < 15$	61	70	30	43	Yes	Every 3rd Bay	No	180	180	51	65	Yes	Yes	3	3
$15 > \theta < 22.5$	64	73	30	52	Yes	Every 3rd Bay	Every 3rd Bay	155	176	35	70	Yes	Yes	3	3
$22.5 > \theta < 30$	65	74	30	57	Yes	Every 3rd Bay	Every 3rd Bay	128	146	35	72	Yes	Yes	3	3
$30 > \theta < 37.5$	70	80	30	58	Yes	Every 3rd Bay	Every 3rd Bay	119	136	35	72	Yes	Yes	3	3
$37.5 > \theta < 45$	75	85	30	61	Yes	Every 3rd Bay	Every 3rd Bay	118	135	35	75	Yes	Yes	3	3

Series 200

Configuration Tables for Ground Mount System 41 to 50 psf Snow Loads (4 Module Panels)

160 mph Wind Load 41-50 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	63	72	30	30	No	Every 3rd Bay	No	180	180	55	55	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	59	68	30	35	Yes	Every 3rd Bay	No	178	180	55	55	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	60	69	30	45	Yes	Every 3rd Bay	No	180	180	55	68	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	63	71	30	55	Yes	Every 3rd Bay	Every 3rd Bay	145	165	37	73	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	64	73	30	60	Yes	Every 3rd Bay	Every 3rd Bay	120	136	37	74	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	68	78	30	66	Yes	Every 3rd Bay	Every 3rd Bay	112	128	37	76	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	73	83	30	69	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	79	Yes	Yes	Yes	3	3

170 mph Wind Load 41-50 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	Module Size													
$\theta = 0$	62	71	30	30	No	Every 3rd Bay	No	180	180	59	59	Yes	Yes	Yes
$0 > \theta < 7.5$	59	67	30	37	Yes	Every 3rd Bay	No	176	180	59	59	Yes	Yes	Yes
$7.5 > \theta < 15$	59	68	30	48	Yes	Every 3rd Bay	No	178	180	40	70	Yes	Yes	Yes
$15 > \theta < 22.5$	62	70	30	58	Yes	Every 3rd Bay	Every 3rd Bay	136	156	40	75	Yes	Yes	Yes
$22.5 > \theta < 30$	62	71	30	64	Yes	Every 3rd Bay	Every 3rd Bay	113	128	40	77	Yes	Yes	Yes
$30 > \theta < 37.5$	67	76	30	69	Yes	Every 3rd Bay	Every 3rd Bay	105	120	40	79	Yes	Yes	Yes
$37.5 > \theta < 45$	71	81	30	72	Yes	Every 3rd Bay	Every 3rd Bay	99	113	40	82	Yes	Yes	Yes

Series 200

Configuration Tables for Ground Mount System 51 to 60 psf Snow Loads (4 Module Panels)

100 mph Wind Load 51-60 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
															40" x 66"	40" x 78"
$\theta = 0$	61	70	30	30	No	Every 3rd Bay	No	180	180	52	52	Yes	Yes	Yes	2	3
$0 > \theta < 7.5$	60	68	30	30	Yes	Every 3rd Bay	No	179	180	52	52	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	61	70	30	30	Yes	Every 3rd Bay	No	180	180	44	44	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	65	74	30	36	Yes	Every 3rd Bay	Every 3rd Bay	180	180	44	52	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	70	80	30	40	Yes	Every 3rd Bay	Every 3rd Bay	180	180	35	56	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	76	87	30	44	Yes	Every 3rd Bay	Every 3rd Bay	179	180	30	56	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	83	95	30	47	Yes	Every 3rd Bay	Every 3rd Bay	168	180	30	59	Yes	Yes	Yes	2	2

110 mph Wind Load 51-60 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	Module Size													
$\theta = 0$	61	70	30	30	No	Every 3rd Bay	No	180	180	57	57	Yes	Yes	Yes
$0 > \theta < 7.5$	59	67	30	30	Yes	Every 3rd Bay	No	177	180	57	57	Yes	Yes	Yes
$7.5 > \theta < 15$	61	69	30	32	Yes	Every 3rd Bay	No	180	180	48	48	Yes	Yes	Yes
$15 > \theta < 22.5$	64	73	30	39	Yes	Every 3rd Bay	Every 3rd Bay	180	180	38	57	Yes	Yes	Yes
$22.5 > \theta < 30$	68	78	30	43	Yes	Every 3rd Bay	Every 3rd Bay	174	180	38	57	Yes	Yes	Yes
$30 > \theta < 37.5$	74	85	30	47	Yes	Every 3rd Bay	Every 3rd Bay	163	180	30	61	Yes	Yes	Yes
$37.5 > \theta < 45$	81	92	30	50	Yes	Every 3rd Bay	Every 3rd Bay	153	175	30	61	Yes	Yes	Yes

120 mph Wind Load 51-60 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	61	69	30	30	No	Every 3rd Bay	No	180	180	52	52	Yes	Yes	Yes	40" x 66"	40" x 78"
$0 > \theta < 7.5$	58	67	30	30	Yes	Every 3rd Bay	No	175	180	52	52	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	60	69	30	34	Yes	Every 3rd Bay	No	180	180	52	52	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	63	72	30	42	Yes	Every 3rd Bay	Every 3rd Bay	180	180	41	62	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	67	76	30	46	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	62	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	73	83	30	51	Yes	Every 3rd Bay	Every 3rd Bay	149	170	30	62	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	79	90	30	54	Yes	Every 3rd Bay	Every 3rd Bay	140	160	30	64	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 51 to 60 psf Snow Loads (4 Module Panels)

130 mph Wind Load 51-60 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)		12" Dia Pier			Required Braces	Max (psf)		12" Dia Pier			Required Braces
	Sch 40	Sch 80	Short	Tall	A		Sch 40	Sch 80	Short	Tall	A	
	60	69	30	30	No		180	180	56	56	Yes	
θ = 0	58	66	30	30	Yes	Every 3rd Bay	174	180	56	56	Yes	Yes
0 > θ < 7.5	59	68	30	37	Yes	Every 3rd Bay	178	180	56	56	Yes	Yes
7.5 > θ < 15	62	71	30	45	Yes	Every 3rd Bay	178	180	44	65	Yes	Yes
15 > θ < 22.5	66	75	30	49	Yes	Every 3rd Bay	147	168	30	67	Yes	Yes
22.5 > θ < 30	71	81	30	54	Yes	Every 3rd Bay	138	157	30	68	Yes	Yes
30 > θ < 37.5	77	88	30	57	Yes	Every 3rd Bay	129	148	30	68	Yes	Yes
37.5 > θ < 45												

140 mph Wind Load 51-60 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	60	68	30	30	No	Every 3rd Bay	No	179	180	61	61	Yes	Yes	3	40" x 66"	40" x 78"
$0 > \theta < 7.5$	57	65	30	30	Yes	Every 3rd Bay	No	172	180	61	61	Yes	Yes	3	3	3
$7.5 > \theta < 15$	59	67	30	39	Yes	Every 3rd Bay	No	176	180	47	61	Yes	Yes	3	3	3
$15 > \theta < 22.5$	61	70	30	48	Yes	Every 3rd Bay	Every 3rd Bay	166	180	47	67	Yes	Yes	3	3	3
$22.5 > \theta < 30$	64	73	30	53	Yes	Every 3rd Bay	Every 3rd Bay	137	156	32	69	Yes	Yes	3	3	3
$30 > \theta < 37.5$	70	79	30	58	Yes	Every 3rd Bay	Every 3rd Bay	128	146	32	71	Yes	Yes	2	3	3
$37.5 > \theta < 45$	75	86	30	61	Yes	Every 3rd Bay	Every 3rd Bay	120	137	32	74	Yes	Yes	2	3	3

150 mph Wind Load 51-60 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	59	68	30	30	No	Every 3rd Bay	No	178	180	51	51	Yes	Yes	Yes	40" x 66"	40" x 78"
$0 > \theta < 7.5$	57	65	30	32	Yes	Every 3rd Bay	No	170	180	51	51	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	58	66	30	42	Yes	Every 3rd Bay	No	174	180	51	65	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	61	69	30	51	Yes	Every 3rd Bay	Every 3rd Bay	155	176	51	70	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	63	72	30	56	Yes	Every 3rd Bay	Every 3rd Bay	128	146	35	72	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	68	78	30	58	Yes	Every 3rd Bay	Every 3rd Bay	119	136	35	72	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	73	83	30	61	Yes	Every 3rd Bay	Every 3rd Bay	118	135	35	75	Yes	Yes	Yes	3	3

Series 200

Configuration Tables for Ground Mount System 51 to 60 psf Snow Loads (4 Module Panels)



160 mph Wind Load 51-60 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
$\theta = 0$	59	67	30	30	No	Every 3rd Bay	No	177	180	55	55	Yes	Yes	Yes
$0 > \theta < 7.5$	56	64	30	34	Yes	Every 3rd Bay	No	168	180	55	55	Yes	Yes	Yes
$7.5 > \theta < 15$	57	65	30	44	Yes	Every 3rd Bay	No	172	180	55	68	Yes	Yes	Yes
$15 > \theta < 22.5$	60	68	30	54	Yes	Every 3rd Bay	Every 3rd Bay	145	165	37	73	Yes	Yes	Yes
$22.5 > \theta < 30$	62	70	30	59	Yes	Every 3rd Bay	Every 3rd Bay	120	136	37	74	Yes	Yes	Yes
$30 > \theta < 37.5$	67	76	30	65	Yes	Every 3rd Bay	Every 3rd Bay	112	128	37	76	Yes	Yes	Yes
$37.5 > \theta < 45$	71	81	30	68	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	79	Yes	Yes	Yes

170 mph Wind Load 51-60 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
$\theta = 0$	58	67	30	30	No	Every 3rd Bay	No	175	180	59	59	Yes	Yes	Yes
$0 > \theta < 7.5$	56	63	30	36	Yes	Every 3rd Bay	No	167	180	59	59	Yes	Yes	Yes
$7.5 > \theta < 15$	57	64	30	47	Yes	Every 3rd Bay	No	170	180	59	70	Yes	Yes	Yes
$15 > \theta < 22.5$	59	67	30	57	Yes	Every 3rd Bay	Every 3rd Bay	136	156	40	75	Yes	Yes	Yes
$22.5 > \theta < 30$	60	69	30	63	Yes	Every 3rd Bay	Every 3rd Bay	113	128	40	77	Yes	Yes	Yes
$30 > \theta < 37.5$	65	74	30	69	Yes	Every 3rd Bay	Every 3rd Bay	105	120	40	79	Yes	Yes	Yes
$37.5 > \theta < 45$	70	79	30	72	Yes	Every 3rd Bay	Every 3rd Bay	99	113	40	82	Yes	Yes	Yes

Series 200

Configuration Tables for Ground Mount System 61 to 70 psf Snow Loads (4 Module Panels)

100 mph Wind Load 61-70 psf Snow																	
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D		Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	58	66	30	30	No	Every 3rd Bay	No		173	180	59	59	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	56	64	30	30	Yes	Every 3rd Bay	No		169	180	59	59	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	58	66	30	30	Yes	Every 3rd Bay	No		175	180	52	52	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	62	70	30	36	Yes	Every 3rd Bay	Every 3rd Bay		180	180	44	52	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	67	76	30	39	Yes	Every 3rd Bay	Every 3rd Bay		180	180	35	56	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	73	84	30	43	Yes	Every 3rd Bay	Every 3rd Bay		179	180	35	59	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	81	92	30	46	Yes	Every 3rd Bay	Every 3rd Bay		168	180	30	62	Yes	Yes	Yes	2	2

110 mph Wind Load 61-70 psf Snow																	
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D		Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	57	66	30	30	No	Every 3rd Bay	No		172	180	57	57	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	56	64	30	30	Yes	Every 3rd Bay	No		167	180	57	57	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	58	66	30	31	Yes	Every 3rd Bay	No		173	180	57	57	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	61	70	30	38	Yes	Every 3rd Bay	Every 3rd Bay		180	180	48	57	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	66	75	30	42	Yes	Every 3rd Bay	Every 3rd Bay		174	180	38	61	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	72	82	30	47	Yes	Every 3rd Bay	Every 3rd Bay		163	180	38	63	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	79	90	30	50	Yes	Every 3rd Bay	Every 3rd Bay		153	175	30	66	Yes	Yes	Yes	2	2

120 mph Wind Load 61-70 psf Snow																
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	57	65	30	30	No	Every 3rd Bay	No	171	180	62	62	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	55	63	30	30	Yes	Every 3rd Bay	No	166	180	62	62	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	57	65	30	34	Yes	Every 3rd Bay	No	171	180	52	52	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	60	69	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	52	62	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	65	74	30	45	Yes	Every 3rd Bay	Every 3rd Bay	159	180	41	64	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	70	80	30	50	Yes	Every 3rd Bay	Every 3rd Bay	149	170	30	66	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	77	88	30	53	Yes	Every 3rd Bay	Every 3rd Bay	140	160	30	69	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 61 to 70 psf Snow Loads (4 Module Panels)

130 mph Wind Load 61-70 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	57	65	30	30	No	Every 3rd Bay	No	170	180	65	65	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	55	63	30	30	Yes	Every 3rd Bay	No	165	180	56	56	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	56	64	30	36	Yes	Every 3rd Bay	No	169	180	56	56	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	60	68	30	44	Yes	Every 3rd Bay	Every 3rd Bay	178	180	44	65	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	63	72	30	49	Yes	Every 3rd Bay	Every 3rd Bay	147	168	44	67	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	69	79	30	53	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	75	86	30	56	Yes	Every 3rd Bay	Every 3rd Bay	129	148	30	68	Yes	Yes	Yes	2	2

140 mph Wind Load 61-70 psf Snow																
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	$\theta = 0$	56	64	30	30	No	Every 3rd Bay	No	169	180	61	61	Yes	Yes	Yes	3
$0 > \theta < 7.5$	54	62	30	30	Yes	Every 3rd Bay	No	163	180	61	61	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	56	64	30	38	Yes	Every 3rd Bay	No	167	180	61	61	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	59	67	30	47	Yes	Every 3rd Bay	Every 3rd Bay	166	180	47	67	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	62	71	30	52	Yes	Every 3rd Bay	Every 3rd Bay	137	156	32	69	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	68	77	30	57	Yes	Every 3rd Bay	Every 3rd Bay	128	146	32	71	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	73	84	30	60	Yes	Every 3rd Bay	Every 3rd Bay	120	137	32	74	Yes	Yes	Yes	2	3

150 mph Wind Load 61-70 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	56	64	30	30	No	Every 3rd Bay	No	168	180	65	65	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	54	61	30	31	Yes	Every 3rd Bay	No	162	180	65	65	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	55	63	30	41	Yes	Every 3rd Bay	No	166	180	51	65	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	58	66	30	50	Yes	Every 3rd Bay	Every 3rd Bay	155	176	51	70	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	61	70	30	55	Yes	Every 3rd Bay	Every 3rd Bay	128	146	35	72	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	66	75	30	57	Yes	Every 3rd Bay	Every 3rd Bay	119	136	35	72	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	72	82	30	60	Yes	Every 3rd Bay	Every 3rd Bay	118	135	35	75	Yes	Yes	Yes	3	3

Series 200

Configuration Tables for Ground Mount System 61 to 70 psf Snow Loads (4 Module Panels)

160 mph Wind Load 61-70 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	56	63	30	30	No	Every 3rd Bay	No	167	180	68	68	Yes	Yes	Yes	3	NG
$0 > \theta < 7.5$	53	61	30	33	Yes	Every 3rd Bay	No	160	180	68	68	Yes	Yes	Yes	3	NG
$7.5 > \theta < 15$	55	62	30	44	Yes	Every 3rd Bay	No	164	180	55	68	Yes	Yes	Yes	3	NG
$15 > \theta < 22.5$	57	65	30	53	Yes	Every 3rd Bay	Every 3rd Bay	145	165	55	73	Yes	Yes	Yes	3	NG
$22.5 > \theta < 30$	60	68	30	59	Yes	Every 3rd Bay	Every 3rd Bay	120	136	37	74	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	65	74	30	64	Yes	Every 3rd Bay	Every 3rd Bay	112	128	37	76	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	70	80	30	67	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	79	Yes	Yes	Yes	3	3

170 mph Wind Load 61-70 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	Module Size													
$\theta = 0$	55	63	30	30	No	Every 3rd Bay	No	166	180	69	69	Yes	Yes	Yes
$0 > \theta < 7.5$	53	60	30	36	Yes	Every 3rd Bay	No	159	180	69	69	Yes	Yes	Yes
$7.5 > \theta < 15$	54	62	30	47	Yes	Every 3rd Bay	No	162	180	59	70	Yes	Yes	Yes
$15 > \theta < 22.5$	56	64	30	56	Yes	Every 3rd Bay	Every 3rd Bay	136	156	40	75	Yes	Yes	Yes
$22.5 > \theta < 30$	59	67	30	62	Yes	Every 3rd Bay	Every 3rd Bay	113	128	40	77	Yes	Yes	Yes
$30 > \theta < 37.5$	63	72	30	68	Yes	Every 3rd Bay	Every 3rd Bay	105	120	40	79	Yes	Yes	Yes
$37.5 > \theta < 45$	68	78	30	71	Yes	Every 3rd Bay	Every 3rd Bay	99	113	40	82	Yes	Yes	Yes

Series 200

Configuration Tables for Ground Mount System 71 to 80 psf Snow Loads (4 Module Panels)

100 mph Wind Load 71-80 psf Snow																	
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D		Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	54	62	30	30	No	Every 3rd Bay	No		163	180	62	62	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	53	61	30	30	Yes	Every 3rd Bay	No		160	180	62	62	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	55	63	30	30	Yes	Every 3rd Bay	No		166	180	59	59	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	59	67	30	35	Yes	Every 3rd Bay	Every 3rd Bay		177	180	52	52	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	64	73	30	39	Yes	Every 3rd Bay	Every 3rd Bay		180	180	44	56	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	71	81	30	43	Yes	Every 3rd Bay	Every 3rd Bay		179	180	35	59	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	79	90	30	46	Yes	Every 3rd Bay	Every 3rd Bay		168	180	30	62	Yes	Yes	Yes	2	2

110 mph Wind Load 71-80 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	54	62	30	30	No	Every 3rd Bay	No	163	180	66	66	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	53	61	30	30	Yes	Every 3rd Bay	No	159	180	63	63	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	55	63	30	31	Yes	Every 3rd Bay	No	165	180	57	57	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	58	67	30	38	Yes	Every 3rd Bay	Every 3rd Bay	175	180	48	57	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	63	72	30	42	Yes	Every 3rd Bay	Every 3rd Bay	174	180	48	61	Yes	Yes	Yes	2	3
$30 > \theta < 37.5$	70	80	30	46	Yes	Every 3rd Bay	Every 3rd Bay	163	180	38	63	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	77	88	30	49	Yes	Every 3rd Bay	Every 3rd Bay	153	175	30	66	Yes	Yes	Yes	2	2

120 mph Wind Load 71-80 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	54	62	30	30	No	Every 3rd Bay	No	162	180	64	64	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	53	60	30	30	Yes	Every 3rd Bay	No	158	180	64	64	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	54	62	30	33	Yes	Every 3rd Bay	No	163	180	62	62	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	58	66	30	40	Yes	Every 3rd Bay	Every 3rd Bay	173	180	52	62	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	62	71	30	45	Yes	Every 3rd Bay	Every 3rd Bay	159	180	41	64	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	68	78	30	49	Yes	Every 3rd Bay	Every 3rd Bay	149	170	30	66	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	75	86	30	52	Yes	Every 3rd Bay	Every 3rd Bay	140	160	30	69	Yes	Yes	Yes	2	2

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Configuration Tables for Ground Mount System 71 to 80 psf Snow Loads (4 Module Panels)

130 mph Wind Load 71-80 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	54	61	30	30	No	Every 3rd Bay	No	162	180	65	65	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	52	60	30	30	Yes	Every 3rd Bay	No	157	179	65	65	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	54	61	30	35	Yes	Every 3rd Bay	No	162	180	65	65	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	57	65	30	43	Yes	Every 3rd Bay	Every 3rd Bay	171	180	56	65	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	61	70	30	48	Yes	Every 3rd Bay	Every 3rd Bay	147	168	44	67	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	67	76	30	53	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	73	84	30	56	Yes	Every 3rd Bay	Every 3rd Bay	129	148	30	68	Yes	Yes	Yes	2	3

140 mph Wind Load 71-80 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	Module Size
$\theta = 0$	54	61	30	30	No	Every 3rd Bay	No	161	180	67	67	Yes	Yes	Yes	40" x 78"
$0 > \theta < 7.5$	52	59	30	30	Yes	Every 3rd Bay	No	155	177	67	67	Yes	Yes	Yes	3
$7.5 > \theta < 15$	53	61	30	38	Yes	Every 3rd Bay	No	160	180	61	61	Yes	Yes	Yes	3
$15 > \theta < 22.5$	56	64	30	46	Yes	Every 3rd Bay	Every 3rd Bay	166	180	61	67	Yes	Yes	Yes	3
$22.5 > \theta < 30$	60	69	30	51	Yes	Every 3rd Bay	Every 3rd Bay	137	156	47	69	Yes	Yes	Yes	3
$30 > \theta < 37.5$	66	75	30	56	Yes	Every 3rd Bay	Every 3rd Bay	128	146	32	71	Yes	Yes	Yes	3
$37.5 > \theta < 45$	72	82	30	59	Yes	Every 3rd Bay	Every 3rd Bay	120	137	32	74	Yes	Yes	Yes	2

150 mph Wind Load 71-80 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	Module Size
$\theta = 0$	53	61	31	31	No	Every 3rd Bay	No	160	180	65	65	Yes	Yes	Yes	40" x 78"
$0 > \theta < 7.5$	51	59	30	31	Yes	Every 3rd Bay	No	154	176	65	65	Yes	Yes	Yes	NG
$7.5 > \theta < 15$	53	60	30	40	Yes	Every 3rd Bay	No	158	180	65	65	Yes	Yes	Yes	NG
$15 > \theta < 22.5$	56	64	30	49	Yes	Every 3rd Bay	Every 3rd Bay	155	176	51	70	Yes	Yes	Yes	NG
$22.5 > \theta < 30$	59	67	30	55	Yes	Every 3rd Bay	Every 3rd Bay	128	146	34	72	Yes	Yes	Yes	3
$30 > \theta < 37.5$	64	73	30	57	Yes	Every 3rd Bay	Every 3rd Bay	119	136	34	72	Yes	Yes	Yes	3
$37.5 > \theta < 45$	70	80	30	60	Yes	Every 3rd Bay	Every 3rd Bay	118	135	34	75	Yes	Yes	Yes	3

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Configuration Tables for Ground Mount System 71 to 80 psf Snow Loads (4 Module Panels)

160 mph Wind Load 71-80 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			Required Braces					
	12" Dia Pier		Tall	A	C	D	12" Dia Pier		Tall	A	E	F			
	Sch 40	Sch 80					Sch 40	Sch 80							
$\theta = 0$	53	60	30	No	Every 3rd Bay	No	159	180	68	Yes	Yes	Yes	3	40" x 66"	40" x 78"
$0 > \theta < 7.5$	51	58	30	Yes	Every 3rd Bay	No	153	174	68	Yes	Yes	Yes	3		NG
$7.5 > \theta < 15$	52	60	30	Yes	Every 3rd Bay	No	157	179	68	Yes	Yes	Yes	3		NG
$15 > \theta < 22.5$	55	63	30	Yes	Every 3rd Bay	Every 3rd Bay	145	165	55	73	Yes	Yes	3		NG
$22.5 > \theta < 30$	58	66	30	Yes	Every 3rd Bay	Every 3rd Bay	120	136	37	74	Yes	Yes	3		NG
$30 > \theta < 37.5$	63	72	30	Yes	Every 3rd Bay	Every 3rd Bay	112	128	37	76	Yes	Yes	3		NG
$37.5 > \theta < 45$	68	78	30	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	79	Yes	Yes	3		3

170 mph Wind Load 71-80 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			Required Braces					
	12" Dia Pier		Tall	A	C	D	12" Dia Pier		Tall	A	E	F			
	Sch 40	Sch 80					Sch 40	Sch 80							
$\theta = 0$	53	60	30	No	Every 3rd Bay	No	158	180	70	Yes	Yes	Yes	3	40" x 66"	40" x 78"
$0 > \theta < 7.5$	50	58	30	Yes	Every 3rd Bay	No	151	173	70	Yes	Yes	Yes	Yes	3	NG
$7.5 > \theta < 15$	52	59	30	Yes	Every 3rd Bay	No	155	177	59	Yes	Yes	Yes	Yes	3	NG
$15 > \theta < 22.5$	54	62	30	Yes	Every 3rd Bay	Every 3rd Bay	136	156	59	Yes	Yes	Yes	Yes	3	NG
$22.5 > \theta < 30$	57	65	30	Yes	Every 3rd Bay	Every 3rd Bay	113	128	39	Yes	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	62	71	30	Yes	Every 3rd Bay	Every 3rd Bay	105	120	39	Yes	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	67	76	30	Yes	Every 3rd Bay	Every 3rd Bay	99	113	39	Yes	Yes	Yes	Yes	3	NG

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Configuration Tables for Ground Mount System 81 to 90 psf Snow Loads (4 Module Panels)

100 mph Wind Load 81-90 psf Snow																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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	Sch 40	51					59	30		30	No	Every 3rd Bay	No	Sch 40	154	176	62	62	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Series 200

Configuration Tables for Ground Mount System 81 to 90 psf Snow Loads (4 Module Panels)

130 mph Wind Load 81-90 psf Snow																	
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Short	Tall	A	C	D	No	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	51	59	30	30	No	Every 3rd Bay	No	No	154	176	71	71	Yes	Yes	Yes	3	NG
$0 > \theta < 7.5$	50	57	30	30	Yes	Every 3rd Bay	No	No	150	171	67	67	Yes	Yes	Yes	3	NG
$7.5 > \theta < 15$	52	59	30	35	Yes	Every 3rd Bay	No	No	155	177	65	65	Yes	Yes	Yes	3	NG
$15 > \theta < 22.5$	55	63	30	43	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	165	180	56	65	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	59	68	30	47	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	147	168	44	67	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	65	74	30	52	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	72	82	30	55	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	129	148	30	68	Yes	Yes	Yes	2	3

140 mph Wind Load 81-90 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	51	58	30	30	No	Every 3rd Bay	No	153	175	69	69	Yes	Yes	Yes	3	NG
$0 > \theta < 7.5$	50	57	30	30	Yes	Every 3rd Bay	No	149	170	67	67	Yes	Yes	Yes	3	NG
$7.5 > \theta < 15$	51	58	30	37	Yes	Every 3rd Bay	No	154	175	67	67	Yes	Yes	Yes	3	NG
$15 > \theta < 22.5$	54	62	30	46	Yes	Every 3rd Bay	Every 3rd Bay	163	180	61	67	Yes	Yes	Yes	3	NG
$22.5 > \theta < 30$	58	67	30	51	Yes	Every 3rd Bay	Every 3rd Bay	137	156	47	69	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	64	73	30	56	Yes	Every 3rd Bay	Every 3rd Bay	128	146	31	71	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	70	80	30	59	Yes	Every 3rd Bay	Every 3rd Bay	120	137	31	74	Yes	Yes	Yes	3	3

150 mph Wind Load 81-90 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	51	58	30	30	No	Every 3rd Bay	No	152	174	70	70	Yes	Yes	Yes	40" x 66"	40" x 78"
$0 > \theta < 7.5$	49	56	30	30	Yes	Every 3rd Bay	No	148	168	70	70	Yes	Yes	Yes	3	NG
$7.5 > \theta < 15$	51	58	30	40	Yes	Every 3rd Bay	No	152	174	65	65	Yes	Yes	Yes	3	NG
$15 > \theta < 22.5$	54	61	30	49	Yes	Every 3rd Bay	Every 3rd Bay	155	176	65	70	Yes	Yes	Yes	3	NG
$22.5 > \theta < 30$	57	66	30	54	Yes	Every 3rd Bay	Every 3rd Bay	128	146	50	72	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	63	72	30	56	Yes	Every 3rd Bay	Every 3rd Bay	119	136	33	72	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	69	78	30	59	Yes	Every 3rd Bay	Every 3rd Bay	118	135	33	75	Yes	Yes	Yes	3	3

Series 200

Configuration Tables for Ground Mount System 81 to 90 psf Snow Loads (4 Module Panels)



160 mph Wind Load 81-90 psf Snow																	
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	NG	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	56	64	30	30	57	Yes	Every 3rd Bay	Every 3rd Bay	120	136	36	74	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	62	70	30	30	63	Yes	Every 3rd Bay	Every 3rd Bay	112	128	36	76	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	67	77	30	30	66	Yes	Every 3rd Bay	Every 3rd Bay	105	120	36	79	Yes	Yes	Yes	3	3

170 mph Wind Load 81-90 psf Snow																
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	56	63	30	61	Yes	Every 3rd Bay	Every 3rd Bay	113	128	38	77	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	60	69	30	67	Yes	Every 3rd Bay	Every 3rd Bay	105	120	38	79	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	66	75	30	70	Yes	Every 3rd Bay	Every 3rd Bay	99	113	38	82	Yes	Yes	Yes	3	NG

Series 200

Configuration Tables for Ground Mount System 91 to 100 psf Snow Loads (4 Module Panels)

100 mph Wind Load 91-100 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	49	56	30	30	No	Every 3rd Bay	No	147	167	62	62	Yes	Yes	Yes	3	NG
$0 > \theta < 7.5$	49	56	30	30	Yes	Every 3rd Bay	No	147	167	62	62	Yes	Yes	Yes	3	NG
$7.5 > \theta < 15$	51	58	30	30	Yes	Every 3rd Bay	No	153	174	62	62	Yes	Yes	Yes	3	NG
$15 > \theta < 22.5$	54	62	30	34	Yes	Every 3rd Bay	Every 3rd Bay	163	180	59	59	Yes	Yes	Yes	3	NG
$22.5 > \theta < 30$	59	68	30	38	Yes	Every 3rd Bay	Every 3rd Bay	178	180	52	56	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	67	76	30	42	Yes	Every 3rd Bay	Every 3rd Bay	179	180	44	59	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	75	85	30	45	Yes	Every 3rd Bay	Every 3rd Bay	168	180	34	62	Yes	Yes	Yes	2	2

110 mph Wind Load 91-100 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	49	56	30	30	No	Every 3rd Bay	No	147	167	66	66	Yes	Yes	Yes
$\theta = 0$	49	55	30	30	Yes	Every 3rd Bay	No	146	166	66	66	Yes	Yes	Yes
$0 > \theta < 7.5$	50	58	30	30	Yes	Every 3rd Bay	No	151	173	66	66	Yes	Yes	Yes
$7.5 > \theta < 15$	54	62	30	36	Yes	Every 3rd Bay	Every 3rd Bay	162	180	61	61	Yes	Yes	Yes
$15 > \theta < 22.5$	59	67	30	41	Yes	Every 3rd Bay	Every 3rd Bay	174	180	48	61	Yes	Yes	Yes
$22.5 > \theta < 30$	66	75	30	45	Yes	Every 3rd Bay	Every 3rd Bay	163	180	37	63	Yes	Yes	Yes
$30 > \theta < 37.5$	73	83	30	48	Yes	Every 3rd Bay	Every 3rd Bay	153	175	30	66	Yes	Yes	Yes
$37.5 > \theta < 45$														

120 mph Wind Load 91-100 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	49	56	30	30	No	Every 3rd Bay	No	147	167	69	69	Yes	Yes	Yes
$\theta = 0$	48	55	30	30	Yes	Every 3rd Bay	No	145	165	69	69	Yes	Yes	Yes
$0 > \theta < 7.5$	50	57	30	32	Yes	Every 3rd Bay	No	150	171	69	69	Yes	Yes	Yes
$7.5 > \theta < 15$	53	61	30	39	Yes	Every 3rd Bay	Every 3rd Bay	160	180	62	62	Yes	Yes	Yes
$15 > \theta < 22.5$	58	66	30	44	Yes	Every 3rd Bay	Every 3rd Bay	159	180	52	64	Yes	Yes	Yes
$22.5 > \theta < 30$	65	74	30	48	Yes	Every 3rd Bay	Every 3rd Bay	149	170	40	66	Yes	Yes	Yes
$30 > \theta < 37.5$	72	82	30	51	Yes	Every 3rd Bay	Every 3rd Bay	140	160	30	69	Yes	Yes	Yes
$37.5 > \theta < 45$														

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PV Mounting Systems

130 mph Wind Load 91-100 psf Snow

130 mph Wind Load 91-100 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	12" Dia Pier			Required Braces			Max (PS)			Required Braces						
	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"	
$\theta = 0$	49	56	30	No	Every 3rd Bay	No	147	167	71	71	Yes	Yes	Yes	3	NG	
$0 > \theta < 7.5$	48	55	30	Yes	Every 3rd Bay	No	144	164	71	71	Yes	Yes	Yes	3	NG	
$7.5 > \theta < 15$	50	57	30	Yes	Every 3rd Bay	No	149	170	67	67	Yes	Yes	Yes	3	NG	
$15 > \theta < 22.5$	53	60	30	Yes	Every 3rd Bay	Every 3rd Bay	159	180	65	65	Yes	Yes	Yes	3	NG	
$22.5 > \theta < 30$	57	65	30	Yes	Every 3rd Bay	Every 3rd Bay	147	168	56	67	Yes	Yes	Yes	3	3	
$30 > \theta < 37.5$	63	72	30	Yes	Every 3rd Bay	Every 3rd Bay	138	157	43	68	Yes	Yes	Yes	3	3	
$37.5 > \theta < 45$	70	80	30	Yes	Every 3rd Bay	Every 3rd Bay	129	148	30	68	Yes	Yes	Yes	2	3	

140 mph Wind Load 91-100 psf Snow

140 mph Wind Load 91-100 psf Snow																	
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel			
	Max (ps)		12" Dia Pier		Required Braces			Max (ps)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F			
$\theta = 0$	49	56	30	30	No	Every 3rd Bay	No	147	167	74	74	Yes	Yes	Yes	3	40" x 66"	40" x 78"
$0 > \theta < 7.5$	48	54	30	30	Yes	Every 3rd Bay	No	143	163	71	71	Yes	Yes	Yes	3	NG	NG
$7.5 > \theta < 15$	49	56	30	36	Yes	Every 3rd Bay	No	148	169	67	67	Yes	Yes	Yes	3	NG	NG
$15 > \theta < 22.5$	52	60	30	45	Yes	Every 3rd Bay	Every 3rd Bay	157	179	61	67	Yes	Yes	Yes	3	NG	NG
$22.5 > \theta < 30$	57	65	30	50	Yes	Every 3rd Bay	Every 3rd Bay	137	156	46	69	Yes	Yes	Yes	3	NG	NG
$30 > \theta < 37.5$	62	71	30	55	Yes	Every 3rd Bay	Every 3rd Bay	128	146	31	71	Yes	Yes	Yes	3	3	3
$37.5 > \theta < 45$	69	78	30	58	Yes	Every 3rd Bay	Every 3rd Bay	120	137	31	74	Yes	Yes	Yes	3	3	3

150 mph Wind Load 91-100 psf Snow

150 mph Wind Load 91-100 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	56	64	30	53	Yes	Every 3rd Bay	Every 3rd Bay	128	146	49	72	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	61	70	30	56	Yes	Every 3rd Bay	Every 3rd Bay	119	136	33	72	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	67	77	30	59	Yes	Every 3rd Bay	Every 3rd Bay	118	135	33	75	Yes	Yes	Yes	3	3

Series 200

Configuration Tables for Ground Mount System 91 to 100 psf Snow Loads (4 Module Panels)

160 mph Wind Load 91-100 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	NG	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	55	63	30	57	Yes	Every 3rd Bay	Every 3rd Bay	120	136	53	74	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	60	69	30	63	Yes	Every 3rd Bay	Every 3rd Bay	112	128	35	76	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	66	75	30	66	Yes	Every 3rd Bay	Every 3rd Bay	105	120	35	79	Yes	Yes	Yes	3	NG

170 mph Wind Load 91-100 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	NG	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$30 > \theta < 37.5$	59	67	30	67	Yes	Every 3rd Bay	Every 3rd Bay	105	120	37	79	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	64	74	30	70	Yes	Every 3rd Bay	Every 3rd Bay	99	113	37	82	Yes	Yes	Yes	3	NG

Series 200

Configuration Tables for Ground Mount System 101 to 110 psf Snow Loads (4 Module Panels)

100 mph Wind Load 101-110 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			Required Braces					
	12" Dia Pier		Tall	A	C	D	12" Dia Pier		Tall	A	E	F	Module Size		
	Sch 40	Sch 80					Sch 40	Sch 80							
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 66"	40" x 78"
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	53	60	30	33	Yes	Every 3rd Bay	158	180	62	62	Yes	Yes	Yes	3	NG
$22.5 > \theta < 30$	57	66	30	37	Yes	Every 3rd Bay	172	180	52	56	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	65	74	30	42	Yes	Every 3rd Bay	179	180	44	59	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	73	83	30	45	Yes	Every 3rd Bay	168	180	34	62	Yes	Yes	Yes	2	2

110 mph Wind Load 101-110 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)			Required Braces			Max (PS)			Required Braces				
	12" Dia Pier		Tall	A	C	D	12" Dia Pier		Tall	A	E	F	Module Size	
	Sch 40	Sch 80					Sch 40	Sch 80						
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 66"	40" x 78"
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	52	59	30	36	Yes	Every 3rd Bay	156	178	63	Yes	Yes	Yes	3	NG
$22.5 > \theta < 30$	57	65	30	40	Yes	Every 3rd Bay	171	180	57	61	Yes	Yes	3	3
$30 > \theta < 37.5$	64	73	30	45	Yes	Every 3rd Bay	163	180	48	63	Yes	Yes	2	3
$37.5 > \theta < 45$	71	82	30	48	Yes	Every 3rd Bay	153	175	36	66	Yes	Yes	2	2

120 mph Wind Load 101-110 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)			Required Braces			Max (PS)			Required Braces				
	12" Dia Pier		Tall	A	C	D	12" Dia Pier		Tall	A	E	F	Module Size	
	Sch 40	Sch 80					Sch 40	Sch 80						
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 66"	40" x 78"
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	52	59	30	39	Yes	Every 3rd Bay	155	177	64	Yes	Yes	Yes	3	NG
$22.5 > \theta < 30$	56	64	30	43	Yes	Every 3rd Bay	159	180	51	64	Yes	Yes	3	3
$30 > \theta < 37.5$	63	72	30	48	Yes	Every 3rd Bay	149	170	39	66	Yes	Yes	3	3
$37.5 > \theta < 45$	70	80	30	51	Yes	Every 3rd Bay	140	160	30	69	Yes	Yes	2	3

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Configuration Tables for Ground Mount System 101 to 110 psf Snow Loads (4 Module Panels)

130 mph Wind Load 101-110 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	NG	A	Tall	Short	C	D	Sch 40	NG	Sch 80	Short	Tall	A	E	F	Module Size
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 66"
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 78"
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	51	58	Yes	41	30	Every 3rd Bay	Every 3rd Bay	153	175	65	65	Yes	Yes	Yes	3	NG
$22.5 > \theta < 30$	56	63	Yes	46	30	Every 3rd Bay	Every 3rd Bay	147	168	55	55	67	Yes	Yes	3	NG
$30 > \theta < 37.5$	62	71	Yes	51	30	Every 3rd Bay	Every 3rd Bay	138	157	42	42	68	Yes	Yes	3	3
$37.5 > \theta < 45$	69	78	Yes	54	30	Every 3rd Bay	Every 3rd Bay	129	148	30	30	68	Yes	Yes	3	3

140 mph Wind Load 101-110 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		Required Braces				Max (PS)		Required Braces					
	12" Dia Pier		12" Dia Pier				12" Dia Pier		12" Dia Pier					
	Sch 40	NG	A	C	D	Sch 40	NG	A	E	F	40" x 66"	40" x 78"		
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	
$22.5 > \theta < 30$	55	63	30	49	Yes	Every 3rd Bay	137	156	45	69	Yes	Yes	3	
$30 > \theta < 37.5$	61	69	30	55	Yes	Every 3rd Bay	128	146	45	71	Yes	Yes	3	
$37.5 > \theta < 45$	67	77	30	58	Yes	Every 3rd Bay	120	137	30	74	Yes	Yes	3	

150 mph Wind Load 101-110 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	NG	Short	Tall	A	C	D	Sch 40	NG	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 66"	40" x 78"
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	54	62	30	53	Yes	Every 3rd Bay	128	146	48	72	Yes	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	60	68	30	55	Yes	Every 3rd Bay	119	136	32	72	Yes	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	66	75	30	58	Yes	Every 3rd Bay	118	135	32	75	Yes	Yes	Yes	Yes	3	3

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Configuration Tables for Ground Mount System 101 to 110 psf Snow Loads (4 Module Panels)

160 mph Wind Load 101-110 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces		Module Size			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$30 > \theta < 37.5$	59	67	30	62	Yes	Every 3rd Bay	Every 3rd Bay	112	128	34	76	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	65	74	30	65	Yes	Every 3rd Bay	Every 3rd Bay	105	120	34	79	Yes	Yes	Yes	3	NG

170 mph Wind Load 101-110 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$30 > \theta < 37.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$37.5 > \theta < 45$	63	72	30	69	Yes	Every 3rd Bay	Every 3rd Bay	99	113	36	82	Yes	Yes	Yes	3	NG

Series 200

Configuration Tables for Ground Mount System 111 to 120 psf Snow Loads (4 Module Panels)

100 mph Wind Load 111-120 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 66"	40" x 78"
$\theta = 0$																
$0 > \theta < 7.5$																
$7.5 > \theta < 15$																
$15 > \theta < 22.5$																
$22.5 > \theta < 30$	56	64	30	37	Yes	Every 3rd Bay	Every 3rd Bay	167	180	56	56	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	63	72	30	41	Yes	Every 3rd Bay	Every 3rd Bay	179	180	43	59	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	71	81	30	44	Yes	Every 3rd Bay	Every 3rd Bay	168	180	33	62	Yes	Yes	Yes	2	2

110 mph Wind Load 111-120 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40		Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	NG		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 66"	40" x 78"
$\theta = 0$	NG		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	55	63	30	40	Yes	Every 3rd Bay	Every 3rd Bay	165	180	57	61	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	62	71	30	44	Yes	Every 3rd Bay	Every 3rd Bay	163	180	47	63	Yes	Yes	Yes	2	3
$37.5 > \theta < 45$	70	80	30	47	Yes	Every 3rd Bay	Every 3rd Bay	153	175	36	66	Yes	Yes	Yes	2	3

120 mph Wind Load 111-120 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 66"	40" x 78"
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	55	62	30	43	Yes	Every 3rd Bay	Every 3rd Bay	159	180	62	64	Yes	Yes	Yes	3	NG
$30 > \theta < 37.5$	61	70	30	47	Yes	Every 3rd Bay	Every 3rd Bay	149	170	51	66	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	69	78	30	50	Yes	Every 3rd Bay	Every 3rd Bay	140	160	38	69	Yes	Yes	Yes	2	3

Series 200

Configuration Tables for Ground Mount System 111 to 120 psf Snow Loads (4 Module Panels)

130 mph Wind Load 111-120 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		Required Braces			D	Max (PS)		Required Braces			Module Size
	Sch 40	Sch 80	12" Dia Pier	Tall	Short		Sch 40	Sch 80	12" Dia Pier	Tall	Short	
	NG	NG	NG	NG	NG		NG	NG	NG	NG	NG	
θ = 0	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 66"
0 > θ < 7.5	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 78"
7.5 > θ < 15	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
15 > θ < 22.5	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
22.5 > θ < 30	54	62	30	46	30	Yes	147	168	54	67	Yes	3
30 > θ < 37.5	60	69	30	51	30	Yes	138	157	41	68	Yes	3
37.5 > θ < 45	67	77	30	54	30	Yes	129	148	30	68	Yes	3

140 mph Wind Load 111-120 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		Required Braces			D	Max (PS)		Required Braces			Module Size
	Sch 40	Sch 80	12" Dia Pier	Tall	Short		Sch 40	Sch 80	12" Dia Pier	Tall	Short	
	NG	NG	NG	NG	NG		NG	NG	NG	NG	NG	
θ = 0	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 78"
0 > θ < 7.5	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
7.5 > θ < 15	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
15 > θ < 22.5	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
22.5 > θ < 30	53	61	30	49	30	Yes	137	156	59	69	Yes	3
30 > θ < 37.5	60	68	30	54	30	Yes	128	146	44	71	Yes	3
37.5 > θ < 45	66	75	30	57	30	Yes	120	137	30	74	Yes	3

150 mph Wind Load 111-120 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		Required Braces			D	Max (PS)		Required Braces			Module Size
	Sch 40	Sch 80	12" Dia Pier	Tall	Short		Sch 40	Sch 80	12" Dia Pier	Tall	Short	
	NG	NG	NG	NG	NG		NG	NG	NG	NG	NG	
θ = 0	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	40" x 78"
0 > θ < 7.5	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
7.5 > θ < 15	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
15 > θ < 22.5	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
22.5 > θ < 30	59	67	30	55	30	Yes	119	136	32	72	Yes	3
30 > θ < 37.5	65	74	30	58	30	Yes	118	135	32	75	Yes	3

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Configuration Tables for Ground Mount System 111 to 120 psf Snow Loads (4 Module Panels)

160 mph Wind Load 111-120 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$30 > \theta < 37.5$	58	66	30	62	Yes	Every 3rd Bay	Every 3rd Bay	112	128	34	76	Yes	Yes	Yes	3	NG
$37.5 > \theta < 45$	63	72	30	65	Yes	Every 3rd Bay	Every 3rd Bay	105	120	34	79	Yes	Yes	Yes	3	NG

170 mph Wind Load 111-120 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$0 > \theta < 7.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$7.5 > \theta < 15$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$15 > \theta < 22.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$22.5 > \theta < 30$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$30 > \theta < 37.5$	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
$37.5 > \theta < 45$	62	71	30	69	Yes	Every 3rd Bay	Every 3rd Bay	99	113	36	82	Yes	Yes	Yes	3	NG

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Configuration Tables for Ground Mount System 0 psf Snow Loads (3 Module Panels)

100 mph Wind Load 0 psf Snow																	
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D		Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	144	164	30	30	No	Every 3rd Bay	No	No	180	180	30	30	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	121	139	30	30	Yes	Every 3rd Bay	No	No	180	180	30	31	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	114	130	30	33	Yes	Every 3rd Bay	No	No	180	180	30	39	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	108	123	30	38	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	180	180	30	46	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	103	117	30	41	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	180	180	30	49	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	106	121	30	51	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	180	180	30	60	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	108	124	30	51	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	180	180	30	60	Yes	Yes	Yes	2	2

110 mph Wind Load 0 psf Snow																
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	$\theta = 0$	135	154	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2
$0 > \theta < 7.5$	112	128	30	30	Yes	Every 3rd Bay	No	180	180	30	33	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	112	128	30	34	Yes	Every 3rd Bay	No	180	180	30	42	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	99	113	30	40	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	50	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	95	108	30	43	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	53	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	98	112	30	46	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	56	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	92	114	30	49	Yes	Every 3rd Bay	Every 3rd Bay	177	180	30	59	Yes	Yes	Yes	2	2

120 mph Wind Load 0 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces		Module Size			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	126	144	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	105	119	30	30	Yes	Every 3rd Bay	No	180	180	30	36	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	98	111	30	36	Yes	Every 3rd Bay	No	180	180	30	46	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	92	105	30	42	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	54	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	88	100	30	45	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	58	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	91	103	30	48	Yes	Every 3rd Bay	Every 3rd Bay	172	180	30	61	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	92	105	30	51	Yes	Every 3rd Bay	Every 3rd Bay	162	180	30	64	Yes	Yes	Yes	2	2

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Configuration Tables for Ground Mount System 0 psf Snow Loads (3 Module Panels)

130 mph Wind Load 0 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"	40" x 66"
$\theta = 0$	118	135	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes
$0 > \theta < 7.5$	98	111	30	30	Yes	Every 3rd Bay	No	180	180	30	39	Yes	Yes	Yes
$7.5 > \theta < 15$	91	104	30	37	Yes	Every 3rd Bay	No	180	180	30	49	Yes	Yes	Yes
$15 > \theta < 22.5$	86	98	30	43	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	58	Yes	Yes	Yes
$22.5 > \theta < 30$	81	93	30	47	Yes	Every 3rd Bay	Every 3rd Bay	170	180	30	62	Yes	Yes	Yes
$30 > \theta < 37.5$	84	96	30	50	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	64	Yes	Yes	Yes
$37.5 > \theta < 45$	86	98	30	53	Yes	Every 3rd Bay	Every 3rd Bay	150	171	30	64	Yes	Yes	Yes

140 mph Wind Load 0 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	111	127	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes
$\theta = 0$	92	104	30	31	Yes	Every 3rd Bay	No	180	180	30	41	Yes	Yes	Yes
$0 > \theta < 7.5$	85	97	30	39	Yes	Every 3rd Bay	No	180	180	30	52	Yes	Yes	Yes
$7.5 > \theta < 15$	80	91	30	45	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	62	Yes	Yes	Yes
$15 > \theta < 22.5$	76	87	30	48	Yes	Every 3rd Bay	Every 3rd Bay	158	180	30	64	Yes	Yes	Yes
$22.5 > \theta < 30$	79	90	30	51	Yes	Every 3rd Bay	Every 3rd Bay	148	168	30	66	Yes	Yes	Yes
$30 > \theta < 37.5$	80	91	30	54	Yes	Every 3rd Bay	Every 3rd Bay	139	158	30	69	Yes	Yes	Yes
$37.5 > \theta < 45$														

150 mph Wind Load 0 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	105	120	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	86	98	30	32	Yes	Every 3rd Bay	No	180	180	30	44	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	80	91	30	40	Yes	Every 3rd Bay	No	180	180	30	56	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	75	86	30	46	Yes	Every 3rd Bay	Every 3rd Bay	179	180	30	65	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	71	81	30	50	Yes	Every 3rd Bay	Every 3rd Bay	147	168	30	66	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	74	84	30	53	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	75	85	30	56	Yes	Every 3rd Bay	Every 3rd Bay	130	148	30	71	Yes	Yes	Yes	2	2

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Configuration Tables for Ground Mount System 0 psf Snow Loads (3 Module Panels)



160 mph Wind Load 0 psf Snow															
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel		
	Max (PS)			Required Braces				Max (PS)			Required Braces				
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F	40" x 66"	40" x 78"	
			Short	Tall						Short	Tall				
$\theta = 0$	100	114	30	30	No	Every 3rd Bay	No	180	180	32	32	Yes	Yes	2	2
$0 > \theta < 7.5$	81	93	30	33	Yes	Every 3rd Bay	No	180	180	32	46	Yes	Yes	2	2
$7.5 > \theta < 15$	76	86	30	41	Yes	Every 3rd Bay	No	180	180	32	59	Yes	Yes	2	2
$15 > \theta < 22.5$	71	81	30	48	Yes	Every 3rd Bay	Every 3rd Bay	167	180	32	66	Yes	Yes	2	2
$22.5 > \theta < 30$	67	77	30	51	Yes	Every 3rd Bay	Every 3rd Bay	138	158	32	69	Yes	Yes	2	2
$30 > \theta < 37.5$	69	79	30	55	Yes	Every 3rd Bay	Every 3rd Bay	129	147	30	70	Yes	Yes	2	2
$37.5 > \theta < 45$	70	80	30	58	Yes	Every 3rd Bay	Every 3rd Bay	121	139	30	73	Yes	Yes	2	2

170 mph Wind Load 0 psf Snow															
Tilt Angle θ	Standard Installation							Braced Installation							
	Max (PS)			Required Braces				Max (PS)			Required Braces				
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F	Module Size		
			Short	Tall						Short	Tall			40" x 66"	40" x 78"
$\theta = 0$	94	108	30	30	No	Every 3rd Bay	No	180	180	34	34	Yes	Yes	2	2
$0 > \theta < 7.5$	77	88	30	34	Yes	Every 3rd Bay	No	180	180	34	49	Yes	Yes	2	2
$7.5 > \theta < 15$	71	81	30	42	Yes	Every 3rd Bay	No	180	180	34	63	Yes	Yes	2	2
$15 > \theta < 22.5$	67	76	30	49	Yes	Every 3rd Bay	Every 3rd Bay	158	180	34	68	Yes	Yes	2	2
$22.5 > \theta < 30$	63	72	30	53	Yes	Every 3rd Bay	Every 3rd Bay	130	148	34	70	Yes	Yes	2	2
$30 > \theta < 37.5$	65	75	30	56	Yes	Every 3rd Bay	Every 3rd Bay	122	139	30	73	Yes	Yes	2	2
$37.5 > \theta < 45$	66	76	30	59	Yes	Every 3rd Bay	Every 3rd Bay	114	130	30	76	Yes	Yes	2	2

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Configuration Tables for Ground Mount System 1 to 10 psf Snow Loads (3 Module Panels)

100 mph Wind Load 1-10 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces		Number of Rails Required Per Panel
	Sch 40	Sch 80	Short	Tall	A	C	Sch 40	Sch 80	Short	Tall	A	E	
	127	145	30	30	No	Every 3rd Bay	180	180	30	30	Yes	Yes	
θ = 0	113	129	30	30	Yes	Every 3rd Bay	180	180	30	31	Yes	Yes	2
0 > θ < 7.5	108	124	30	32	Yes	Every 3rd Bay	180	180	30	39	Yes	Yes	2
7.5 > θ < 15	105	120	30	38	Yes	Every 3rd Bay	180	180	30	46	Yes	Yes	2
15 > θ < 22.5	103	117	30	41	Yes	Every 3rd Bay	180	180	30	49	Yes	Yes	2
22.5 > θ < 30	106	121	30	51	Yes	Every 3rd Bay	180	180	30	60	Yes	Yes	2
30 > θ < 37.5	108	124	30	51	Yes	Every 3rd Bay	180	180	30	60	Yes	Yes	2

110 mph Wind Load 1-10 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces		Number of Rails Required Per Panel
	Sch 40	Sch 80	Short	Tall	A	C	Sch 40	Sch 80	Short	Tall	A	E	
	122	139	30	30	No	Every 3rd Bay	180	180	30	30	Yes	Yes	
θ = 0	106	121	30	30	Yes	Every 3rd Bay	180	180	30	33	Yes	Yes	2
0 > θ < 7.5	106	121	30	34	Yes	Every 3rd Bay	180	180	30	42	Yes	Yes	2
7.5 > θ < 15	97	111	30	40	Yes	Every 3rd Bay	180	180	30	50	Yes	Yes	2
15 > θ < 22.5	95	108	30	43	Yes	Every 3rd Bay	180	180	30	53	Yes	Yes	2
22.5 > θ < 30	98	112	30	46	Yes	Every 3rd Bay	180	180	30	56	Yes	Yes	2
30 > θ < 37.5	100	114	30	49	Yes	Every 3rd Bay	177	180	30	59	Yes	Yes	2

120 mph Wind Load 1-10 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	
	116	133	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	
$\theta = 0$	99	113	30	30	Yes	Every 3rd Bay	No	180	180	30	36	Yes	Yes	Yes	2
$0 > \theta < 7.5$	94	108	30	33	Yes	Every 3rd Bay	No	180	180	30	46	Yes	Yes	Yes	2
$7.5 > \theta < 15$	91	103	30	40	Yes	Every 3rd Bay	No	180	180	30	54	Yes	Yes	Yes	2
$15 > \theta < 22.5$	88	100	30	43	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	58	Yes	Yes	Yes	2
$22.5 > \theta < 30$	91	103	30	46	Yes	Every 3rd Bay	Every 3rd Bay	172	180	30	61	Yes	Yes	Yes	2
$30 > \theta < 37.5$	92	105	30	49	Yes	Every 3rd Bay	Every 3rd Bay	162	180	30	64	Yes	Yes	Yes	2

Series 200

Configuration Tables for Ground Mount System 1 to 10 psf Snow Loads (3 Module Panels)

130 mph Wind Load 1-10 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)			Required Braces			Max (PS)			Required Braces		
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F
	110	126	30	No	Every 3rd Bay	No	180	180	30	Yes	Yes	Yes
θ = 0	93	85	30	Yes	Every 3rd Bay	No	180	180	30	Yes	Yes	Yes
0 > θ < 7.5	89	86	30	Yes	Every 3rd Bay	No	180	180	30	Yes	Yes	Yes
7.5 > θ < 15	85	87	30	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	Yes	Yes	Yes
15 > θ < 22.5	81	88	30	Yes	Every 3rd Bay	Every 3rd Bay	170	180	30	Yes	Yes	Yes
22.5 > θ < 30	84	94	30	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	Yes	Yes	Yes
30 > θ < 37.5	86	98	30	Yes	Every 3rd Bay	Every 3rd Bay	150	171	30	Yes	Yes	Yes
37.5 > θ < 45												

140 mph Wind Load 1-10 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)			Required Braces			Max (PS)			Required Braces		
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F
	104	119	30	No	Every 3rd Bay	No	180	180	30	Yes	Yes	Yes
θ = 0	88	100	30	Yes	Every 3rd Bay	No	180	180	30	Yes	Yes	Yes
0 > θ < 7.5	83	95	30	Yes	Every 3rd Bay	No	180	180	30	Yes	Yes	Yes
7.5 > θ < 15	80	91	30	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	Yes	Yes	Yes
15 > θ < 22.5	76	87	30	Yes	Every 3rd Bay	Every 3rd Bay	158	180	30	Yes	Yes	Yes
22.5 > θ < 30	79	90	30	Yes	Every 3rd Bay	Every 3rd Bay	148	168	30	Yes	Yes	Yes
30 > θ < 37.5	80	91	30	Yes	Every 3rd Bay	Every 3rd Bay	139	158	30	Yes	Yes	Yes
37.5 > θ < 45												

150 mph Wind Load 1-10 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)			Required Braces			Max (PS)			Required Braces		
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F
	99	113	30	No	Every 3rd Bay	No	180	180	30	Yes	Yes	Yes
θ = 0	83	95	30	Yes	Every 3rd Bay	No	180	180	30	Yes	Yes	Yes
0 > θ < 7.5	79	90	30	Yes	Every 3rd Bay	No	180	180	30	Yes	Yes	Yes
7.5 > θ < 15	75	86	30	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	Yes	Yes	Yes
15 > θ < 22.5	71	81	30	Yes	Every 3rd Bay	Every 3rd Bay	158	180	30	Yes	Yes	Yes
22.5 > θ < 30	74	84	30	Yes	Every 3rd Bay	Every 3rd Bay	148	168	30	Yes	Yes	Yes
30 > θ < 37.5	75	85	30	Yes	Every 3rd Bay	Every 3rd Bay	139	158	30	Yes	Yes	Yes
37.5 > θ < 45												

Series 200

Configuration Tables for Ground Mount System 1 to 10 psf Snow Loads (3 Module Panels)

160 mph Wind Load 1-10 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			12" Dia Pier					Required Braces
	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	95	108	30	No	Every 3rd Bay	No	180	180	32	32	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	79	90	30	Yes	Every 3rd Bay	No	180	180	32	46	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	74	85	30	Yes	Every 3rd Bay	No	180	180	32	59	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	71	81	30	Yes	Every 3rd Bay	Every 3rd Bay	167	180	32	66	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	67	77	30	Yes	Every 3rd Bay	Every 3rd Bay	138	158	32	69	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	69	79	30	Yes	Every 3rd Bay	Every 3rd Bay	129	147	32	70	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	70	80	30	Yes	Every 3rd Bay	Every 3rd Bay	121	139	32	73	Yes	Yes	Yes	2	2

170 mph Wind Load 1-10 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			12" Dia Pier					
	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
														40" x 66"	40" x 78"
$\theta = 0$	90	103	30	No	Every 3rd Bay	No	180	180	34	34	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	75	85	30	Yes	Every 3rd Bay	No	180	180	34	49	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	70	80	30	Yes	Every 3rd Bay	No	180	180	34	63	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	67	76	30	Yes	Every 3rd Bay	Every 3rd Bay	158	180	34	68	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	63	72	30	Yes	Every 3rd Bay	Every 3rd Bay	130	148	34	70	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	65	75	30	Yes	Every 3rd Bay	Every 3rd Bay	122	139	34	73	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	66	76	30	Yes	Every 3rd Bay	Every 3rd Bay	114	130	34	76	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 11 to 20 psf Snow Loads (3 Module Panels)

100 mph Wind Load 11-20 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (PS)		Required Braces			D	Max (PS)		12" Dia Pier			Required Braces	
	Sch 40	Sch 80	12" Dia Pier	Tall	Short		Sch 40	Sch 80	12" Dia Pier	Short	Tall	A	E
θ = 0	105	119	30	30	30	No	180	180	30	30	30	Yes	Yes
0 > θ < 7.5	98	112	30	30	30	No	180	180	30	30	31	Yes	Yes
7.5 > θ < 15	99	113	30	30	30	No	180	180	30	30	39	Yes	Yes
15 > θ < 22.5	100	114	30	34	30	Yes	180	180	30	30	46	Yes	Yes
22.5 > θ < 30	99	113	30	45	30	Yes	180	180	30	30	49	Yes	Yes
30 > θ < 37.5	105	120	30	45	30	Yes	180	180	30	30	60	Yes	Yes
37.5 > θ < 45	108	124	30	45	30	Yes	180	180	30	30	60	Yes	Yes

110 mph Wind Load 11-20 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (PS)		Required Braces			D	Max (PS)		12" Dia Pier			Required Braces	
	Sch 40	Sch 80	12" Dia Pier	Tall	Short		Sch 40	Sch 80	12" Dia Pier	Short	Tall	A	E
θ = 0	102	116	30	30	30	No	180	180	30	30	30	Yes	Yes
0 > θ < 7.5	95	108	30	30	30	No	180	180	30	30	33	Yes	Yes
7.5 > θ < 15	95	108	30	34	30	No	180	180	30	30	42	Yes	Yes
15 > θ < 22.5	94	107	30	39	30	Yes	180	180	30	30	50	Yes	Yes
22.5 > θ < 30	92	105	30	43	30	Yes	180	180	30	30	53	Yes	Yes
30 > θ < 37.5	98	112	30	46	30	Yes	180	180	30	30	56	Yes	Yes
37.5 > θ < 45	100	114	30	49	30	Yes	177	180	30	30	59	Yes	Yes

120 mph Wind Load 11-20 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (PS)		Required Braces			D	Max (PS)		12" Dia Pier			Required Braces	
	Sch 40	Sch 80	12" Dia Pier	Tall	Short		Sch 40	Sch 80	12" Dia Pier	Short	Tall	A	E
θ = 0	99	113	30	30	30	No	180	180	30	30	30	Yes	Yes
0 > θ < 7.5	91	104	30	30	30	No	180	180	30	30	36	Yes	Yes
7.5 > θ < 15	91	103	30	35	30	No	180	180	30	30	46	Yes	Yes
15 > θ < 22.5	88	100	30	41	30	Yes	180	180	30	30	54	Yes	Yes
22.5 > θ < 30	86	98	30	45	30	Yes	180	180	30	30	58	Yes	Yes
30 > θ < 37.5	91	103	30	48	30	Yes	172	180	30	30	61	Yes	Yes
37.5 > θ < 45	92	105	30	51	30	Yes	162	180	30	30	64	Yes	Yes

Series 200

Configuration Tables for Ground Mount System 11 to 20 psf Snow Loads (3 Module Panels)

130 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	96	109	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	88	100	30	30	Yes	Every 3rd Bay	No	180	180	30	39	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	85	97	30	37	Yes	Every 3rd Bay	No	180	180	30	49	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	82	94	30	43	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	58	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	81	92	30	47	Yes	Every 3rd Bay	Every 3rd Bay	170	180	30	62	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	84	96	30	49	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	64	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	86	98	30	52	Yes	Every 3rd Bay	Every 3rd Bay	150	171	30	64	Yes	Yes	Yes	2	2

140 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation									
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces		Module Size			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	93	106	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	83	95	30	31	Yes	Every 3rd Bay	No	180	180	30	41	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	81	92	30	38	Yes	Every 3rd Bay	No	180	180	30	52	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	78	89	30	45	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	62	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	76	86	30	48	Yes	Every 3rd Bay	Every 3rd Bay	158	180	30	64	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	79	90	30	51	Yes	Every 3rd Bay	Every 3rd Bay	148	168	30	66	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	80	91	30	54	Yes	Every 3rd Bay	Every 3rd Bay	139	158	30	69	Yes	Yes	Yes	2	2

150 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation							Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E			F
$\theta = 0$	90	103	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	79	90	30	32	Yes	Every 3rd Bay	No	180	180	30	44	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	76	87	30	40	Yes	Every 3rd Bay	No	180	180	30	56	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	73	84	30	46	Yes	Every 3rd Bay	Every 3rd Bay	179	180	30	65	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	71	81	30	50	Yes	Every 3rd Bay	Every 3rd Bay	147	168	30	66	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	74	84	30	53	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	75	85	30	56	Yes	Every 3rd Bay	Every 3rd Bay	130	148	30	71	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 11 to 20 psf Snow Loads (3 Module Panels)

160 mph Wind Load 11-20 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	87	100	30	30	No	Every 3rd Bay	No	180	180	32	32	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	76	86	30	33	Yes	Every 3rd Bay	No	180	180	32	46	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	72	83	30	41	Yes	Every 3rd Bay	No	180	180	32	59	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	69	79	30	48	Yes	Every 3rd Bay	Every 3rd Bay	167	180	32	66	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	67	77	30	51	Yes	Every 3rd Bay	Every 3rd Bay	138	158	32	69	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	69	79	30	55	Yes	Every 3rd Bay	Every 3rd Bay	129	147	32	70	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	70	80	30	58	Yes	Every 3rd Bay	Every 3rd Bay	121	139	32	73	Yes	Yes	Yes	2	2

170 mph Wind Load 11-20 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
$\theta = 0$	84	96	30	30	No	Every 3rd Bay	No	180	180	34	34	Yes	Yes	2
$0 > \theta < 7.5$	72	82	30	34	Yes	Every 3rd Bay	No	180	180	34	49	Yes	Yes	2
$7.5 > \theta < 15$	69	79	30	42	Yes	Every 3rd Bay	No	180	180	34	63	Yes	Yes	2
$15 > \theta < 22.5$	66	75	30	49	Yes	Every 3rd Bay	Every 3rd Bay	158	180	34	68	Yes	Yes	2
$22.5 > \theta < 30$	63	72	30	53	Yes	Every 3rd Bay	Every 3rd Bay	130	148	34	70	Yes	Yes	2
$30 > \theta < 37.5$	65	75	30	56	Yes	Every 3rd Bay	Every 3rd Bay	122	139	34	73	Yes	Yes	2
$37.5 > \theta < 45$	66	76	30	59	Yes	Every 3rd Bay	Every 3rd Bay	114	130	34	76	Yes	Yes	2

Series 200

Configuration Tables for Ground Mount System 21 to 30 psf Snow Loads (3 Module Panels)

100 mph Wind Load 21-30 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (PS)		Required Braces			D	Max (PS)		12" Dia Pier			Required Braces	
	Sch 40	Sch 80	A	C	12" Dia Pier		Sch 40	Sch 80	Short	Tall	A	E	F
	92	106	No	Every 3rd Bay	No		180	180	31	31	Yes	Yes	Yes
θ = 0	88	100	Yes	Every 3rd Bay	No		180	180	31	31	Yes	Yes	Yes
0 > θ < 7.5	90	102	Yes	Every 3rd Bay	No		180	180	31	39	Yes	Yes	Yes
7.5 > θ < 15	93	106	Yes	Every 3rd Bay	Every 3rd Bay		180	180	30	46	Yes	Yes	Yes
15 > θ < 22.5	94	108	Yes	Every 3rd Bay	Every 3rd Bay		180	180	30	49	Yes	Yes	Yes
22.5 > θ < 30	101	116	Yes	Every 3rd Bay	Every 3rd Bay		180	180	30	60	Yes	Yes	Yes
30 > θ < 37.5	107	122	Yes	Every 3rd Bay	Every 3rd Bay		180	180	30	60	Yes	Yes	Yes
37.5 > θ < 45													

110 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation									
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	90	103	30	30	No	Every 3rd Bay	No	180	180	33	33	Yes	Yes	Yes	40" x 66"	40" x 78"
$0 > \theta < 7.5$	85	97	30	30	Yes	Every 3rd Bay	No	180	180	33	33	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	85	97	30	33	Yes	Every 3rd Bay	No	180	180	30	42	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	88	101	30	39	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	50	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	89	102	30	43	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	53	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	96	109	30	46	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	56	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	99	113	30	49	Yes	Every 3rd Bay	Every 3rd Bay	177	180	30	59	Yes	Yes	Yes	2	2

120 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Required Braces		Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	$\theta = 0$	88	101	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	Yes	2
$0 > \theta < 7.5$	83	94	30	30	Yes	Every 3rd Bay	No	180	180	30	36	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	83	95	30	35	Yes	Every 3rd Bay	No	180	180	30	46	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	84	96	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	54	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	84	96	30	45	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	58	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	89	102	30	48	Yes	Every 3rd Bay	Every 3rd Bay	172	180	30	61	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	92	105	30	51	Yes	Every 3rd Bay	Every 3rd Bay	162	180	30	64	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 21 to 30 psf Snow Loads (3 Module Panels)

130 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A			E	
$\theta = 0$	86	98	30	30	No	Every 3rd Bay	No	D	180	180	30	30	Yes	Yes	2	2
$0 > \theta < 7.5$	80	91	30	30	Yes	Every 3rd Bay	No	No	180	180	30	39	Yes	Yes	2	2
$7.5 > \theta < 15$	81	92	30	36	Yes	Every 3rd Bay	No	No	180	180	30	49	Yes	Yes	2	2
$15 > \theta < 22.5$	80	92	30	43	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	180	180	30	58	Yes	Yes	2	2
$22.5 > \theta < 30$	79	90	30	47	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	170	180	30	62	Yes	Yes	2	2
$30 > \theta < 37.5$	84	96	30	50	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	159	180	30	64	Yes	Yes	2	2
$37.5 > \theta < 45$	86	98	30	53	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	150	171	30	64	Yes	Yes	2	2

140 mph Wind Load 21-30 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E		
														40" x 66"	40" x 78"
$\theta = 0$	84	96	30	30	No	Every 3rd Bay	No	180	180	30	30	Yes	Yes	2	2
$0 > \theta < 7.5$	78	88	30	30	Yes	Every 3rd Bay	No	180	180	30	41	Yes	Yes	2	2
$7.5 > \theta < 15$	78	89	30	38	Yes	Every 3rd Bay	No	180	180	30	52	Yes	Yes	2	2
$15 > \theta < 22.5$	76	87	30	44	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	62	Yes	Yes	2	2
$22.5 > \theta < 30$	74	85	30	48	Yes	Every 3rd Bay	Every 3rd Bay	158	180	30	64	Yes	Yes	2	2
$30 > \theta < 37.5$	79	90	30	51	Yes	Every 3rd Bay	Every 3rd Bay	148	168	30	66	Yes	Yes	2	2
$37.5 > \theta < 45$	80	91	30	54	Yes	Every 3rd Bay	Every 3rd Bay	139	158	30	69	Yes	Yes	2	2

150 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A			E	
$\theta = 0$	77	88	30	30	No	Every 3rd Bay	No	D	180	180	30	30	Yes	Yes	2	2
$0 > \theta < 7.5$	71	81	30	31	Yes	Every 3rd Bay	No	No	180	180	30	44	Yes	Yes	2	2
$7.5 > \theta < 15$	70	80	30	39	Yes	Every 3rd Bay	No	No	180	180	30	56	Yes	Yes	2	2
$15 > \theta < 22.5$	70	80	30	46	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	179	180	30	65	Yes	Yes	2	2
$22.5 > \theta < 30$	69	79	30	50	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	147	168	30	66	Yes	Yes	2	2
$30 > \theta < 37.5$	73	84	30	53	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	2	2
$37.5 > \theta < 45$	76	86	30	53	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	130	148	30	71	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 21 to 30 psf Snow Loads (3 Module Panels)

160 mph Wind Load 21-30 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation						
	Max (PS)		12" Dia Pier			Required Braces		Max (PS)		12" Dia Pier			Required Braces	
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
$\theta = 0$	80	91	30	30	No	Every 3rd Bay	No	180	180	32	32	Yes	Yes	2
$0 > \theta < 7.5$	73	83	30	33	Yes	Every 3rd Bay	No	180	180	32	46	Yes	Yes	2
$7.5 > \theta < 15$	71	81	30	41	Yes	Every 3rd Bay	No	180	180	32	59	Yes	Yes	2
$15 > \theta < 22.5$	68	78	30	48	Yes	Every 3rd Bay	Every 3rd Bay	167	180	32	66	Yes	Yes	2
$22.5 > \theta < 30$	66	76	30	51	Yes	Every 3rd Bay	Every 3rd Bay	138	158	32	69	Yes	Yes	2
$30 > \theta < 37.5$	69	79	30	55	Yes	Every 3rd Bay	Every 3rd Bay	129	147	32	70	Yes	Yes	2
$37.5 > \theta < 45$	70	80	30	58	Yes	Every 3rd Bay	Every 3rd Bay	121	139	32	73	Yes	Yes	2

170 mph Wind Load 21-30 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	78	89	30	30	No	Every 3rd Bay	No	180	180	34	34	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	70	79	30	34	Yes	Every 3rd Bay	No	180	180	34	49	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	67	77	30	42	Yes	Every 3rd Bay	No	180	180	34	63	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	65	74	30	49	Yes	Every 3rd Bay	Every 3rd Bay	158	180	34	68	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	63	72	30	53	Yes	Every 3rd Bay	Every 3rd Bay	130	148	34	70	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	65	75	30	56	Yes	Every 3rd Bay	Every 3rd Bay	122	139	34	73	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	66	76	30	59	Yes	Every 3rd Bay	Every 3rd Bay	114	130	34	76	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 31 to 40 psf Snow Loads (3 Module Panels)

100 mph Wind Load 31-40 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel
	Max (psf)		12" Dia Pier		Required Braces		Max (psf)		12" Dia Pier		Required Braces		Module Size
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	
	84	96	30	30	No	Every 3rd Bay	No	180	180	39	39	Yes	
θ = 0	80	92	30	30	Yes	Every 3rd Bay	No	180	180	39	39	Yes	2
0 > θ < 7.5	82	94	30	30	Yes	Every 3rd Bay	No	180	180	31	39	Yes	2
7.5 > θ < 15	87	99	30	36	Yes	Every 3rd Bay	Every 3rd Bay	180	180	31	46	Yes	2
15 > θ < 22.5	90	102	30	39	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	49	Yes	2
22.5 > θ < 30	97	110	30	50	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	60	Yes	2
30 > θ < 37.5	104	119	30	50	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	60	Yes	2

110 mph Wind Load 31-40 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel
	Max (psf)		12" Dia Pier		Required Braces		Max (psf)		12" Dia Pier		Required Braces		Module Size
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	
	82	94	30	30	No	Every 3rd Bay	No	180	180	33	33	Yes	
θ = 0	78	89	30	30	Yes	Every 3rd Bay	No	180	180	33	33	Yes	2
0 > θ < 7.5	78	89	30	32	Yes	Every 3rd Bay	No	180	180	33	42	Yes	2
7.5 > θ < 15	83	95	30	38	Yes	Every 3rd Bay	Every 3rd Bay	180	180	33	50	Yes	2
15 > θ < 22.5	85	97	30	42	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	53	Yes	2
22.5 > θ < 30	92	105	30	45	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	56	Yes	2
30 > θ < 37.5	98	112	30	48	Yes	Every 3rd Bay	Every 3rd Bay	177	180	30	59	Yes	2

120 mph Wind Load 31-40 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
														Module Size		
$\theta = 0$	81	92	30	30	No	Every 3rd Bay	No	180	180	36	36	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	76	87	30	30	Yes	Every 3rd Bay	No	180	180	36	36	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	78	88	30	34	Yes	Every 3rd Bay	No	180	180	36	46	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	80	91	30	40	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	54	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	81	93	30	44	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	58	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	87	99	30	48	Yes	Every 3rd Bay	Every 3rd Bay	172	180	30	61	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	91	104	30	51	Yes	Every 3rd Bay	Every 3rd Bay	162	180	30	64	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 31 to 40 psf Snow Loads (3 Module Panels)

130 mph Wind Load 31-40 psf Snow																
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	$\theta = 0$	79	90	30	30	No	Every 3rd Bay	No	180	180	39	39	Yes	Yes	Yes	2
$0 > \theta < 7.5$	74	85	30	30	Yes	Every 3rd Bay	No	180	180	39	39	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	75	86	30	36	Yes	Every 3rd Bay	No	180	180	39	49	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	77	87	30	42	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	58	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	77	88	30	46	Yes	Every 3rd Bay	Every 3rd Bay	170	180	30	62	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	82	94	30	50	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	64	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	86	98	30	53	Yes	Every 3rd Bay	Every 3rd Bay	150	171	30	64	Yes	Yes	Yes	2	2

140 mph Wind Load 31-40 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier			Required Braces		Max (PS)		12" Dia Pier			Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	77	88	30	30	No	Every 3rd Bay	No	180	180	41	41	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	72	82	30	30	Yes	Every 3rd Bay	No	180	180	41	41	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	73	83	30	37	Yes	Every 3rd Bay	No	180	180	30	52	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	74	84	30	44	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	62	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	73	83	30	48	Yes	Every 3rd Bay	Every 3rd Bay	158	180	30	64	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	78	89	30	51	Yes	Every 3rd Bay	Every 3rd Bay	148	168	30	66	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	80	91	30	54	Yes	Every 3rd Bay	Every 3rd Bay	139	158	30	69	Yes	Yes	Yes	2	2

150 mph Wind Load 31-40 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces		Module Size			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	76	86	30	30	No	Every 3rd Bay	No	180	180	44	44	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	70	80	30	31	Yes	Every 3rd Bay	No	180	180	44	44	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	71	80	30	39	Yes	Every 3rd Bay	No	180	180	30	56	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	70	80	30	46	Yes	Every 3rd Bay	Every 3rd Bay	179	180	30	65	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	69	79	30	50	Yes	Every 3rd Bay	Every 3rd Bay	147	168	30	66	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	73	84	30	53	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	75	85	30	56	Yes	Every 3rd Bay	Every 3rd Bay	130	148	30	71	Yes	Yes	Yes	2	2

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Configuration Tables for Ground Mount System 31 to 40 psf Snow Loads (3 Module Panels)

160 mph Wind Load 31-40 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)		12" Dia Pier			Required Braces		Max (psf)		12" Dia Pier			Module Size
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	
	74	85	30	30	No	Every 3rd Bay	No	180	180	32	32	Yes	
$\theta = 0$	68	78	30	32	Yes	Every 3rd Bay	No	180	180	32	46	Yes	2
$0 > \theta < 7.5$	68	78	30	40	Yes	Every 3rd Bay	No	180	180	32	59	Yes	2
$7.5 > \theta < 15$	67	76	30	47	Yes	Every 3rd Bay	Every 3rd Bay	167	180	32	66	Yes	2
$15 > \theta < 22.5$	65	75	30	51	Yes	Every 3rd Bay	Every 3rd Bay	138	158	32	69	Yes	2
$22.5 > \theta < 30$	69	79	30	55	Yes	Every 3rd Bay	Every 3rd Bay	129	147	32	70	Yes	2
$30 > \theta < 37.5$	70	80	30	58	Yes	Every 3rd Bay	Every 3rd Bay	121	139	32	73	Yes	2
$37.5 > \theta < 45$													

170 mph Wind Load 31-40 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)		12" Dia Pier			Required Braces		Max (psf)		12" Dia Pier			Module Size
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	
	72	83	30	30	No	Every 3rd Bay	No	180	180	34	34	Yes	
$\theta = 0$	66	76	30	33	Yes	Every 3rd Bay	No	180	180	34	49	Yes	2
$0 > \theta < 7.5$	66	75	30	42	Yes	Every 3rd Bay	No	180	180	34	63	Yes	2
$7.5 > \theta < 15$	64	73	30	49	Yes	Every 3rd Bay	Every 3rd Bay	158	180	34	68	Yes	2
$15 > \theta < 22.5$	62	71	30	53	Yes	Every 3rd Bay	Every 3rd Bay	130	148	34	70	Yes	2
$22.5 > \theta < 30$	65	75	30	56	Yes	Every 3rd Bay	Every 3rd Bay	122	139	34	73	Yes	2
$30 > \theta < 37.5$	66	76	30	59	Yes	Every 3rd Bay	Every 3rd Bay	114	130	34	76	Yes	2
$37.5 > \theta < 45$													

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Configuration Tables for Ground Mount System 41 to 50 psf Snow Loads (3 Module Panels)

100 mph Wind Load 41-50 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	77	88	30	30	No	Every 3rd Bay	No	180	180	39	39	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	74	85	30	30	Yes	Every 3rd Bay	No	180	180	39	39	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	77	87	30	30	Yes	Every 3rd Bay	No	180	180	39	39	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	81	92	30	30	Yes	Every 3rd Bay	Every 3rd Bay	180	180	31	46	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	85	97	30	35	Yes	Every 3rd Bay	Every 3rd Bay	180	180	31	49	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	93	106	30	38	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	60	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	101	115	30	49	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	60	Yes	Yes	Yes	2	2

110 mph Wind Load 41-50 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	76	87	30	30	No	Every 3rd Bay	No	180	180	42	42	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	73	83	30	30	Yes	Every 3rd Bay	No	180	180	42	42	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	73	83	30	30	Yes	Every 3rd Bay	No	180	180	42	42	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	79	90	30	31	Yes	Every 3rd Bay	Every 3rd Bay	180	180	33	50	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	82	93	30	38	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	53	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	88	101	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	56	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	95	109	30	45	Yes	Every 3rd Bay	Every 3rd Bay	177	180	30	59	Yes	Yes	Yes	2	2

120 mph Wind Load 41-50 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	66	75	30	30	No	Every 3rd Bay	No	180	180	46	46	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	68	77	30	30	Yes	Every 3rd Bay	No	180	180	46	46	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	70	79	30	30	Yes	Every 3rd Bay	No	180	180	36	46	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	75	86	30	33	Yes	Every 3rd Bay	Every 3rd Bay	180	180	36	54	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	81	93	30	40	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	58	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	84	96	30	43	Yes	Every 3rd Bay	Every 3rd Bay	172	180	30	61	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	90	103	30	47	Yes	Every 3rd Bay	Every 3rd Bay	162	180	30	64	Yes	Yes	Yes	2	2

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Configuration Tables for Ground Mount System 41 to 50 psf Snow Loads (3 Module Panels)

130 mph Wind Load 41-50 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)			Required Braces			Max (psf)			Required Braces		
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F
			Short	Tall					Short	Tall		
θ = 0	73	84	30	30	No	No	180	180	39	Yes	Yes	Yes
0 > θ < 7.5	70	79	30	30	Yes	Every 3rd Bay	180	180	39	Yes	Yes	Yes
7.5 > θ < 15	71	81	30	30	Yes	Every 3rd Bay	180	180	39	Yes	Yes	Yes
15 > θ < 22.5	73	84	30	35	Yes	Every 3rd Bay	180	180	39	Yes	Yes	Yes
22.5 > θ < 30	75	85	30	42	Yes	Every 3rd Bay	170	180	30	Yes	Yes	Yes
30 > θ < 37.5	80	91	30	46	Yes	Every 3rd Bay	159	180	30	Yes	Yes	Yes
37.5 > θ < 45	85	96	30	49	Yes	Every 3rd Bay	150	171	30	Yes	Yes	Yes

140 mph Wind Load 41-50 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)			Required Braces			Max (psf)			Required Braces		
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F
			Short	Tall					Short	Tall		
θ = 0	72	82	30	30	No	No	180	180	41	Yes	Yes	Yes
0 > θ < 7.5	68	77	30	30	Yes	Every 3rd Bay	180	180	41	Yes	Yes	Yes
7.5 > θ < 15	69	78	30	30	Yes	Every 3rd Bay	180	180	41	Yes	Yes	Yes
15 > θ < 22.5	71	80	30	37	Yes	Every 3rd Bay	180	180	41	Yes	Yes	Yes
22.5 > θ < 30	71	81	30	44	Yes	Every 3rd Bay	158	180	30	Yes	Yes	Yes
30 > θ < 37.5	76	87	30	48	Yes	Every 3rd Bay	148	168	30	Yes	Yes	Yes
37.5 > θ < 45	80	91	30	51	Yes	Every 3rd Bay	139	158	30	Yes	Yes	Yes

150 mph Wind Load 41-50 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)			Required Braces			Max (psf)			Required Braces		
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F
			Short	Tall					Short	Tall		
θ = 0	71	81	30	30	No	No	180	180	44	Yes	Yes	Yes
0 > θ < 7.5	66	75	30	30	Yes	Every 3rd Bay	180	180	44	Yes	Yes	Yes
7.5 > θ < 15	67	76	30	30	Yes	Every 3rd Bay	180	180	44	Yes	Yes	Yes
15 > θ < 22.5	68	77	30	38	Yes	Every 3rd Bay	179	180	30	Yes	Yes	Yes
22.5 > θ < 30	68	78	30	45	Yes	Every 3rd Bay	147	168	30	Yes	Yes	Yes
30 > θ < 37.5	72	83	30	50	Yes	Every 3rd Bay	138	157	30	Yes	Yes	Yes
37.5 > θ < 45	75	85	30	53	Yes	Every 3rd Bay	130	148	30	Yes	Yes	Yes

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Configuration Tables for Ground Mount System 41 to 50 psf Snow Loads (3 Module Panels)

160 mph Wind Load 41-50 psf Snow														
Tilt Angle θ	Standard Installation							Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
$\theta = 0$	69	79	30	30	No	Every 3rd Bay	No	180	180	46	46	Yes	Yes	Yes
$0 > \theta < 7.5$	64	74	30	30	Yes	Every 3rd Bay	No	180	180	46	46	Yes	Yes	Yes
$7.5 > \theta < 15$	65	74	30	32	Yes	Every 3rd Bay	No	180	180	46	59	Yes	Yes	Yes
$15 > \theta < 22.5$	65	75	30	40	Yes	Every 3rd Bay	Every 3rd Bay	167	180	32	66	Yes	Yes	Yes
$22.5 > \theta < 30$	65	74	30	47	Yes	Every 3rd Bay	Every 3rd Bay	138	158	32	69	Yes	Yes	Yes
$30 > \theta < 37.5$	69	78	30	51	Yes	Every 3rd Bay	Every 3rd Bay	129	147	32	70	Yes	Yes	Yes
$37.5 > \theta < 45$	70	80	30	55	Yes	Every 3rd Bay	Every 3rd Bay	121	139	32	73	Yes	Yes	Yes
			</											

170 mph Wind Load 41-50 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation					Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	68	78	30	30	No	Every 3rd Bay	No	180	180	49	49	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	63	72	30	30	Yes	Every 3rd Bay	No	180	180	49	49	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	63	72	30	33	Yes	Every 3rd Bay	No	180	180	49	63	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	63	71	30	41	Yes	Every 3rd Bay	Every 3rd Bay	158	180	34	68	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	61	70	30	49	Yes	Every 3rd Bay	Every 3rd Bay	130	148	34	70	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	65	74	30	53	Yes	Every 3rd Bay	Every 3rd Bay	122	139	34	73	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	66	76	30	56	Yes	Every 3rd Bay	Every 3rd Bay	114	130	34	76	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 51 to 60 psf Snow Loads (3 Module Panels)

100 mph Wind Load 51-60 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)			Required Braces			Max (PS)			Required Braces				
	12" Dia Pier		A	C	D	12" Dia Pier		Sch 40	Sch 80	A	E	F	Module Size	
	Short	Tall				Short	Tall						40" x 66"	40" x 78"
$\theta = 0$	72	82	30	No	Every 3rd Bay	No	180	180	46	46	Yes	Yes	2	2
$0 > \theta < 7.5$	70	80	30	Yes	Every 3rd Bay	No	180	180	46	46	Yes	Yes	2	2
$7.5 > \theta < 15$	72	82	30	Yes	Every 3rd Bay	No	180	180	46	46	Yes	Yes	2	2
$15 > \theta < 22.5$	76	87	30	Yes	Every 3rd Bay	Every 3rd Bay	180	180	39	46	Yes	Yes	2	2
$22.5 > \theta < 30$	82	93	30	Yes	Every 3rd Bay	Every 3rd Bay	180	180	31	49	Yes	Yes	2	2
$30 > \theta < 37.5$	89	102	30	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	60	Yes	Yes	2	2
$37.5 > \theta < 45$	98	111	30	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	60	Yes	Yes	2	2

110 mph Wind Load 51-60 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)			Required Braces			Max (PS)			Required Braces				
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F	Module Size	
$\theta = 0$	71	81	30	30	No	Every 3rd Bay	No	180	180	50	50	Yes	Yes	2
$0 > \theta < 7.5$	68	78	30	30	Yes	Every 3rd Bay	No	180	180	50	50	Yes	Yes	2
$7.5 > \theta < 15$	68	78	30	31	Yes	Every 3rd Bay	No	180	180	42	42	Yes	Yes	2
$15 > \theta < 22.5$	74	85	30	37	Yes	Every 3rd Bay	Every 3rd Bay	180	180	42	50	Yes	Yes	2
$22.5 > \theta < 30$	78	89	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	33	53	Yes	Yes	2
$30 > \theta < 37.5$	85	97	30	44	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	56	Yes	Yes	2
$37.5 > \theta < 45$	92	105	30	47	Yes	Every 3rd Bay	Every 3rd Bay	177	180	30	59	Yes	Yes	2

120 mph Wind Load 51-60 psf Snow																	
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel				
	Max (PS)			Required Braces			Max (PS)			Required Braces							
	12" Dia Pier			C			12" Dia Pier			A, E, F							
	Sch 40	Sch 80	Tall	A	No	Every 3rd Bay	D	Sch 40	Sch 80	Short	Tall	A		E	F	Module Size	
$\theta = 0$	70	80	30	No	Every 3rd Bay	No	No	180	180	46	46	Yes	Yes	Yes	2	40" x 66"	40" x 78"
$0 > \theta < 7.5$	67	76	30	Yes	Every 3rd Bay	No	No	180	180	46	46	Yes	Yes	Yes	2	2	2
$7.5 > \theta < 15$	69	78	30	Yes	Every 3rd Bay	No	No	180	180	46	46	Yes	Yes	Yes	2	2	2
$15 > \theta < 22.5$	72	83	30	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	180	180	36	54	Yes	Yes	Yes	2	2	2
$22.5 > \theta < 30$	75	86	30	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	180	180	36	58	Yes	Yes	Yes	2	2	2
$30 > \theta < 37.5$	81	93	30	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	172	180	30	61	Yes	Yes	Yes	2	2	2
$37.5 > \theta < 45$	88	100	30	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	162	180	30	64	Yes	Yes	Yes	2	2	2

Series 200

Configuration Tables for Ground Mount System 51 to 60 psf Snow Loads (3 Module Panels)

130 mph Wind Load 51-60 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)		Required Braces			D	Max (psf)		Required Braces			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C		Sch 40	Sch 80	12" Dia Pier	A	E	
			Short	Tall					Short	Tall	F	
θ = 0	69	78	30	30	No	No	180	180	49	49	Yes	2
0 > θ < 7.5	66	75	30	30	Yes	Every 3rd Bay	180	180	49	49	Yes	2
7.5 > θ < 15	67	76	30	35	Yes	Every 3rd Bay	180	180	49	49	Yes	2
15 > θ < 22.5	70	80	30	41	Yes	Every 3rd Bay	180	180	39	58	Yes	2
22.5 > θ < 30	72	82	30	45	Yes	Every 3rd Bay	170	180	39	62	Yes	2
30 > θ < 37.5	78	89	30	49	Yes	Every 3rd Bay	159	180	30	64	Yes	2
37.5 > θ < 45	83	95	30	52	Yes	Every 3rd Bay	150	171	30	64	Yes	2

140 mph Wind Load 51-60 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)		Required Braces			D	Max (psf)		Required Braces			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C		Sch 40	Sch 80	12" Dia Pier	A	E	
			Short	Tall					Short	Tall	F	
θ = 0	68	77	30	30	No	No	180	180	52	52	Yes	2
0 > θ < 7.5	64	73	30	30	Yes	Every 3rd Bay	180	180	52	52	Yes	2
7.5 > θ < 15	65	75	30	36	Yes	Every 3rd Bay	180	180	41	52	Yes	2
15 > θ < 22.5	68	77	30	43	Yes	Every 3rd Bay	180	180	41	62	Yes	2
22.5 > θ < 30	69	79	30	47	Yes	Every 3rd Bay	158	180	30	64	Yes	2
30 > θ < 37.5	74	85	30	51	Yes	Every 3rd Bay	148	168	30	66	Yes	2
37.5 > θ < 45	79	90	30	54	Yes	Every 3rd Bay	139	158	30	69	Yes	2

150 mph Wind Load 51-60 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)		Required Braces			D	Max (psf)		Required Braces			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C		Sch 40	Sch 80	12" Dia Pier	A	E	
			Short	Tall					Short	Tall	F	
θ = 0	67	76	30	30	No	No	180	180	56	56	Yes	2
0 > θ < 7.5	63	72	30	30	Yes	Every 3rd Bay	180	180	56	56	Yes	2
7.5 > θ < 15	64	73	30	38	Yes	Every 3rd Bay	180	180	44	56	Yes	2
15 > θ < 22.5	66	75	30	45	Yes	Every 3rd Bay	179	180	44	65	Yes	2
22.5 > θ < 30	66	76	30	49	Yes	Every 3rd Bay	147	168	30	66	Yes	2
30 > θ < 37.5	71	81	30	53	Yes	Every 3rd Bay	138	157	30	68	Yes	2
37.5 > θ < 45	74	85	30	56	Yes	Every 3rd Bay	130	148	30	71	Yes	2

Series 200

Configuration Tables for Ground Mount System 51 to 60 psf Snow Loads (3 Module Panels)

160 mph Wind Load 51-60 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)			Required Braces			Max (psf)			12" Dia Pier			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	Short	Tall	A	
$\theta = 0$	65	75	30	No	Every 3rd Bay	No	180	180	46	46	46	Yes	40" x 66"
$0 > \theta < 7.5$	61	70	30	Yes	Every 3rd Bay	No	180	180	46	46	46	Yes	40" x 78"
$7.5 > \theta < 15$	62	71	30	Yes	Every 3rd Bay	No	180	180	46	46	59	Yes	2
$15 > \theta < 22.5$	63	72	30	Yes	Every 3rd Bay	Every 3rd Bay	167	180	46	46	66	Yes	2
$22.5 > \theta < 30$	64	73	30	Yes	Every 3rd Bay	Every 3rd Bay	138	158	32	32	69	Yes	2
$30 > \theta < 37.5$	68	78	30	Yes	Every 3rd Bay	Every 3rd Bay	129	147	32	32	70	Yes	2
$37.5 > \theta < 45$	70	80	30	Yes	Every 3rd Bay	Every 3rd Bay	121	139	32	32	73	Yes	2

170 mph Wind Load 51-60 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)			Required Braces			Max (psf)			12" Dia Pier			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	Short	Tall	A	
$\theta = 0$	64	73	30	No	Every 3rd Bay	No	180	180	49	49	49	Yes	40" x 66"
$0 > \theta < 7.5$	60	68	30	Yes	Every 3rd Bay	No	180	180	49	49	49	Yes	2
$7.5 > \theta < 15$	60	69	30	Yes	Every 3rd Bay	No	180	180	49	49	63	Yes	2
$15 > \theta < 22.5$	61	70	30	Yes	Every 3rd Bay	Every 3rd Bay	158	180	49	49	68	Yes	2
$22.5 > \theta < 30$	61	69	30	Yes	Every 3rd Bay	Every 3rd Bay	130	148	34	34	70	Yes	2
$30 > \theta < 37.5$	65	74	30	Yes	Every 3rd Bay	Every 3rd Bay	122	139	34	34	73	Yes	2
$37.5 > \theta < 45$	66	76	30	Yes	Every 3rd Bay	Every 3rd Bay	114	130	34	34	76	Yes	2

Series 200

Configuration Tables for Ground Mount System 61 to 70 psf Snow Loads (3 Module Panels)

100 mph Wind Load 61-70 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		Required Braces			D	Max (PS)		Required Braces			Number of Rails Required Per Panel
	Sch 40	Sch 80	12" Dia Pier	Tall	Short		Sch 40	Sch 80	12" Dia Pier	Tall	Short	
θ = 0	67	77	30	30	30	No	180	180	60	60	60	40" x 66"
0 > θ < 7.5	66	75	30	30	30	Every 3rd Bay	180	180	60	60	60	40" x 78"
7.5 > θ < 15	68	78	30	30	30	Every 3rd Bay	180	180	49	49	49	2
15 > θ < 22.5	73	83	30	34	30	Every 3rd Bay	180	180	46	46	46	2
22.5 > θ < 30	78	89	30	37	30	Every 3rd Bay	180	180	39	49	39	2
30 > θ < 37.5	86	98	30	48	30	Every 3rd Bay	180	180	31	60	31	2
37.5 > θ < 45	95	108	30	48	30	Every 3rd Bay	180	180	30	60	30	2

110 mph Wind Load 61-70 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		Required Braces			D	Max (PS)		Required Braces			Number of Rails Required Per Panel
	Sch 40	Sch 80	12" Dia Pier	Tall	Short		Sch 40	Sch 80	12" Dia Pier	Tall	Short	
θ = 0	67	76	30	30	30	No	180	180	53	53	53	40" x 78"
0 > θ < 7.5	65	74	30	30	30	Every 3rd Bay	180	180	53	53	53	2
7.5 > θ < 15	65	74	30	30	30	Every 3rd Bay	180	180	50	50	50	2
15 > θ < 22.5	71	81	30	37	30	Every 3rd Bay	180	180	42	50	42	2
22.5 > θ < 30	75	86	30	40	30	Every 3rd Bay	180	180	33	53	33	2
30 > θ < 37.5	82	94	30	44	30	Every 3rd Bay	180	180	33	56	33	2
37.5 > θ < 45	90	103	30	47	30	Every 3rd Bay	177	180	30	59	30	2

120 mph Wind Load 61-70 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		Required Braces			D	Max (PS)		Required Braces			Number of Rails Required Per Panel
	Sch 40	Sch 80	12" Dia Pier	Tall	Short		Sch 40	Sch 80	12" Dia Pier	Tall	Short	
θ = 0	66	75	30	30	30	No	180	180	54	54	54	40" x 78"
0 > θ < 7.5	63	72	30	30	30	Every 3rd Bay	180	180	54	54	54	2
7.5 > θ < 15	65	74	30	32	30	Every 3rd Bay	180	180	54	54	54	2
15 > θ < 22.5	69	79	30	39	30	Every 3rd Bay	180	180	46	54	46	2
22.5 > θ < 30	73	83	30	42	30	Every 3rd Bay	180	180	36	58	36	2
30 > θ < 37.5	79	90	30	46	30	Every 3rd Bay	172	180	30	61	30	2
37.5 > θ < 45	86	98	30	49	30	Every 3rd Bay	162	180	30	64	30	2

Series 200

Configuration Tables for Ground Mount System 61 to 70 psf Snow Loads (3 Module Panels)

130 mph Wind Load 61-70 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)		Required Braces			D	Max (psf)		Required Braces			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C		Sch 40	Sch 80	12" Dia Pier	A	E	
			Short	Tall					Short	Tall	F	
$\theta = 0$	65	74	30	30	No	No	180	180	58	58	Yes	2
$0 > \theta < 7.5$	62	71	30	30	Yes	No	180	180	58	58	Yes	2
$7.5 > \theta < 15$	64	73	30	34	Yes	No	180	180	49	49	Yes	2
$15 > \theta < 22.5$	67	77	30	41	Yes	Every 3rd Bay	180	180	49	58	Yes	2
$22.5 > \theta < 30$	70	80	30	45	Yes	Every 3rd Bay	170	180	39	62	Yes	2
$30 > \theta < 37.5$	76	86	30	49	Yes	Every 3rd Bay	159	180	30	64	Yes	2
$37.5 > \theta < 45$	82	93	30	52	Yes	Every 3rd Bay	150	171	30	64	Yes	2

140 mph Wind Load 61-70 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)		Required Braces			D	Max (psf)		Required Braces			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C		Sch 40	Sch 80	12" Dia Pier	A	E	
			Short	Tall					Short	Tall	F	
$\theta = 0$	64	73	30	30	No	No	180	180	62	62	Yes	2
$0 > \theta < 7.5$	61	70	30	30	Yes	No	180	180	52	52	Yes	2
$7.5 > \theta < 15$	62	71	30	36	Yes	No	180	180	52	52	Yes	2
$15 > \theta < 22.5$	65	75	30	43	Yes	Every 3rd Bay	180	180	41	62	Yes	2
$22.5 > \theta < 30$	67	77	30	47	Yes	Every 3rd Bay	158	180	41	64	Yes	2
$30 > \theta < 37.5$	72	83	30	51	Yes	Every 3rd Bay	148	168	30	66	Yes	2
$37.5 > \theta < 45$	78	89	30	54	Yes	Every 3rd Bay	139	158	30	69	Yes	2

150 mph Wind Load 61-70 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (psf)		Required Braces			D	Max (psf)		Required Braces			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C		Sch 40	Sch 80	12" Dia Pier	A	E	
			Short	Tall					Short	Tall	F	
$\theta = 0$	63	72	30	30	No	No	180	180	56	56	Yes	2
$0 > \theta < 7.5$	60	68	30	30	Yes	No	179	180	56	56	Yes	2
$7.5 > \theta < 15$	61	70	30	37	Yes	No	180	180	56	56	Yes	2
$15 > \theta < 22.5$	63	72	30	45	Yes	Every 3rd Bay	179	180	44	65	Yes	2
$22.5 > \theta < 30$	65	74	30	49	Yes	Every 3rd Bay	147	168	30	66	Yes	2
$30 > \theta < 37.5$	69	79	30	53	Yes	Every 3rd Bay	138	157	30	68	Yes	2
$37.5 > \theta < 45$	74	84	30	56	Yes	Every 3rd Bay	130	148	30	71	Yes	2

Series 200

Configuration Tables for Ground Mount System 61 to 70 psf Snow Loads (3 Module Panels)

160 mph Wind Load 61-70 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)			Required Braces			Max (PS)			12" Dia Pier					Required Braces	
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"	
$\theta = 0$		62	71	30	30	No	Every 3rd Bay	No		180	180	59	59	Yes	Yes	2
$0 > \theta < 7.5$		59	67	30	31	Yes	Every 3rd Bay	No		176	180	59	59	Yes	Yes	2
$7.5 > \theta < 15$		60	68	30	39	Yes	Every 3rd Bay	No		179	180	59	59	Yes	Yes	2
$15 > \theta < 22.5$		61	70	30	46	Yes	Every 3rd Bay	Every 3rd Bay		167	180	46	66	Yes	Yes	2
$22.5 > \theta < 30$		62	71	30	51	Yes	Every 3rd Bay	Every 3rd Bay		138	158	32	69	Yes	Yes	2
$30 > \theta < 37.5$		67	76	30	55	Yes	Every 3rd Bay	Every 3rd Bay		129	147	32	70	Yes	Yes	2
$37.5 > \theta < 45$		70	80	30	58	Yes	Every 3rd Bay	Every 3rd Bay		121	139	32	73	Yes	Yes	2

170 mph Wind Load 61-70 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)			Required Braces			Max (psf)			12" Dia Pier			Number of Rails Required Per Panel
	Sch 40		Sch 80	A	C	D	Sch 40		Sch 80	Short	Tall	A	
	61	70	30	No	Every 3rd Bay	No	180	180	180	63	63	Yes	
$\theta = 0$	57	65	30	Yes	Every 3rd Bay	No	172	180	180	63	63	Yes	2
$0 > \theta < 7.5$	58	66	30	Yes	Every 3rd Bay	No	174	180	180	49	63	Yes	2
$7.5 > \theta < 15$	59	68	30	Yes	Every 3rd Bay	Every 3rd Bay	158	180	180	49	68	Yes	2
$15 > \theta < 22.5$	60	68	30	Yes	Every 3rd Bay	Every 3rd Bay	130	148	148	34	70	Yes	2
$22.5 > \theta < 30$	64	73	30	Yes	Every 3rd Bay	Every 3rd Bay	122	139	139	34	73	Yes	2
$30 > \theta < 37.5$	66	76	30	Yes	Every 3rd Bay	Every 3rd Bay	114	130	130	34	76	Yes	2

Series 200

Configuration Tables for Ground Mount System 71 to 80 psf Snow Loads (3 Module Panels)

100 mph Wind Load 71-80 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			Required Braces					
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F	Module Size		
			Short	Tall					Short	Tall				40" x 66"	40" x 78"
$\theta = 0$	63	72	30	30	No	Every 3rd Bay	No	180	180	60	60	Yes	Yes	2	2
$0 > \theta < 7.5$	62	71	30	30	Yes	Every 3rd Bay	No	180	180	60	60	Yes	Yes	2	2
$7.5 > \theta < 15$	65	74	30	30	Yes	Every 3rd Bay	No	180	180	60	60	Yes	Yes	2	2
$15 > \theta < 22.5$	69	79	30	33	Yes	Every 3rd Bay	Every 3rd Bay	180	180	46	46	Yes	Yes	2	2
$22.5 > \theta < 30$	75	86	30	37	Yes	Every 3rd Bay	Every 3rd Bay	180	180	39	49	Yes	Yes	2	2
$30 > \theta < 37.5$	83	95	30	47	Yes	Every 3rd Bay	Every 3rd Bay	180	180	31	60	Yes	Yes	2	2
$37.5 > \theta < 45$	92	105	30	47	Yes	Every 3rd Bay	Every 3rd Bay	180	180	30	60	Yes	Yes	2	2

110 mph Wind Load 71-80 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E		
														40" x 66"	40" x 78"
$\theta = 0$	63	72	30	30	No	Every 3rd Bay	No	180	180	59	59	Yes	Yes	2	2
$0 > \theta < 7.5$	61	70	30	30	Yes	Every 3rd Bay	No	180	180	59	59	Yes	Yes	2	2
$7.5 > \theta < 15$	61	70	30	30	Yes	Every 3rd Bay	No	180	180	53	53	Yes	Yes	2	2
$15 > \theta < 22.5$	68	77	30	36	Yes	Every 3rd Bay	Every 3rd Bay	180	180	50	50	Yes	Yes	2	2
$22.5 > \theta < 30$	73	83	30	40	Yes	Every 3rd Bay	Every 3rd Bay	180	180	42	53	Yes	Yes	2	2
$30 > \theta < 37.5$	80	91	30	43	Yes	Every 3rd Bay	Every 3rd Bay	180	180	33	56	Yes	Yes	2	2
$37.5 > \theta < 45$	88	100	30	46	Yes	Every 3rd Bay	Every 3rd Bay	177	180	30	59	Yes	Yes	2	2

120 mph Wind Load 71-80 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	12" Dia Pier			Required Braces			Max (PS)			Required Braces						
	Max (PS)	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	Module Size		
	Sch 40	Sch 80												40" x 66"	40" x 78"	
$\theta = 0$	62	71	30	30	No	Every 3rd Bay	No	180	180	61	61	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	60	69	30	30	Yes	Every 3rd Bay	No	180	180	61	61	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	62	71	30	32	Yes	Every 3rd Bay	No	180	180	54	54	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	66	75	30	38	Yes	Every 3rd Bay	Every 3rd Bay	180	180	46	54	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	70	80	30	42	Yes	Every 3rd Bay	Every 3rd Bay	180	180	36	58	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	77	87	30	46	Yes	Every 3rd Bay	Every 3rd Bay	172	180	36	61	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	84	95	30	49	Yes	Every 3rd Bay	Every 3rd Bay	162	180	30	64	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 71 to 80 psf Snow Loads (3 Module Panels)

130 mph Wind Load 71-80 psf Snow																	
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"	
$\theta = 0$		62	70	30	30	No	Every 3rd Bay	No	180	180	62	62	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$		59	68	30	30	Yes	Every 3rd Bay	No	178	180	62	62	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$		61	70	30	34	Yes	Every 3rd Bay	No	180	180	58	58	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$		65	74	30	40	Yes	Every 3rd Bay	Every 3rd Bay	180	180	49	58	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$		68	77	30	44	Yes	Every 3rd Bay	Every 3rd Bay	170	180	39	62	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$		74	84	30	48	Yes	Every 3rd Bay	Every 3rd Bay	159	180	30	64	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$		80	91	30	51	Yes	Every 3rd Bay	Every 3rd Bay	150	171	30	64	Yes	Yes	Yes	2	2

140 mph Wind Load 71-80 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	61	69	30	30	No	Every 3rd Bay	No	180	180	62	62	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	58	67	30	30	Yes	Every 3rd Bay	No	175	180	62	62	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	60	68	30	35	Yes	Every 3rd Bay	No	179	180	62	62	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	63	72	30	42	Yes	Every 3rd Bay	Every 3rd Bay	180	180	52	62	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	65	74	30	46	Yes	Every 3rd Bay	Every 3rd Bay	158	180	41	64	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	71	81	30	50	Yes	Every 3rd Bay	Every 3rd Bay	148	168	30	66	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	76	87	30	53	Yes	Every 3rd Bay	Every 3rd Bay	139	158	30	69	Yes	Yes	Yes	2	2

150 mph Wind Load 71-80 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	Module Size													
$\theta = 0$	60	69	30	30	No	Every 3rd Bay	No	180	180	65	65	Yes	Yes	Yes
$0 > \theta < 7.5$	57	65	30	30	Yes	Every 3rd Bay	No	172	180	65	65	Yes	Yes	Yes
$7.5 > \theta < 15$	59	67	30	37	Yes	Every 3rd Bay	No	176	180	56	56	Yes	Yes	Yes
$15 > \theta < 22.5$	61	70	30	44	Yes	Every 3rd Bay	Every 3rd Bay	179	180	56	65	Yes	Yes	Yes
$22.5 > \theta < 30$	63	72	30	48	Yes	Every 3rd Bay	Every 3rd Bay	147	168	44	66	Yes	Yes	Yes
$30 > \theta < 37.5$	68	77	30	53	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes
$37.5 > \theta < 45$	73	83	30	56	Yes	Every 3rd Bay	Every 3rd Bay	130	148	30	71	Yes	Yes	Yes

Series 200

Configuration Tables for Ground Mount System 71 to 80 psf Snow Loads (3 Module Panels)

160 mph Wind Load 71-80 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			Required Braces					
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F	Module Size		
			Short	Tall					Short	Tall				40" x 66"	40" x 78"
$\theta = 0$	59	68	30	No	Every 3rd Bay	No	178	180	66	66	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	56	64	30	Yes	Every 3rd Bay	No	168	180	66	66	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	57	65	30	Yes	Every 3rd Bay	No	172	180	59	59	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	60	68	30	Yes	Every 3rd Bay	Every 3rd Bay	167	180	46	66	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	61	69	30	Yes	Every 3rd Bay	Every 3rd Bay	138	158	32	69	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	65	74	30	Yes	Every 3rd Bay	Every 3rd Bay	129	147	32	70	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	69	79	30	Yes	Every 3rd Bay	Every 3rd Bay	121	139	32	73	Yes	Yes	Yes	2	2

170 mph Wind Load 71-80 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)			Required Braces			Max (PS)			Required Braces				
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	58	67	30	No	Every 3rd Bay	No	175	180	63	63	Yes	Yes	Yes	2
$0 > \theta < 7.5$	55	63	30	Yes	Every 3rd Bay	No	165	180	63	63	Yes	Yes	Yes	2
$7.5 > \theta < 15$	56	64	30	Yes	Every 3rd Bay	No	168	180	63	63	Yes	Yes	Yes	3
$15 > \theta < 22.5$	58	66	30	Yes	Every 3rd Bay	Every 3rd Bay	158	180	49	68	Yes	Yes	Yes	3
$22.5 > \theta < 30$	59	67	30	Yes	Every 3rd Bay	Every 3rd Bay	130	148	34	70	Yes	Yes	Yes	3
$30 > \theta < 37.5$	63	72	30	Yes	Every 3rd Bay	Every 3rd Bay	122	139	34	73	Yes	Yes	Yes	2
$37.5 > \theta < 45$	66	75	30	Yes	Every 3rd Bay	Every 3rd Bay	114	130	34	76	Yes	Yes	Yes	2

Series 200

Configuration Tables for Ground Mount System 81 to 90 psf Snow Loads (3 Module Panels)

100 mph Wind Load 81-90 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)			Required Braces			Max (PS)			Required Braces		
	12" Dia Pier		Tall	A	C	D	12" Dia Pier		Tall	A	E	F
	Sch 40	Sch 80					Short	Sch 80				
θ = 0	60	68	30	No	Every 3rd Bay	No	30	180	63	Yes	Yes	2
0 > θ < 7.5	60	68	30	Yes	Every 3rd Bay	No	30	179	63	Yes	Yes	2
7.5 > θ < 15	62	71	30	Yes	Every 3rd Bay	No	30	180	60	Yes	Yes	2
15 > θ < 22.5	66	76	30	Yes	Every 3rd Bay	Every 3rd Bay	33	180	60	Yes	Yes	2
22.5 > θ < 30	72	83	30	Yes	Every 3rd Bay	Every 3rd Bay	36	180	46	Yes	Yes	2
30 > θ < 37.5	81	92	30	Yes	Every 3rd Bay	Every 3rd Bay	47	180	31	Yes	Yes	2
37.5 > θ < 45	90	102	30	Yes	Every 3rd Bay	Every 3rd Bay	47	180	30	Yes	Yes	2

110 mph Wind Load 81-90 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)			Required Braces			Max (PS)			Required Braces		
	12" Dia Pier		Tall	A	C	D	12" Dia Pier		Tall	A	E	F
	Sch 40	Sch 80					Short	Sch 80				
θ = 0	60	68	30	No	Every 3rd Bay	No	30	180	59	Yes	Yes	2
0 > θ < 7.5	59	67	30	Yes	Every 3rd Bay	No	30	176	59	Yes	Yes	2
7.5 > θ < 15	59	67	30	Yes	Every 3rd Bay	No	30	176	59	Yes	Yes	2
15 > θ < 22.5	65	74	30	Yes	Every 3rd Bay	Every 3rd Bay	36	180	50	Yes	Yes	2
22.5 > θ < 30	70	80	30	Yes	Every 3rd Bay	Every 3rd Bay	39	180	42	Yes	Yes	2
30 > θ < 37.5	78	88	30	Yes	Every 3rd Bay	Every 3rd Bay	43	180	33	Yes	Yes	2
37.5 > θ < 45	86	98	30	Yes	Every 3rd Bay	Every 3rd Bay	46	177	30	Yes	Yes	2

120 mph Wind Load 81-90 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)			Required Braces			Max (PS)			Required Braces		
	12" Dia Pier		Tall	A	C	D	12" Dia Pier		Tall	A	E	F
	Sch 40	Sch 80					Short	Sch 80				
θ = 0	59	68	30	No	Every 3rd Bay	No	30	178	64	Yes	Yes	2
0 > θ < 7.5	58	66	30	Yes	Every 3rd Bay	No	30	173	64	Yes	Yes	2
7.5 > θ < 15	60	68	30	Yes	Every 3rd Bay	No	31	179	61	Yes	Yes	2
15 > θ < 22.5	64	73	30	Yes	Every 3rd Bay	Every 3rd Bay	38	180	54	Yes	Yes	2
22.5 > θ < 30	68	78	30	Yes	Every 3rd Bay	Every 3rd Bay	42	180	46	Yes	Yes	2
30 > θ < 37.5	75	85	30	Yes	Every 3rd Bay	Every 3rd Bay	46	172	36	Yes	Yes	2
37.5 > θ < 45	82	93	30	Yes	Every 3rd Bay	Every 3rd Bay	49	162	30	Yes	Yes	2

Series 200

Configuration Tables for Ground Mount System 81 to 90 psf Snow Loads (3 Module Panels)

130 mph Wind Load 81-90 psf Snow																
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces		Module Size	
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	$\theta = 0$	59	67	30	30	No	Every 3rd Bay	No	177	180	67	67	Yes	Yes	Yes	2
$0 > \theta < 7.5$	57	65	30	30	Yes	Every 3rd Bay	No	171	180	67	67	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	59	67	30	33	Yes	Every 3rd Bay	No	176	180	62	62	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	62	71	30	40	Yes	Every 3rd Bay	Every 3rd Bay	180	180	58	58	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	66	75	30	44	Yes	Every 3rd Bay	Every 3rd Bay	170	180	49	62	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	72	82	30	48	Yes	Every 3rd Bay	Every 3rd Bay	159	180	39	64	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	78	89	30	51	Yes	Every 3rd Bay	Every 3rd Bay	150	171	30	64	Yes	Yes	Yes	2	2

140 mph Wind Load 81-90 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation						Number of Rails Required Per Panel		
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces		Module Size		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
	$\theta = 0$	58	66	30	30	No	Every 3rd Bay	No	174	180	69	69	Yes	Yes	Yes	2
$0 > \theta < 7.5$	56	64	30	30	Yes	Every 3rd Bay	No	168	180	69	69	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	57	66	30	35	Yes	Every 3rd Bay	No	172	180	62	62	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	61	69	30	42	Yes	Every 3rd Bay	Every 3rd Bay	180	180	52	62	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	64	73	30	46	Yes	Every 3rd Bay	Every 3rd Bay	158	180	41	64	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	69	79	30	50	Yes	Every 3rd Bay	Every 3rd Bay	148	168	30	66	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	75	85	30	53	Yes	Every 3rd Bay	Every 3rd Bay	139	158	30	69	Yes	Yes	Yes	2	2

150 mph Wind Load 81-90 psf Snow																
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces				
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	40" x 66"	40" x 78"														
$\theta = 0$	57	66	30	30	No	Every 3rd Bay	No	172	180	68	68	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	55	63	30	30	Yes	Every 3rd Bay	No	165	180	66	66	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	56	64	30	37	Yes	Every 3rd Bay	No	169	180	65	65	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	59	68	30	44	Yes	Every 3rd Bay	Every 3rd Bay	178	180	56	65	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	61	70	30	48	Yes	Every 3rd Bay	Every 3rd Bay	147	168	44	66	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	66	76	30	52	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	72	82	30	55	Yes	Every 3rd Bay	Every 3rd Bay	130	148	30	71	Yes	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 81 to 90 psf Snow Loads (3 Module Panels)

160 mph Wind Load 81-90 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)			Required Braces			Max (psf)			12" Dia Pier			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	Short	Tall	A	
	57	65	30	No	Every 3rd Bay	No	170	180	69	69	69	Yes	
θ = 0	54	62	30	Yes	Every 3rd Bay	No	162	180	66	66	66	Yes	2
0 > θ < 7.5	55	63	30	Yes	Every 3rd Bay	No	166	180	66	66	66	Yes	2
7.5 > θ < 15	58	66	30	Yes	Every 3rd Bay	Every 3rd Bay	167	180	59	66	66	Yes	2
15 > θ < 22.5	59	68	30	Yes	Every 3rd Bay	Every 3rd Bay	138	158	46	69	69	Yes	2
22.5 > θ < 30	64	73	30	Yes	Every 3rd Bay	Every 3rd Bay	129	147	32	70	70	Yes	2
30 > θ < 37.5	69	78	30	Yes	Every 3rd Bay	Every 3rd Bay	121	139	32	73	73	Yes	2
37.5 > θ < 45													

170 mph Wind Load 81-90 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (psf)			Required Braces			Max (psf)			12" Dia Pier			Module Size
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	Short	Tall	A	
	56	64	30	No	Every 3rd Bay	No	168	180	68	68	68	Yes	
θ = 0	53	61	30	Yes	Every 3rd Bay	No	159	180	68	68	68	Yes	2
0 > θ < 7.5	54	62	30	Yes	Every 3rd Bay	No	162	180	63	63	63	Yes	2
7.5 > θ < 15	56	64	30	Yes	Every 3rd Bay	Every 3rd Bay	158	180	63	68	68	Yes	2
15 > θ < 22.5	57	65	30	Yes	Every 3rd Bay	Every 3rd Bay	130	148	34	70	70	Yes	2
22.5 > θ < 30	62	70	30	Yes	Every 3rd Bay	Every 3rd Bay	122	139	34	73	73	Yes	2
30 > θ < 37.5	65	75	30	Yes	Every 3rd Bay	Every 3rd Bay	114	130	34	76	76	Yes	2
37.5 > θ < 45													

Series 200

Configuration Tables for Ground Mount System 91 to 100 psf Snow Loads (3 Module Panels)

100 mph Wind Load 91-100 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (PS)			Required Braces			Max (PS)			12" Dia Pier			Number of Rails Required Per Panel
	Sch 40		Sch 80	A	C	D	Sch 40		Sch 80	Short	Tall	Required Braces	
	57		65	No	Every 3rd Bay	No	171		180	63	63	F	
θ = 0	57		65	Yes	Every 3rd Bay	No	171		180	63	63	Yes	2
0 > θ < 7.5	59		68	Yes	Every 3rd Bay	No	178		180	63	63	Yes	2
7.5 > θ < 15	64		73	Yes	Every 3rd Bay	Every 3rd Bay	180		180	60	60	Yes	2
15 > θ < 22.5	70		80	Yes	Every 3rd Bay	Every 3rd Bay	180		180	46	49	Yes	2
22.5 > θ < 30	78		89	Yes	Every 3rd Bay	Every 3rd Bay	180		180	39	60	Yes	2
30 > θ < 37.5	87		100	Yes	Every 3rd Bay	Every 3rd Bay	180		180	31	60	Yes	2

110 mph Wind Load 91-100 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
														40" x 66"	40" x 78"	
$\theta = 0$	57	65	30	30	No	Every 3rd Bay	No	171	180	59	59	Yes	Yes	Yes	2	2
$0 > \theta < 7.5$	56	64	30	30	Yes	Every 3rd Bay	No	169	180	59	59	Yes	Yes	Yes	2	2
$7.5 > \theta < 15$	56	64	30	30	Yes	Every 3rd Bay	No	169	180	59	59	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	63	71	30	35	Yes	Every 3rd Bay	Every 3rd Bay	180	180	56	56	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	68	78	30	39	Yes	Every 3rd Bay	Every 3rd Bay	180	180	50	53	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	75	86	30	43	Yes	Every 3rd Bay	Every 3rd Bay	180	180	33	56	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	84	95	30	46	Yes	Every 3rd Bay	Every 3rd Bay	177	180	30	59	Yes	Yes	Yes	2	2

120 mph Wind Load 91-100 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			Required Braces					
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F	Module Size		
			Short	Tall					Short	Tall			40" x 66"	40" x 78"	
$\theta = 0$	57	65	30	30	No	Every 3rd Bay	No	171	180	64	64	Yes	Yes	2	2
$0 > \theta < 7.5$	55	63	30	30	Yes	Every 3rd Bay	No	166	180	64	64	Yes	Yes	2	2
$7.5 > \theta < 15$	57	66	30	31	Yes	Every 3rd Bay	No	172	180	64	64	Yes	Yes	2	2
$15 > \theta < 22.5$	61	70	30	37	Yes	Every 3rd Bay	Every 3rd Bay	180	180	58	58	Yes	Yes	2	2
$22.5 > \theta < 30$	66	76	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	46	58	Yes	Yes	2	2
$30 > \theta < 37.5$	73	83	30	45	Yes	Every 3rd Bay	Every 3rd Bay	172	180	36	61	Yes	Yes	2	2
$37.5 > \theta < 45$	80	91	30	48	Yes	Every 3rd Bay	Every 3rd Bay	162	180	30	64	Yes	Yes	2	2

Series 200

Configuration Tables for Ground Mount System 91 to 100 psf Snow Loads (3 Module Panels)

130 mph Wind Load 91-100 psf Snow														
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel	
	Max (PS)			Required Braces			Max (PS)			Required Braces				
	Sch 40	Sch 80	12" Dia Pier	A	C	D	Sch 40	Sch 80	12" Dia Pier	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	56	64	30	No	Every 3rd Bay	No	169	180	67	67	Yes	Yes	2	2
$0 > \theta < 7.5$	55	62	30	Yes	Every 3rd Bay	No	164	180	67	67	Yes	Yes	2	2
$7.5 > \theta < 15$	56	64	30	Yes	Every 3rd Bay	No	169	180	67	67	Yes	Yes	2	2
$15 > \theta < 22.5$	60	68	30	Yes	Every 3rd Bay	Every 3rd Bay	180	180	58	58	Yes	Yes	2	2
$22.5 > \theta < 30$	64	73	30	Yes	Every 3rd Bay	Every 3rd Bay	170	180	49	62	Yes	Yes	2	2
$30 > \theta < 37.5$	70	80	30	Yes	Every 3rd Bay	Every 3rd Bay	159	180	39	64	Yes	Yes	2	2
$37.5 > \theta < 45$	77	88	30	Yes	Every 3rd Bay	Every 3rd Bay	150	171	30	64	Yes	Yes	2	2

140 mph Wind Load 91-100 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	Max (PS)			Required Braces			Max (PS)			Required Braces					
	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	56	64	30	No	Every 3rd Bay	No	167	180	69	69	Yes	Yes	Yes	2	3
$0 > \theta < 7.5$	54	61	30	Yes	Every 3rd Bay	No	162	180	69	69	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	55	63	30	Yes	Every 3rd Bay	No	166	180	66	66	Yes	Yes	Yes	2	2
$15 > \theta < 22.5$	59	67	30	Yes	Every 3rd Bay	Every 3rd Bay	176	180	62	62	Yes	Yes	Yes	2	2
$22.5 > \theta < 30$	62	71	30	Yes	Every 3rd Bay	Every 3rd Bay	158	180	52	64	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	68	77	30	Yes	Every 3rd Bay	Every 3rd Bay	148	168	41	66	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	74	84	30	Yes	Every 3rd Bay	Every 3rd Bay	139	158	30	69	Yes	Yes	Yes	2	2

150 mph Wind Load 91-100 psf Snow																		
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel					
	Max (PS)			12" Dia Pier			Required Braces			Max (PS)					12" Dia Pier			Required Braces
	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	Module Size				
													40" x 66"			40" x 78"		
$\theta = 0$	55	63	30	No	Every 3rd Bay	No	165	180	71	71	Yes	Yes	Yes	2	3			
$0 > \theta < 7.5$	53	60	30	Yes	Every 3rd Bay	No	159	180	71	71	Yes	Yes	Yes	2	3			
$7.5 > \theta < 15$	54	62	30	Yes	Every 3rd Bay	No	163	180	66	66	Yes	Yes	Yes	2	3			
$15 > \theta < 22.5$	57	66	30	Yes	Every 3rd Bay	Every 3rd Bay	172	180	56	65	Yes	Yes	Yes	2	3			
$22.5 > \theta < 30$	60	68	30	Yes	Every 3rd Bay	Every 3rd Bay	147	168	44	66	Yes	Yes	Yes	2	2			
$30 > \theta < 37.5$	65	74	30	Yes	Every 3rd Bay	Every 3rd Bay	138	157	30	68	Yes	Yes	Yes	2	2			
$37.5 > \theta < 45$	70	80	30	Yes	Every 3rd Bay	Every 3rd Bay	130	148	30	71	Yes	Yes	Yes	2	2			

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Configuration Tables for Ground Mount System 91 to 100 psf Snow Loads (3 Module Panels)

160 mph Wind Load 91-100 psf Snow																				
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel							
	Max (PS)			12" Dia Pier			Required Braces			Max (PS)			12" Dia Pier			Required Braces			Module Size	
	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"					
$\theta = 0$	54	62	30	No	Every 3rd Bay	No	163	180	73	73	Yes	Yes	Yes	2	3					
$0 > \theta < 7.5$	52	59	30	Yes	Every 3rd Bay	No	156	178	73	73	Yes	Yes	Yes	2	3					
$7.5 > \theta < 15$	53	61	30	Yes	Every 3rd Bay	No	160	180	66	66	Yes	Yes	Yes	2	3					
$15 > \theta < 22.5$	56	64	30	Yes	Every 3rd Bay	Every 3rd Bay	167	180	59	66	Yes	Yes	Yes	2	3					
$22.5 > \theta < 30$	58	66	30	Yes	Every 3rd Bay	Every 3rd Bay	138	158	46	69	Yes	Yes	Yes	2	3					
$30 > \theta < 37.5$	63	72	30	Yes	Every 3rd Bay	Every 3rd Bay	129	147	32	70	Yes	Yes	Yes	2	2					
$37.5 > \theta < 45$	68	77	30	Yes	Every 3rd Bay	Every 3rd Bay	121	139	32	73	Yes	Yes	Yes	2	2					

170 mph Wind Load 91-100 psf Snow																				
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel							
	Max (PS)			12" Dia Pier			Required Braces			Max (PS)			12" Dia Pier			Required Braces			Module Size	
	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"					
$\theta = 0$	54	61	30	No	Every 3rd Bay	No	162	180	76	76	Yes	Yes	Yes	2	3					
$0 > \theta < 7.5$	51	58	30	Yes	Every 3rd Bay	No	154	175	73	73	Yes	Yes	Yes	2	3					
$7.5 > \theta < 15$	52	60	30	Yes	Every 3rd Bay	No	157	179	68	68	Yes	Yes	Yes	2	3					
$15 > \theta < 22.5$	55	63	30	Yes	Every 3rd Bay	Every 3rd Bay	158	180	63	68	Yes	Yes	Yes	2	3					
$22.5 > \theta < 30$	56	64	30	Yes	Every 3rd Bay	Every 3rd Bay	130	148	49	70	Yes	Yes	Yes	2	3					
$30 > \theta < 37.5$	61	69	30	Yes	Every 3rd Bay	Every 3rd Bay	122	139	33	73	Yes	Yes	Yes	2	3					
$37.5 > \theta < 45$	65	74	30	Yes	Every 3rd Bay	Every 3rd Bay	114	130	33	76	Yes	Yes	Yes	2	2					

Series 200

Configuration Tables for Ground Mount System 101 to 110 psf Snow Loads (3 Module Panels)

100 mph Wind Load 101-110 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"
$\theta = 0$	54	62	30	30	No	Every 3rd Bay	No	163	180	63	63	Yes	Yes	Yes	2	3
$0 > \theta < 7.5$	55	62	30	30	Yes	Every 3rd Bay	No	164	180	63	63	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	55	63	30	30	Yes	Every 3rd Bay	No	165	180	63	63	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	56	64	30	30	Yes	Every 3rd Bay	Every 3rd Bay	168	180	63	63	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	58	66	30	33	Yes	Every 3rd Bay	Every 3rd Bay	173	180	63	63	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	61	69	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	63	63	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	64	73	30	41	Yes	Every 3rd Bay	Every 3rd Bay	180	180	60	60	Yes	Yes	Yes	2	2

110 mph Wind Load 101-110 psf Snow																	
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel				
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces						
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F			
$\theta = 0$	54	62	30	30	No	Every 3rd Bay	No	163	180	59	59	Yes	Yes	Yes	2	40" x 66"	40" x 78"
$0 > \theta < 7.5$	54	62	30	30	Yes	Every 3rd Bay	No	162	180	59	59	Yes	Yes	Yes	2	3	3
$7.5 > \theta < 15$	54	62	30	30	Yes	Every 3rd Bay	No	162	180	59	59	Yes	Yes	Yes	2	3	3
$15 > \theta < 22.5$	55	63	30	33	Yes	Every 3rd Bay	Every 3rd Bay	165	180	59	59	Yes	Yes	Yes	2	3	3
$22.5 > \theta < 30$	57	65	30	36	Yes	Every 3rd Bay	Every 3rd Bay	170	180	59	59	Yes	Yes	Yes	2	2	2
$30 > \theta < 37.5$	60	69	30	39	Yes	Every 3rd Bay	Every 3rd Bay	180	180	59	59	Yes	Yes	Yes	2	2	2
$37.5 > \theta < 45$	63	72	30	42	Yes	Every 3rd Bay	Every 3rd Bay	177	180	59	59	Yes	Yes	Yes	2	2	2

120 mph Wind Load 101-110 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	Module Size	
$\theta = 0$	54	62	30	30	No	Every 3rd Bay	No	163	180	64	64	Yes	Yes	Yes	2	40" x 78"
$0 > \theta < 7.5$	53	61	30	30	Yes	Every 3rd Bay	No	160	180	64	64	Yes	Yes	Yes	2	3
$7.5 > \theta < 15$	54	61	30	30	Yes	Every 3rd Bay	No	161	180	64	64	Yes	Yes	Yes	2	3
$15 > \theta < 22.5$	54	62	30	35	Yes	Every 3rd Bay	Every 3rd Bay	163	180	64	64	Yes	Yes	Yes	2	3
$22.5 > \theta < 30$	56	64	30	38	Yes	Every 3rd Bay	Every 3rd Bay	167	180	64	64	Yes	Yes	Yes	2	2
$30 > \theta < 37.5$	59	67	30	41	Yes	Every 3rd Bay	Every 3rd Bay	172	180	64	64	Yes	Yes	Yes	2	2
$37.5 > \theta < 45$	62	70	30	44	Yes	Every 3rd Bay	Every 3rd Bay	162	180	58	64	Yes	Yes	Yes	2	2

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Configuration Tables for Ground Mount System 101 to 110 psf Snow Loads (3 Module Panels)

130 mph Wind Load 101-110 psf Snow												
Tilt Angle θ	Standard Installation						Braced Installation					
	Max (PS)		12" Dia Pier			Required Braces	Max (PS)		12" Dia Pier			Required Braces
	Sch 40	Sch 80	Short	Tall	A		Sch 40	Sch 80	Short	Tall	A	
	54	62	30	30	No		163	180	67	67	Yes	
θ = 0	53	60	30	30	Yes	Every 3rd Bay	158	180	67	67	Yes	Yes
0 > θ < 7.5	53	60	30	32	Yes	Every 3rd Bay	158	180	67	67	Yes	Yes
7.5 > θ < 15	53	61	30	37	Yes	Every 3rd Bay	160	180	67	67	Yes	Yes
15 > θ < 22.5	55	63	30	40	Yes	Every 3rd Bay	164	180	67	67	Yes	Yes
22.5 > θ < 30	58	66	30	43	Yes	Every 3rd Bay	159	180	67	67	Yes	Yes
30 > θ < 37.5	60	69	30	46	Yes	Every 3rd Bay	150	171	58	64	Yes	Yes
37.5 > θ < 45												

140 mph Wind Load 101-110 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Module Size															
$\theta = 0$	54	61	30	30	No	Every 3rd Bay	No	161	180	69	69	Yes	Yes	2	40" x 66"	40" x 78"
$0 > \theta < 7.5$	52	59	30	30	Yes	Every 3rd Bay	No	156	178	69	69	Yes	Yes	2	2	3
$7.5 > \theta < 15$	52	59	30	33	Yes	Every 3rd Bay	No	156	178	69	69	Yes	Yes	2	2	3
$15 > \theta < 22.5$	52	60	30	39	Yes	Every 3rd Bay	Every 3rd Bay	157	180	69	69	Yes	Yes	2	2	3
$22.5 > \theta < 30$	54	61	30	43	Yes	Every 3rd Bay	Every 3rd Bay	158	180	69	69	Yes	Yes	2	2	3
$30 > \theta < 37.5$	56	64	30	46	Yes	Every 3rd Bay	Every 3rd Bay	148	168	62	66	Yes	Yes	2	2	3
$37.5 > \theta < 45$	59	67	30	49	Yes	Every 3rd Bay	Every 3rd Bay	139	158	52	69	Yes	Yes	2	2	2

150 mph Wind Load 101-110 psf Snow													
Tilt Angle θ	Standard Installation						Braced Installation						
	Max (PS)		12" Dia Pier		Required Braces		Max (PS)		12" Dia Pier		Required Braces		
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E
	53	61	30	30	No	Every 3rd Bay	No	159	180	71	71	Yes	Yes
$\theta = 0$	51	58	30	30	Yes	Every 3rd Bay	No	154	175	71	71	Yes	Yes
$0 > \theta < 7.5$	51	58	30	35	Yes	Every 3rd Bay	No	153	175	71	71	Yes	Yes
$7.5 > \theta < 15$	52	59	30	41	Yes	Every 3rd Bay	Every 3rd Bay	155	176	71	71	Yes	Yes
$15 > \theta < 22.5$	53	60	30	45	Yes	Every 3rd Bay	Every 3rd Bay	147	168	66	66	Yes	Yes
$22.5 > \theta < 30$	55	62	30	48	Yes	Every 3rd Bay	Every 3rd Bay	138	157	65	68	Yes	Yes
$30 > \theta < 37.5$	57	65	30	51	Yes	Every 3rd Bay	Every 3rd Bay	130	148	55	71	Yes	Yes
$37.5 > \theta < 45$													
									</				

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Configuration Tables for Ground Mount System 101 to 110 psf Snow Loads (3 Module Panels)

160 mph Wind Load 101-110 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	12" Dia Pier			Required Braces			12" Dia Pier			Required Braces					
	Max (PS)	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	Sch 40	Sch 80	Short	Tall	A	No	Every 3rd Bay	No	158	180	73	73	Yes	Yes	Yes
$\theta = 0$	53	60	30	30	No	Every 3rd Bay	No	No	151	173	73	73	Yes	Yes	Yes
$0 > \theta < 7.5$	50	58	30	30	Yes	Every 3rd Bay	No	No	151	172	73	73	Yes	Yes	Yes
$7.5 > \theta < 15$	50	57	30	36	Yes	Every 3rd Bay	No	No	151	172	73	73	Yes	Yes	Yes
$15 > \theta < 22.5$	51	58	30	43	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	152	173	73	73	Yes	Yes	Yes
$22.5 > \theta < 30$	51	59	30	47	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	138	158	66	69	Yes	Yes	Yes
$30 > \theta < 37.5$	53	61	30	50	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	129	147	58	70	Yes	Yes	Yes
$37.5 > \theta < 45$	55	63	30	53	Yes	Every 3rd Bay	Every 3rd Bay	Every 3rd Bay	121	139	46	73	Yes	Yes	Yes

170 mph Wind Load 101-110 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	12" Dia Pier			Required Braces			12" Dia Pier			Required Braces					
	Max (PS)		Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	Module Size	
	Sch 40	Sch 80												40" x 66"	40" x 78"
$\theta = 0$	52	59	30	No	Every 3rd Bay	No	156	178	76	76	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	50	57	30	Yes	Every 3rd Bay	No	149	170	76	76	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	49	56	30	Yes	Every 3rd Bay	No	148	169	76	76	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	50	57	30	Yes	Every 3rd Bay	Every 3rd Bay	149	170	73	73	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	50	57	30	Yes	Every 3rd Bay	Every 3rd Bay	130	148	61	70	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	52	59	30	Yes	Every 3rd Bay	Every 3rd Bay	122	139	61	73	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	54	62	30	Yes	Every 3rd Bay	Every 3rd Bay	114	130	48	76	Yes	Yes	Yes	3	3

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Configuration Tables for Ground Mount System 111 to 120 psf Snow Loads (3 Module Panels)

100 mph Wind Load 111-120 psf Snow																		
Tilt Angle θ	Standard Installation								Braced Installation								Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier		Required Braces				Max (PS)		12" Dia Pier		Required Braces					
	Sch 40	Sch 80	Short	Tall	A	C	D		Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"	
$\theta = 0$	52	60	30	30	No	Every 3rd Bay	No		157	179	63	63	Yes	Yes	Yes	2	3	
$0 > \theta < 7.5$	52	60	32	32	Yes	Every 3rd Bay	No		157	179	63	63	Yes	Yes	Yes	2	3	
$7.5 > \theta < 15$	53	61	30	30	Yes	Every 3rd Bay	No		159	180	63	63	Yes	Yes	Yes	2	3	
$15 > \theta < 22.5$	54	62	30	30	Yes	Every 3rd Bay	Every 3rd Bay		162	180	63	63	Yes	Yes	Yes	2	3	
$22.5 > \theta < 30$	56	63	30	32	Yes	Every 3rd Bay	Every 3rd Bay		167	180	63	63	Yes	Yes	Yes	2	2	
$30 > \theta < 37.5$	59	67	30	40	Yes	Every 3rd Bay	Every 3rd Bay		176	180	60	60	Yes	Yes	Yes	2	2	
$37.5 > \theta < 45$	62	71	30	40	Yes	Every 3rd Bay	Every 3rd Bay		180	180	39	60	Yes	Yes	Yes	2	2	

110 mph Wind Load 111-120 psf Snow																		
Tilt Angle θ	Standard Installation								Braced Installation						Number of Rails Required Per Panel			
	Max (PSF)		12" Dia Pier		Required Braces				Max (PSF)		12" Dia Pier		Required Braces		Module Size			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"		
$\theta = 0$	52	60	30	30	No	Every 3rd Bay	No	157	179	59	59	Yes	Yes	Yes	2	3		
$0 > \theta < 7.5$	52	60	33	33	Yes	Every 3rd Bay	No	157	179	59	59	Yes	Yes	Yes	2	3		
$7.5 > \theta < 15$	52	60	30	30	Yes	Every 3rd Bay	No	157	179	59	59	Yes	Yes	Yes	2	3		
$15 > \theta < 22.5$	53	61	30	33	Yes	Every 3rd Bay	Every 3rd Bay	160	180	59	59	Yes	Yes	Yes	2	3		
$22.5 > \theta < 30$	55	62	30	36	Yes	Every 3rd Bay	Every 3rd Bay	164	180	59	59	Yes	Yes	Yes	2	3		
$30 > \theta < 37.5$	58	66	30	38	Yes	Every 3rd Bay	Every 3rd Bay	174	180	53	56	Yes	Yes	Yes	2	2		
$37.5 > \theta < 45$	61	70	30	41	Yes	Every 3rd Bay	Every 3rd Bay	177	180	42	59	Yes	Yes	Yes	2	2		

120 mph Wind Load 111-120 psf Snow																				
Tilt Angle θ	Standard Installation							Braced Installation							Required Braces				Number of Rails Required Per Panel	
	Max (PS)		12" Dia Pier			Required Braces		Max (PS)		12" Dia Pier			Required Braces							
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"				
$\theta = 0$	52	60	30	30	No	Every 3rd Bay	No	157	179	64	64	Yes	Yes	Yes	2	3				
$0 > \theta < 7.5$	52	59	30	30	Yes	Every 3rd Bay	No	155	177	64	64	Yes	Yes	Yes	2	3				
$7.5 > \theta < 15$	52	59	30	30	Yes	Every 3rd Bay	No	155	177	64	64	Yes	Yes	Yes	2	3				
$15 > \theta < 22.5$	52	60	30	35	Yes	Every 3rd Bay	Every 3rd Bay	157	180	64	64	Yes	Yes	Yes	2	3				
$22.5 > \theta < 30$	54	62	30	38	Yes	Every 3rd Bay	Every 3rd Bay	162	180	64	64	Yes	Yes	Yes	2	3				
$30 > \theta < 37.5$	57	65	30	41	Yes	Every 3rd Bay	Every 3rd Bay	172	180	54	61	Yes	Yes	Yes	2	2				
$37.5 > \theta < 45$	60	68	30	44	Yes	Every 3rd Bay	Every 3rd Bay	162	180	36	64	Yes	Yes	Yes	2	2				

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Configuration Tables for Ground Mount System 111 to 120 psf Snow Loads (3 Module Panels)

130 mph Wind Load 111-120 psf Snow																			
Tilt Angle θ		Standard Installation										Braced Installation						Number of Rails Required Per Panel	
		Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces						
		Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F				
$\theta = 0$		52	60	30	30	No	Every 3rd Bay	No	157	179	67	67	Yes	Yes	Yes	Yes	2	40" x 66"	40" x 78"
$0 > \theta < 7.5$		51	58	31	31	Yes	Every 3rd Bay	No	153	174	67	67	Yes	Yes	Yes	Yes	2	40" x 66"	40" x 78"
$7.5 > \theta < 15$		51	58	31	31	Yes	Every 3rd Bay	No	153	175	67	67	Yes	Yes	Yes	Yes	2	40" x 66"	40" x 78"
$15 > \theta < 22.5$		52	59	30	37	Yes	Every 3rd Bay	Every 3rd Bay	155	177	67	67	Yes	Yes	Yes	Yes	2	40" x 66"	40" x 78"
$22.5 > \theta < 30$		53	61	30	40	Yes	Every 3rd Bay	Every 3rd Bay	159	180	67	67	Yes	Yes	Yes	Yes	2	40" x 66"	40" x 78"
$30 > \theta < 37.5$		56	64	30	43	Yes	Every 3rd Bay	Every 3rd Bay	159	180	58	64	Yes	Yes	Yes	Yes	2	40" x 66"	40" x 78"
$37.5 > \theta < 45$		58	67	30	46	Yes	Every 3rd Bay	Every 3rd Bay	150	171	38	64	Yes	Yes	Yes	Yes	2	40" x 66"	40" x 78"

140 mph Wind Load 111-120 psf Snow																		
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces			Module Size			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"		
$\theta = 0$	52	59	30	30	No	Every 3rd Bay	No	155	177	69	69	Yes	Yes	Yes	2	3		
$0 > \theta < 7.5$	50	57	33	33	Yes	Every 3rd Bay	No	151	172	69	69	Yes	Yes	Yes	2	3		
$7.5 > \theta < 15$	50	57	30	33	Yes	Every 3rd Bay	No	151	172	69	69	Yes	Yes	Yes	2	3		
$15 > \theta < 22.5$	51	58	30	39	Yes	Every 3rd Bay	Every 3rd Bay	153	174	69	69	Yes	Yes	Yes	2	3		
$22.5 > \theta < 30$	52	60	30	42	Yes	Every 3rd Bay	Every 3rd Bay	157	179	69	69	Yes	Yes	Yes	2	3		
$30 > \theta < 37.5$	55	62	30	45	Yes	Every 3rd Bay	Every 3rd Bay	148	168	52	66	Yes	Yes	Yes	2	3		
$37.5 > \theta < 45$	57	65	30	48	Yes	Every 3rd Bay	Every 3rd Bay	139	158	40	69	Yes	Yes	Yes	2	3		

150 mph Wind Load 111-120 psf Snow																		
Tilt Angle θ	Standard Installation							Braced Installation							Number of Rails Required Per Panel			
	Max (PS)		12" Dia Pier		Required Braces			Max (PS)		12" Dia Pier		Required Braces			Module Size			
	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F	40" x 66"	40" x 78"		
$\theta = 0$	51	59	30	30	No	Every 3rd Bay	No	154	176	71	71	Yes	Yes	Yes	2	3		
$0 > \theta < 7.5$	50	57	34	34	Yes	Every 3rd Bay	No	149	170	71	71	Yes	Yes	Yes	2	3		
$7.5 > \theta < 15$	49	56	30	34	Yes	Every 3rd Bay	No	148	169	71	71	Yes	Yes	Yes	3	3		
$15 > \theta < 22.5$	50	57	30	41	Yes	Every 3rd Bay	Every 3rd Bay	150	171	71	71	Yes	Yes	Yes	3	3		
$22.5 > \theta < 30$	51	59	30	44	Yes	Every 3rd Bay	Every 3rd Bay	147	168	65	66	Yes	Yes	Yes	3	3		
$30 > \theta < 37.5$	53	61	30	47	Yes	Every 3rd Bay	Every 3rd Bay	138	157	55	68	Yes	Yes	Yes	2	3		
$37.5 > \theta < 45$	56	63	30	50	Yes	Every 3rd Bay	Every 3rd Bay	130	148	30	71	Yes	Yes	Yes	2	3		

Series 200

Configuration Tables for Ground Mount System 111 to 120 psf Snow Loads (3 Module Panels)

160 mph Wind Load 111-120 psf Snow															
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel		
	12" Dia Pier			Required Braces			12" Dia Pier			Required Braces					
	Max (PS)	Sch 40	Sch 80	Short	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F
	Sch 40	Sch 80	Short	Tall	A	No	Every 3rd Bay	No	152	174	73	73	Yes	Yes	Yes
$\theta = 0$	51	58	30	30	No	Every 3rd Bay	No	147	167	73	73	Yes	Yes	Yes	3
$0 > \theta < 7.5$	49	56	30	30	Yes	Every 3rd Bay	No	146	167	73	73	Yes	Yes	Yes	3
$7.5 > \theta < 15$	49	56	30	36	Yes	Every 3rd Bay	No	147	168	73	73	Yes	Yes	Yes	3
$15 > \theta < 22.5$	49	56	30	43	Yes	Every 3rd Bay	Every 3rd Bay	138	158	66	69	Yes	Yes	Yes	3
$22.5 > \theta < 30$	50	57	30	46	Yes	Every 3rd Bay	Every 3rd Bay	129	147	45	70	Yes	Yes	Yes	3
$30 > \theta < 37.5$	52	59	30	49	Yes	Every 3rd Bay	Every 3rd Bay	121	139	31	73	Yes	Yes	Yes	3
$37.5 > \theta < 45$	54	62	30	52	Yes	Every 3rd Bay	Every 3rd Bay	121	139	31	73	Yes	Yes	Yes	3

170 mph Wind Load 111-120 psf Snow																
Tilt Angle θ	Standard Installation						Braced Installation						Number of Rails Required Per Panel			
	12" Dia Pier			Required Braces			12" Dia Pier			Required Braces						
	Max (PS)	Sch 40	Sch 80	Tall	A	C	D	Sch 40	Sch 80	Short	Tall	A	E	F		
	Sch 40	Sch 80	Sch 40	Sch 80	40" x 66"	40" x 78"										
$\theta = 0$	50	57	30	30	No	Every 3rd Bay	No	151	172	76	76	Yes	Yes	Yes	3	3
$0 > \theta < 7.5$	48	55	30	30	Yes	Every 3rd Bay	No	144	165	76	76	Yes	Yes	Yes	3	3
$7.5 > \theta < 15$	48	55	30	38	Yes	Every 3rd Bay	No	144	164	76	76	Yes	Yes	Yes	3	3
$15 > \theta < 22.5$	48	55	30	44	Yes	Every 3rd Bay	Every 3rd Bay	145	165	76	76	Yes	Yes	Yes	3	3
$22.5 > \theta < 30$	49	56	30	48	Yes	Every 3rd Bay	Every 3rd Bay	130	148	60	70	Yes	Yes	Yes	3	3
$30 > \theta < 37.5$	51	58	30	52	Yes	Every 3rd Bay	Every 3rd Bay	122	139	47	73	Yes	Yes	Yes	3	3
$37.5 > \theta < 45$	53	60	30	55	Yes	Every 3rd Bay	Every 3rd Bay	114	130	32	76	Yes	Yes	Yes	3	3

Series 200

Structural Calculations for Ground Mount Solar Rack

Notes:

1) Design guidelines for these calculations are listed below.

Wind Loads	100 to 170 mph Exposure C	Risk Category	I
Seismic	Seismic Design Category D		
Snow Loads	0 to 120 psf Ground Snow		

2) Design calculations assume rail span and overhangs are constant as shown on following sketch.

3) Rail design values are as follows

A	=	0.68 in ²
S	=	0.40 in ³
I	=	0.63 in ⁴
Fb	=	15.20 ksi

4) Schedule 40 and Schedule 80 pipe design values are as follows

Sch 40 Pipe		Sch 80 Pipe	
A	=	0.75 in ²	A = 1.00 in ²
S	=	0.31 in ³	S = 0.39 in ³
I	=	0.29 in ⁴	I = 0.37 in ⁴
Max M	=	8832 in-lb	Max M = 11496 in-lb

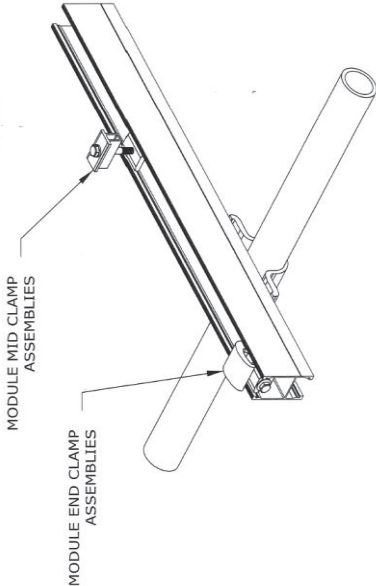
5) Load Combinations for calculations are as follows

D + S
D + W
D + 0.75 S + 0.75 W
0.6D + W

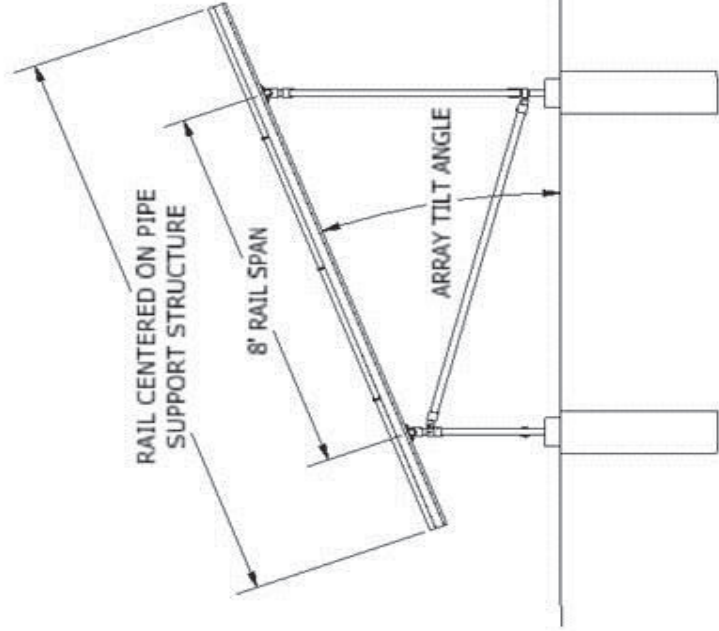
Series 200

Sketches and Details

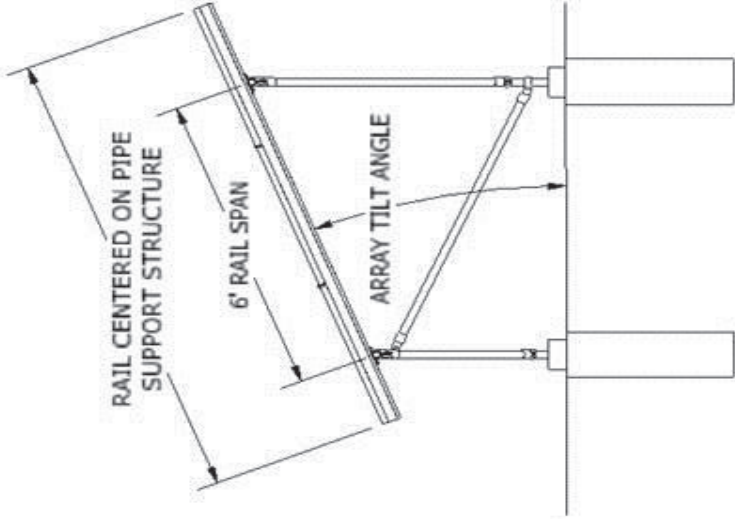
NOTE:
TORQUE $\frac{5}{16}$ " SS SILVER
HEX BOLTS TO 10-16
FT-LBS
TORQUE $\frac{3}{8}$ " SS BLACK
HEX BOLTS TO 7-9
FT-LBS



Panel Attachment to Rails



4 MODULE PANEL, TYPICAL



3 MODULE PANEL, TYPICAL

Frame Design Sketch and Dimension Parameters

Series 200

Wind Calculation ASCE 7-10 Chapter 27

Velocity Pressure 27.3.2 ASCE 7-10

$$q_h = 0.00256 k_z k_{zt} k_d V^2$$

k_z	=	0.85	Velocity Pressure Exposure Coefficients (Table 26.8-1)
k_{zt}	=	1.00	Topographic Factor (Fig. 26.8-1)
k_d	=	0.85	Wind Directionality Factor (Table 26.6-1)
V	=	100-170	Basic Wind Speed (mph)

Notes:

- 1) Wind designed for exposure C
- 2) The calculations in this report use the ASD values

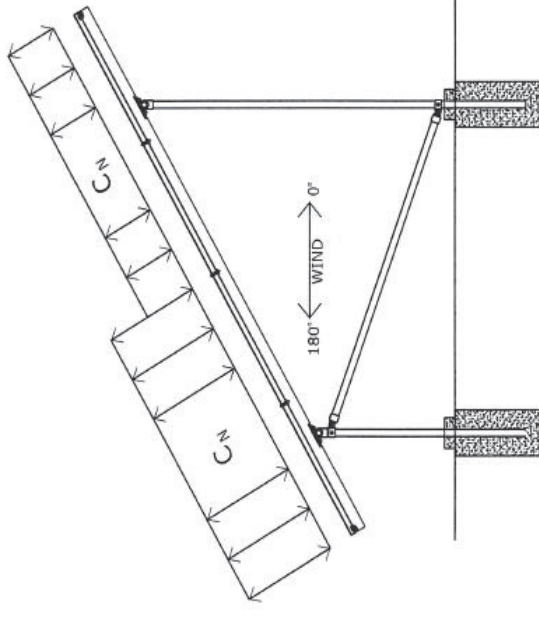
	Velocity Pressure (psf)														
	V														
q_h	100	105	110	115	120	125	130	135	140	145	150	155	160	170	
Strength	18.50	20.39	22.38	24.46	26.63	28.90	31.26	33.71	36.25	38.89	41.62	44.44	47.35	53.45	
ASD (0.6 * St)	11.10	12.24	13.43	14.68	15.98	17.34	18.75	20.23	21.75	23.33	24.97	26.66	28.41	32.07	

Main Force Resisting System 27.4.3 ASCE 7-10 Monoslope Structure

$$P = q_h G C_N$$

q_h = See Table Velocity Pressure (psf)
 G = 0.85 Gust Effect Factor
 C_n = See Table Net Pressure Coefficient

Tilt Angle	Load Case	C_N			
		Wind Direction 0°		Wind Direction 180°	
0°	A	C_{NW}	C_{NL}	C_{NW}	C_{NL}
	B	1.2	0.3	1.2	0.3
7.5°	A	-1.1	-0.1	-1.1	-0.1
	B	-0.6	-1.0	0.9	1.5
15°	A	-1.4	0.0	1.6	0.3
	B	-0.9	-1.3	1.3	1.6
22.5°	A	-1.9	0.0	1.8	0.6
	B	-1.5	-1.6	1.7	1.8
30°	A	-2.4	-0.3	2.2	0.7
	B	-1.8	-1.8	2.1	2.1
37.5°	A	-2.5	-0.5	2.6	1.0
	B	-1.8	-1.8	2.1	2.2
45°	A	-2.4	-0.6	2.7	1.1
	B	-1.6	-1.8	2.2	2.5
		-2.3	-0.7	2.6	1.4



Wind Loading Diagram

Series 200

Seismic Design ASCE 7-10 Chapter 11 and 12

Seismic Design Section Chapter 11 and 12 ASCE 7-10

S_{MS}	=	$F_a S_s$	(11.4-1)	Site Classification	=	D	Default "D"	Notes:
S_{M1}	=	$F_v S_1$	(11.4-2)	Seismic Use Group	=	II	Table 11.5-1	1) Seismic Design based on Seismic Design Category D

$$S_{DS} = \frac{2}{3} S_{MS}$$

$$S_{D1} = \frac{2}{3} S_{M1}$$

$$C_s = \frac{S_{DS}}{\left(\frac{R}{I} \right)}$$

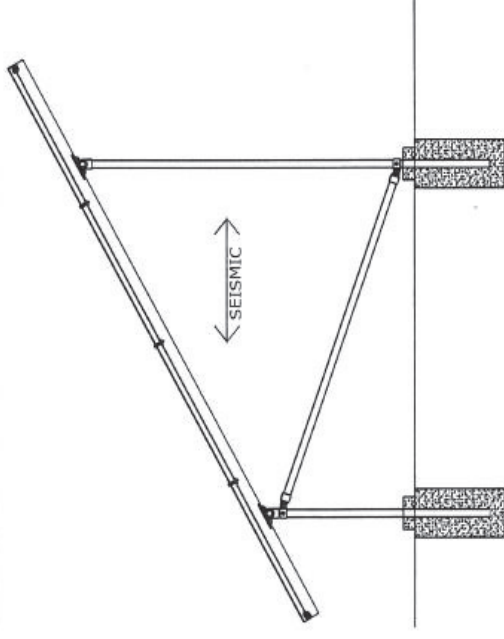
C_s	=	0.5128
C_s	=	2.8794 Max
C_s	=	0.1538 Min

R	=	3.25	Input from Table 13.6-1 ASCE 7-10
I	=	1.00	Input from Table 11.5-1 ASCE 7-10
S_s	=	2.50	Input from USGS Program
S_1	=	1.00	Input from USGS Program
F_a	=	1.00	Site Coefficient Table 11.4-1
F_v	=	1.50	Site Coefficient Table 11.4-2
S_{ms}	=	2.50	ASCE 7-10 Section 11.4.3
S_{m1}	=	1.50	ASCE 7-10 Section 11.4.3
S_{ds}	=	1.67	ASCE 7-10 Section 11.4.3
S_{d1}	=	1.00	ASCE 7-10 Section 11.4.3
W	=	4.00	psf

$$V = C_s W$$

$$V = 1.44 \text{ psf (ASD)}$$

Wind Loads Govern Design



Seismic Loading Diagram

Series 200

Snow Load Calculations ASCE 7-10 Chapter 7

Snow Loads Section 7.2 to 7.4 ASCE 7-10

$$P_f = 0.7 C_e C_t I P_g$$

Section 7.3 Eq. (7-1)

$$P_s = C_s P_f$$

Section 7.4 Eq. (7.2)

Tilt Angle	=	0 To 45°	Tilt Angle of PV Array
C _e	=	1.00	Exposure Factor
C _t	=	1.10	Thermal Factor
I	=	0.80	Importance Factor
C _s	=	See Table	Slope Factor

Notes:

- 1) Snow loads based on unobstructed slippery surface factor C_s for C_t = 1.1.

Tilt Angle Slope Factor	
Tilt Angle	C _s
0	1.00
7.5	1.00
15	0.92
22.5	0.79
30	0.67
37.5	0.54
45	0.42

Pg Ground Snow Load														
0.0	10.0	20.0	30.0	40.0	50.0	60.0	70.0	80.0	90.0	100.0	110.0	120.0	130.0	140.0 150.0

Pf Flat Roof Snow Load 0 Tilt Angle														
0.0	6.2	12.3	18.5	24.6	30.8	37.0	43.1	49.3	55.4	61.6	67.8	73.9	80.1	86.2 92.4

Ps Sloped Roof Snow Load 7.5 Degree Tilt														
0.0	6.2	12.3	18.5	24.6	30.8	37.0	43.1	49.3	55.4	61.6	67.8	73.9	80.1	86.2 92.4

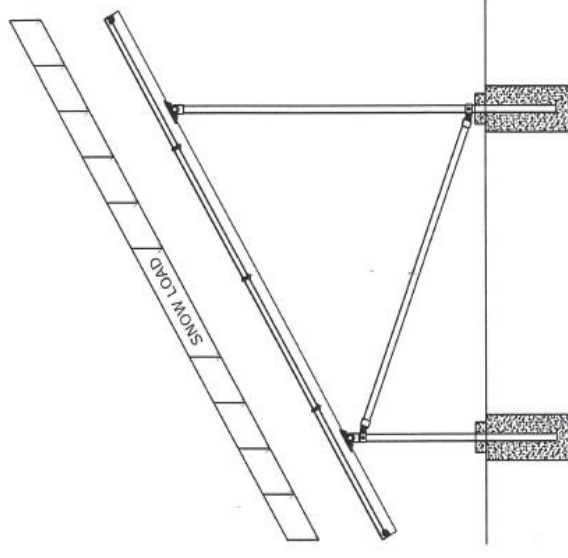
Ps Sloped Roof Snow Load 15 Degree Tilt														
0.0	5.6	11.3	16.9	22.6	28.2	33.9	39.5	45.2	50.8	56.5	62.1	67.7	73.4	79.0 84.7

Ps Sloped Roof Snow Load 22.5 Degree Tilt														
0.0	4.9	9.7	14.6	19.5	24.4	29.2	34.1	39.0	43.9	48.7	53.6	58.5	63.4	68.2 73.1

Ps Sloped Roof Snow Load 30 Degree Tilt														
0.0	4.1	8.2	12.3	16.4	20.5	24.6	28.7	32.8	36.9	41.0	45.1	49.2	53.3	57.4 61.5

Ps Sloped Roof Snow Load 37.5 Degree Tilt														
0.0	3.3	6.7	10.0	13.3	16.7	20.0	23.3	26.6	30.0	33.3	36.6	40.0	43.3	46.6 50.0

Ps Sloped Roof Snow Load 45 Degree Tilt														
0.0	2.6	5.1	7.7	10.2	12.8	15.4	17.9	20.5	23.0	25.6	28.2	30.7	33.3	35.8 38.4

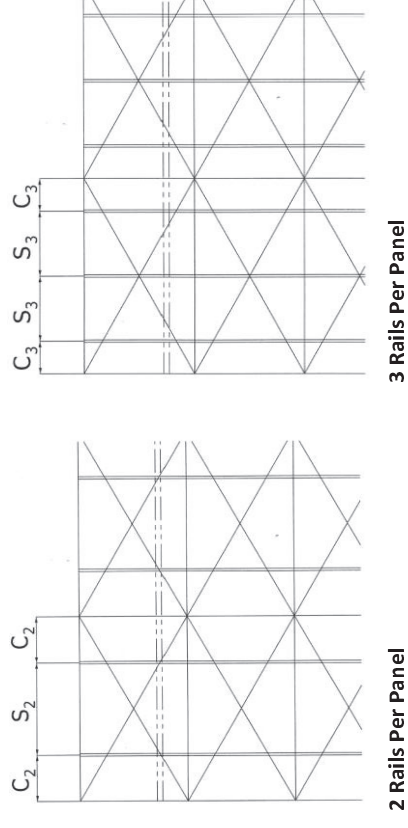


Snow Loading Diagram

Series 200

Number of Rails for Four 66" Panels

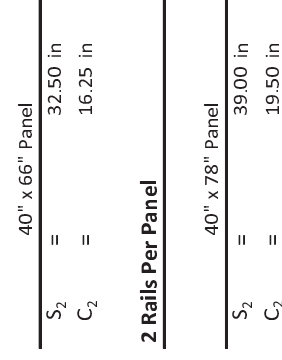
0 to 7.5 Degrees																
Number of Rails Per 40" x 66" PV Panel																
Wind Velocity (V _{ult}) mph	Snow Load															
	0	10	20	30	40	50	60	70	80	90	100	110	120			
		2	2	2	2	2	2	3	3	3	3	NG	NG			
	100	2	2	2	2	2	2	3	3	3	3	NG	NG			
	110	2	2	2	2	2	2	3	3	3	3	NG	NG			
	120	2	2	2	2	2	2	3	3	3	3	NG	NG			
	130	2	2	2	2	2	2	3	3	3	3	NG	NG			
	140	2	2	2	2	2	2	3	3	3	3	NG	NG			
	150	2	2	2	2	2	3	3	3	3	3	NG	NG			
	160	2	2	2	2	2	3	3	3	3	3	NG	NG			
	170	2	2	2	2	2	3	3	3	3	3	NG	NG			



2 Rails Per Panel

3 Rails Per Panel

7.5 to 15 Degrees																
Number of Rails Per 40" x 66" PV Panel																
Wind Velocity (V _{ult}) mph	Snow Load															
	0	10	20	30	40	50	60	70	80	90	100	110	120			
		2	2	2	2	2	2	3	3	3	3	NG	NG			
	100	2	2	2	2	2	2	3	3	3	3	NG	NG			
	110	2	2	2	2	2	2	3	3	3	3	NG	NG			
	120	2	2	2	2	2	2	3	3	3	3	NG	NG			
	130	2	2	2	2	2	3	3	3	3	3	NG	NG			
	140	2	2	2	2	2	3	3	3	3	3	NG	NG			
	150	2	2	2	2	2	3	3	3	3	NG	NG	NG			
	160	2	2	2	2	2	3	3	3	NG	NG	NG	NG			
	170	3	3	3	3	3	3	3	3	NG	NG	NG	NG			

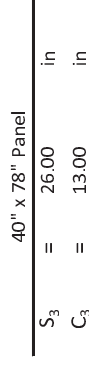


2 Rails Per Panel

3 Rails Per Panel



40" x 78" Panel



40" x 78" Panel

Maximum Moments for Two or Three Rail Configuration

Maximum Moment (2 Rails - 66" panels) = 187.1 in-lb / in

Maximum Moment (3 Rails - 66" panels) = 280.6 in-lb / in

Maximum Moment (2 Rails - 78" panels) = 155.9 in-lb / in

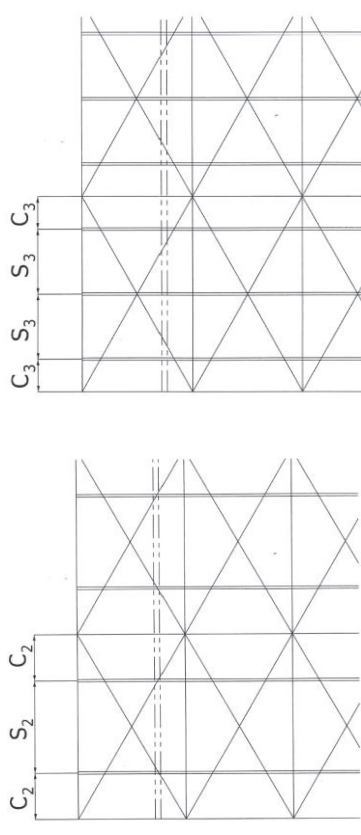
Maximum Moment (3 Rails - 78" panels) = 233.8 in-lb / in

16 to 22.5 Degrees																
Number of Rails Per 40" x 66" PV Panel																
Wind Velocity (V _{ult}) mph	Snow Load															
	0	10	20	30	40	50	60	70	80	90	100	110	120			
		2	2	2	2	2	2	2	3	3	3	3	NG			
	100	2	2	2	2	2	2	2	3	3	3	3	NG			
	110	2	2	2	2	2	2	3	3	3	3	3	NG			
	120	2	2	2	2	2	2	3	3	3	3	3	NG			
	130	2	2	2	2	2	2	3	3	3	3	3	NG			
	140	2	2	2	2	2	3	3	3	3	3	NG	NG			
	150	2	2	2	2	2	3	3	3	3	3	NG	NG			
	160	3	3	3	3	3	3	3	3	NG	NG	NG	NG			
	170	3	3	3	3	3	3	3	3	NG	NG	NG	NG			

Series 200

Number of Rails for Four 66" Panels

Wind Velocity (V _{ult}) mph		22.6 to 30 Degrees												
		Number of Rails Per 40" x 66" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	2	2	2	2	2	3	3	3
110	2	2	2	2	2	2	2	2	2	2	3	3	3	3
120	2	2	2	2	2	2	2	2	2	3	3	3	3	3
130	2	2	2	2	2	2	2	3	3	3	3	3	3	3
140	2	2	2	2	2	2	3	3	3	3	3	3	3	3
150	2	2	2	2	2	2	3	3	3	3	3	3	3	NG
160	3	3	3	3	3	3	3	3	3	3	3	3	NG	NG
170	3	3	3	3	3	3	3	3	3	3	3	NG	NG	NG



2 Rails Per Panel

3 Rails Per Panel

Wind Velocity (V _{ult}) mph		31 to 37.5 Degrees												
		Number of Rails Per 40" x 66" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	2	2	2	2	2	2	2	2
110	2	2	2	2	2	2	2	2	2	2	2	2	2	2
120	2	2	2	2	2	2	2	2	2	2	2	3	3	3
130	2	2	2	2	2	2	2	2	2	3	3	3	3	3
140	2	2	2	2	2	2	2	3	3	3	3	3	3	3
150	3	3	3	3	3	3	3	3	3	3	3	3	3	3
160	3	3	3	3	3	3	3	3	3	3	3	3	3	3
170	3	3	3	3	3	3	3	3	3	3	3	3	NG	NG

40" x 66" Panel	
S ₂	= 32.50 in
C ₂	= 16.25 in

40" x 66" Panel	
S ₃	= 21.50 in
C ₃	= 11.00 in

2 Rails Per Panel

3 Rails Per Panel

40" x 78" Panel	
S ₂	= 39.00 in
C ₂	= 19.50 in

40" x 78" Panel	
S ₃	= 26.00 in
C ₃	= 13.00 in

Maximum Moments for Two or Three Rail Configuration

Maximum Moment (2 Rails - 66" panels) = 187.1 in-lb / in

Maximum Moment (3 Rails - 66" panels) = 280.6 in-lb / in

Maximum Moment (2 Rails - 78" panels) = 155.9 in-lb / in

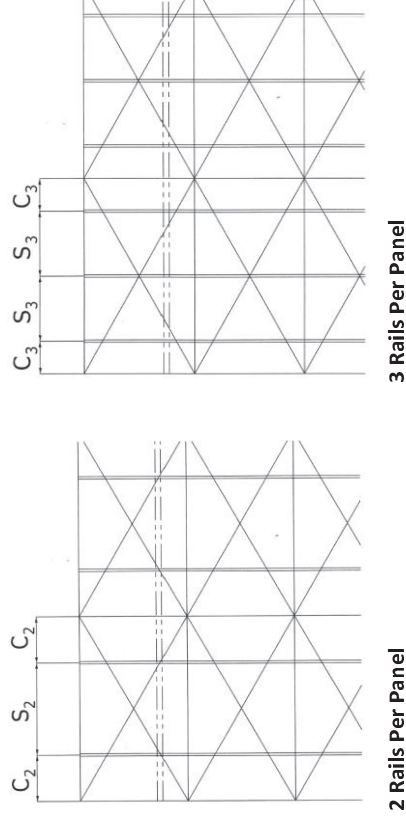
Maximum Moment (3 Rails - 78" panels) = 233.8 in-lb / in

Wind Velocity (V _{ult}) mph		37.6 to 45 Degrees												
		Number of Rails Per 40" x 66" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	2	2	2	2	2	2	2	2
110	2	2	2	2	2	2	2	2	2	2	2	2	2	2
120	2	2	2	2	2	2	2	2	2	2	2	2	2	2
130	2	2	2	2	2	2	2	2	2	2	2	2	2	2
140	2	2	2	2	2	2	2	2	2	2	2	3	3	3
150	3	3	3	3	3	3	3	3	3	3	3	3	3	3
160	3	3	3	3	3	3	3	3	3	3	3	3	3	3
170	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Series 200

Number of Rails for Four 78" Panels

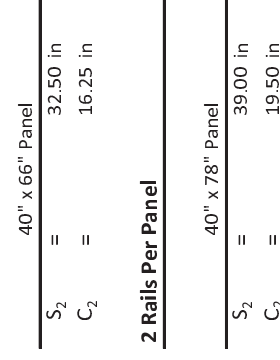
Wind Velocity (V _{ult}) mph		0 to 7.5 Degrees												
		Number of Rails Per 40" x 78" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
110	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
120	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
130	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
140	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
150	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
160	2	2	2	2	2	2	3	3	3	NG	NG	NG	NG	NG
170	2	2	2	2	2	2	3	3	NG	NG	NG	NG	NG	NG



2 Rails Per Panel

3 Rails Per Panel

Wind Velocity (V _{ult}) mph		7.5 to 15 Degrees												
		Number of Rails Per 40" x 78" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
110	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
120	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
130	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
140	2	2	2	2	2	2	3	3	3	NG	NG	NG	NG	NG
150	2	2	2	2	2	2	3	3	3	3	NG	NG	NG	NG
160	3	3	3	3	3	3	3	3	NG	NG	NG	NG	NG	NG
170	3	3	3	3	3	3	3	NG	NG	NG	NG	NG	NG	NG



2 Rails Per Panel

3 Rails Per Panel

Maximum Moments for Two or Three Rail Configuration

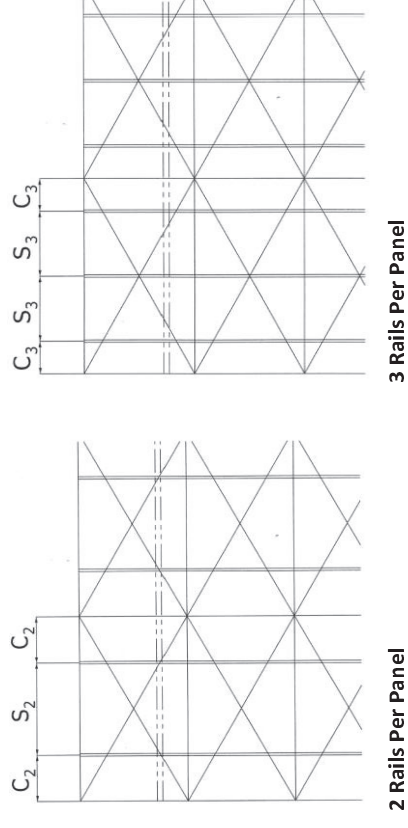
Maximum Moment (2 Rails - 66" panels)	=	187.1	in-lb / in
Maximum Moment (3 Rails - 66" panels)	=	280.6	in-lb / in
Maximum Moment (2 Rails - 78" panels)	=	155.9	in-lb / in
Maximum Moment (3 Rails - 78" panels)	=	233.8	in-lb / in

Wind Velocity (V _{ult}) mph		16 to 22.5 Degrees												
		Number of Rails Per 40" x 78" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	3	3	3	3	3	NG	NG	NG
110	2	2	2	2	2	2	3	3	3	3	3	NG	NG	NG
120	2	2	2	2	2	2	3	3	3	3	3	NG	NG	NG
130	2	2	2	2	2	2	3	3	3	3	3	NG	NG	NG
140	2	2	2	2	2	2	3	3	3	3	3	NG	NG	NG
150	3	3	3	3	3	3	3	3	3	NG	NG	NG	NG	NG
160	3	3	3	3	3	3	3	3	NG	NG	NG	NG	NG	NG
170	3	3	3	3	3	3	3	NG	NG	NG	NG	NG	NG	NG

Series 200

Number of Rails for Four 78" Panels

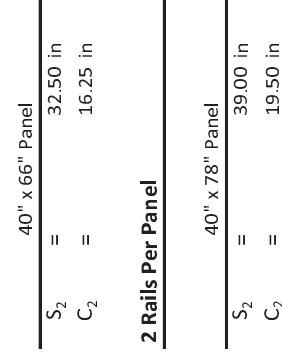
22.6 to 30 Degrees															
Wind Velocity (Vult) mph		Number of Rails Per 40" x 78" PV Panel													
		Snow Load													
		0	10	20	30	40	50	60	70	80	90	100	110	120	
100	2	2	2	2	2	2	2	2	3	3	3	3	3	3	
110	2	2	2	2	2	2	2	2	3	3	3	3	3	NG	
120	2	2	2	2	2	2	2	2	3	3	3	3	3	NG	
130	2	2	2	2	2	2	3	3	3	3	3	3	NG	NG	
140	3	3	3	3	3	3	3	3	3	3	3	NG	NG	NG	
150	3	3	3	3	3	3	3	3	3	3	3	NG	NG	NG	
160	3	3	3	3	3	3	3	3	NG	NG	NG	NG	NG	NG	
170	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	



2 Rails Per Panel

3 Rails Per Panel

Wind Velocity (Vult) mph		31 to 37.5 Degrees													
		Number of Rails Per 40" x 78" PV Panel													
		Snow Load													
		0	10	20	30	40	50	60	70	80	90	100	110	120	
100	2	2	2	2	2	2	2	2	2	2	3	3	3	3	
110	2	2	2	2	2	2	2	2	2	2	3	3	3	3	
120	2	2	2	2	2	2	2	2	3	3	3	3	3	3	
130	2	2	2	2	2	2	2	3	3	3	3	3	3	3	
140	3	3	3	3	3	3	3	3	3	3	3	3	3	NG	
150	3	3	3	3	3	3	3	3	3	3	3	NG	NG	NG	
160	3	3	3	3	3	3	3	3	3	NG	NG	NG	NG	NG	
170	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	



2 Rails Per Panel

3 Rails Per Panel

Maximum Moments for Two or Three Rail Configuration

Maximum Moment (2 Rails - 66" panels) = 187.1 in-lb / in

Maximum Moment (3 Rails - 66" panels) = 280.6 in-lb / in

Maximum Moment (2 Rails - 78" panels) = 155.9 in-lb / in

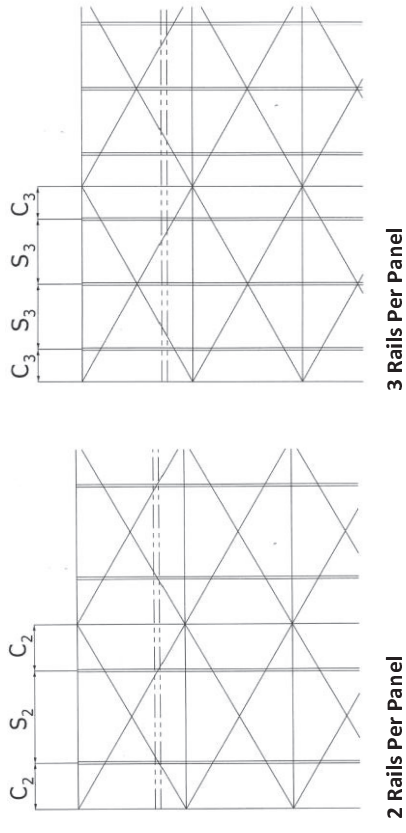
Maximum Moment (3 Rails - 78" panels) = 233.8 in-lb / in

37.6 to 45 Degrees															
Wind Velocity (Vult) mph		Number of Rails Per 40" x 78" PV Panel													
		Snow Load													
		0	10	20	30	40	50	60	70	80	90	100	110	120	
100	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
110	2	2	2	2	2	2	2	2	2	2	2	2	2	3	
120	2	2	2	2	2	2	2	2	2	2	3	3	3	3	
130	2	2	2	2	2	2	2	2	2	3	3	3	3	3	
140	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
150	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
160	3	3	3	3	3	3	3	3	3	3	3	NG	NG	NG	
170	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	

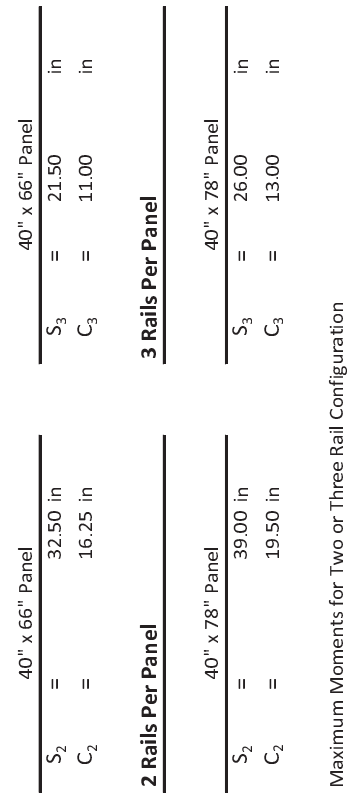
Series 200

Number of Rails for Three 66" Panels

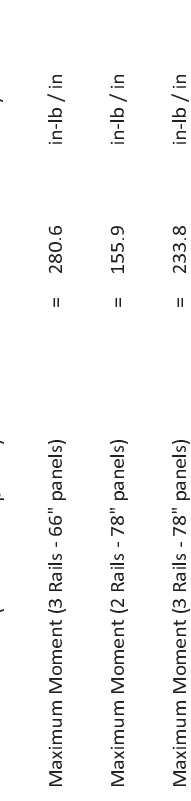
0 to 7.5 Degrees														
Wind Velocity (V _{ult}) mph	Number of Rails Per 40" x 66" PV Panel													
	Snow Load													
		0	10	20	30	40	50	60	70	80	90	100	110	120
	100	2	2	2	2	2	2	2	2	2	2	2	2	2
	110	2	2	2	2	2	2	2	2	2	2	2	2	2
	120	2	2	2	2	2	2	2	2	2	2	2	2	2
	130	2	2	2	2	2	2	2	2	2	2	2	2	2
	140	2	2	2	2	2	2	2	2	2	2	2	2	2
	150	2	2	2	2	2	2	2	2	2	2	2	2	2
	160	2	2	2	2	2	2	2	2	2	2	2	2	3
170	2	2	2	2	2	2	2	2	2	2	2	3	3	



7.5 to 15 Degrees														
Number of Rails Per 40" x 66" PV Panel														
Wind Velocity (Vult) mph	Snow Load													
		0	10	20	30	40	50	60	70	80	90	100	110	120
	100	2	2	2	2	2	2	2	2	2	2	2	2	2
	110	2	2	2	2	2	2	2	2	2	2	2	2	2
	120	2	2	2	2	2	2	2	2	2	2	2	2	2
	130	2	2	2	2	2	2	2	2	2	2	2	2	2
	140	2	2	2	2	2	2	2	2	2	2	2	2	2
	150	2	2	2	2	2	2	2	2	2	2	2	2	3
	160	2	2	2	2	2	2	2	2	2	2	2	2	3
	170	2	2	2	2	2	2	2	2	2	2	2	3	3



16 to 22.5 Degrees														
Number of Rails Per 40" x 66" PV Panel														
Wind Velocity (Vult) mph	Snow Load													
		0	10	20	30	40	50	60	70	80	90	100	110	120
	100	2	2	2	2	2	2	2	2	2	2	2	2	2
	110	2	2	2	2	2	2	2	2	2	2	2	2	2
	120	2	2	2	2	2	2	2	2	2	2	2	2	2
	130	2	2	2	2	2	2	2	2	2	2	2	2	2
	140	2	2	2	2	2	2	2	2	2	2	2	2	2
	150	2	2	2	2	2	2	2	2	2	2	2	2	3
	160	2	2	2	2	2	2	2	2	2	2	2	3	3
	170	2	2	2	2	2	2	2	2	2	2	2	3	3



Maximum Moments for Two or Three Rail Configuration

Maximum Moment (2 Rails - 66" panels) = 187.1 in-lb / in

Maximum Moment (3 Rails - 66" panels) = 280.6 in-lb / in

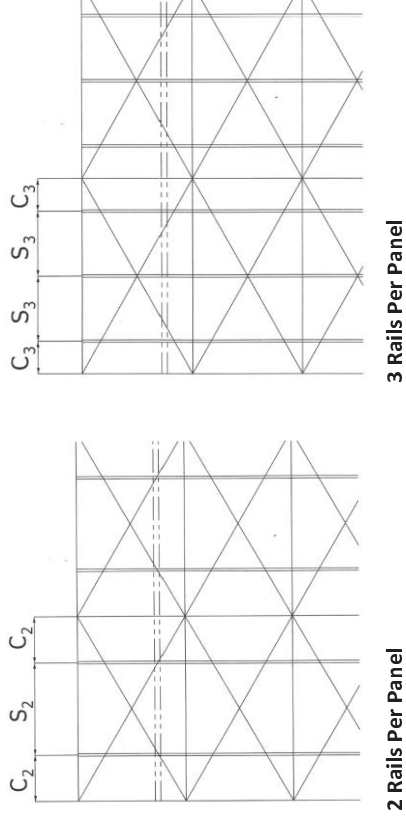
Maximum Moment (2 Rails - 78" panels) = 155.9 in-lb / in

Maximum Moment (3 Rails - 78" panels) = 233.8 in-lb / in

Series 200

Number of Rails for Three 66" Panels

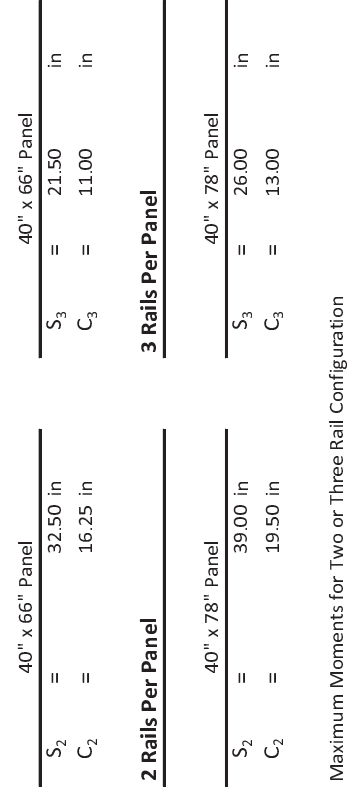
Wind Velocity (V _{ult}) mph		22.6 to 30 Degrees												
		Number of Rails Per 40" x 66" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	2	2	2	2	2	2	2	2
110	2	2	2	2	2	2	2	2	2	2	2	2	2	2
120	2	2	2	2	2	2	2	2	2	2	2	2	2	2
130	2	2	2	2	2	2	2	2	2	2	2	2	2	2
140	2	2	2	2	2	2	2	2	2	2	2	2	2	2
150	2	2	2	2	2	2	2	2	2	2	2	2	2	3
160	2	2	2	2	2	2	2	2	2	2	2	2	3	3
170	2	2	2	2	2	2	2	2	2	2	2	2	3	3



2 Rails Per Panel

3 Rails Per Panel

Wind Velocity (V _{ult}) mph		31 to 37.5 Degrees												
		Number of Rails Per 40" x 66" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	2	2	2	2	2	2	2	2
110	2	2	2	2	2	2	2	2	2	2	2	2	2	2
120	2	2	2	2	2	2	2	2	2	2	2	2	2	2
130	2	2	2	2	2	2	2	2	2	2	2	2	2	2
140	2	2	2	2	2	2	2	2	2	2	2	2	2	2
150	2	2	2	2	2	2	2	2	2	2	2	2	2	2
160	2	2	2	2	2	2	2	2	2	2	2	2	2	3
170	2	2	2	2	2	2	2	2	2	2	2	2	3	3



2 Rails Per Panel

3 Rails Per Panel

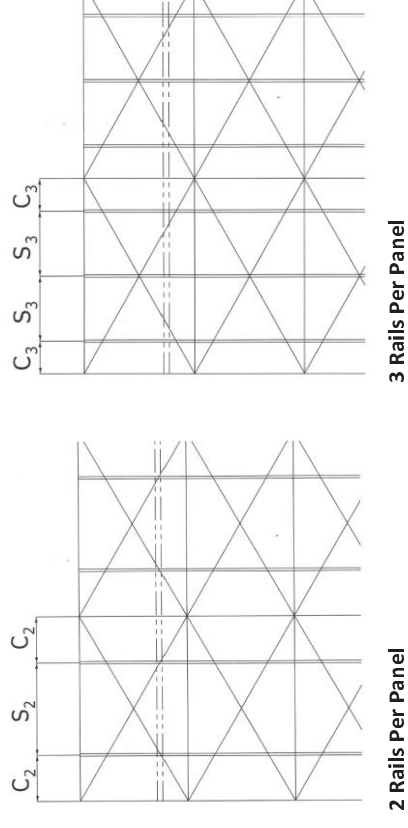
Wind Velocity (V _{ult}) mph		37.6 to 45 Degrees												
		Number of Rails Per 40" x 66" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	2	2	2	2	2	2	2	2
110	2	2	2	2	2	2	2	2	2	2	2	2	2	2
120	2	2	2	2	2	2	2	2	2	2	2	2	2	2
130	2	2	2	2	2	2	2	2	2	2	2	2	2	2
140	2	2	2	2	2	2	2	2	2	2	2	2	2	2
150	2	2	2	2	2	2	2	2	2	2	2	2	2	2
160	2	2	2	2	2	2	2	2	2	2	2	2	2	2
170	2	2	2	2	2	2	2	2	2	2	2	2	3	3



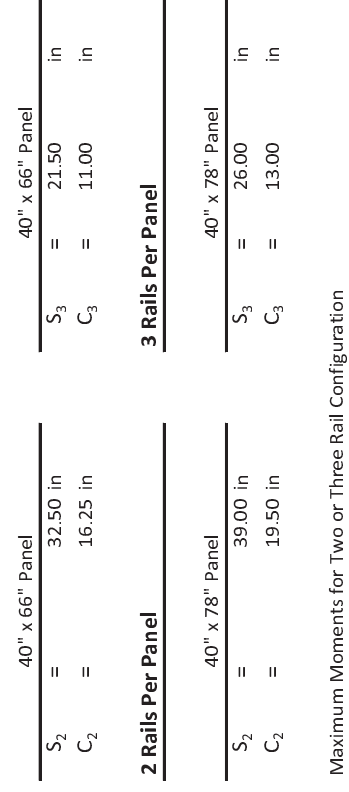
Series 200

Number of Rails for Three 78" Panels

Wind Velocity (V _{ult}) mph		0 to 7.5 Degrees												
		Number of Rails Per 40" x 78" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	2	2	2	2	2	2	3	3
110	2	2	2	2	2	2	2	2	2	2	2	2	3	3
120	2	2	2	2	2	2	2	2	2	2	2	2	3	3
130	2	2	2	2	2	2	2	2	2	2	2	2	3	3
140	2	2	2	2	2	2	2	2	2	2	2	3	3	3
150	2	2	2	2	2	2	2	2	2	2	2	3	3	3
160	2	2	2	2	2	2	2	2	2	2	3	3	3	3
170	2	2	2	2	2	2	2	2	2	2	3	3	3	3



Wind Velocity (V _{ult}) mph		7.5 to 15 Degrees												
		Number of Rails Per 40" x 78" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	2	2	2	2	2	2	3	3
110	2	2	2	2	2	2	2	2	2	2	2	2	3	3
120	2	2	2	2	2	2	2	2	2	2	2	2	3	3
130	2	2	2	2	2	2	2	2	2	2	2	2	3	3
140	2	2	2	2	2	2	2	2	2	2	2	2	3	3
150	2	2	2	2	2	2	2	2	2	2	2	3	3	3
160	2	2	2	2	2	2	2	2	2	2	3	3	3	3
170	2	2	2	2	2	2	2	2	2	3	3	3	3	3

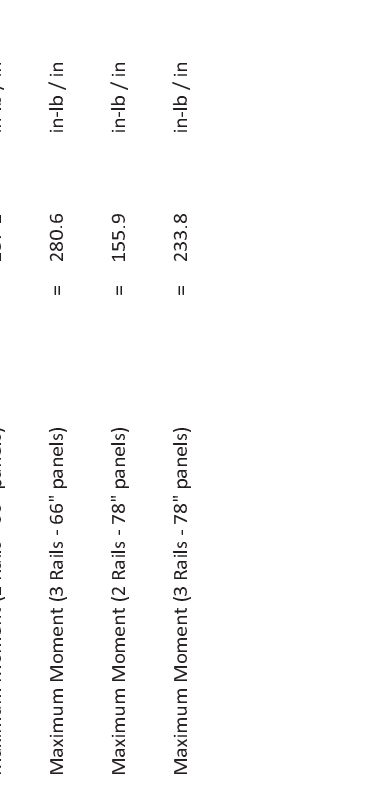


40" x 66" Panel		40" x 66" Panel	
S ₂	=	32.50 in	
C ₂	=	16.25 in	

40" x 78" Panel		40" x 78" Panel	
S ₂	=	39.00 in	
C ₂	=	19.50 in	

Maximum Moments for Two or Three Rail Configuration

Wind Velocity (V _{ult}) mph		16 to 22.5 Degrees												
		Number of Rails Per 40" x 78" PV Panel												
		Snow Load												
		0	10	20	30	40	50	60	70	80	90	100	110	120
100	2	2	2	2	2	2	2	2	2	2	2	2	3	3
110	2	2	2	2	2	2	2	2	2	2	2	2	3	3
120	2	2	2	2	2	2	2	2	2	2	2	2	3	3
130	2	2	2	2	2	2	2	2	2	2	2	2	3	3
140	2	2	2	2	2	2	2	2	2	2	2	2	3	3
150	2	2	2	2	2	2	2	2	2	2	2	3	3	3
160	2	2	2	2	2	2	2	2	2	2	3	3	3	3
170	2	2	2	2	2	2	2	2	2	3	3	3	3	3



40" x 66" Panel		40" x 66" Panel	
S ₃	=	21.50 in	
C ₃	=	11.00 in	

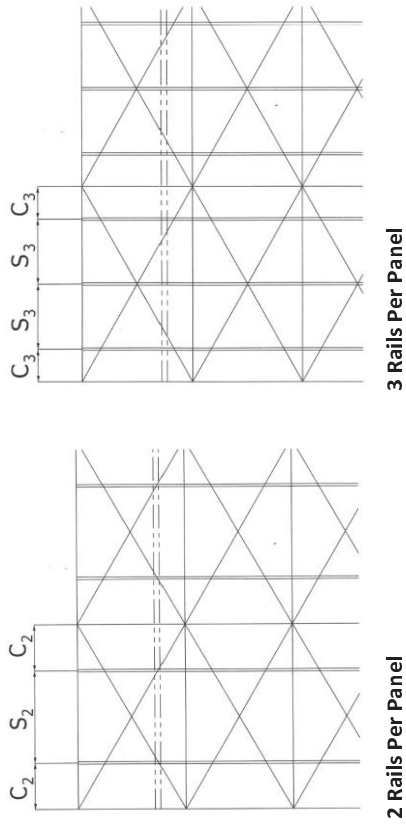
40" x 78" Panel		40" x 78" Panel	
S ₃	=	26.00 in	
C ₃	=	13.00 in	

Maximum Moments for Two or Three Rail Configuration

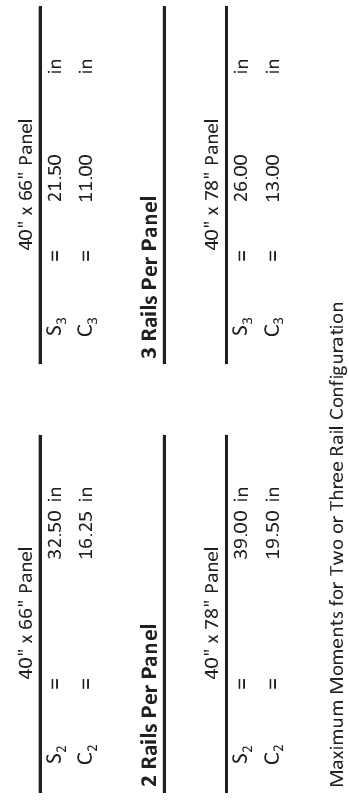
Series 200

Number of Rails for Three 78" Panels

22.6 to 30 Degrees														
Wind Velocity (V _{ult}) mph	Number of Rails Per 40" x 78" PV Panel													
	Snow Load													
		0	10	20	30	40	50	60	70	80	90	100	110	120
	100	2	2	2	2	2	2	2	2	2	2	2	2	2
	110	2	2	2	2	2	2	2	2	2	2	2	2	3
	120	2	2	2	2	2	2	2	2	2	2	2	2	3
	130	2	2	2	2	2	2	2	2	2	2	2	3	3
	140	2	2	2	2	2	2	2	2	2	2	2	3	3
	150	2	2	2	2	2	2	2	2	2	2	2	3	3
	160	2	2	2	2	2	2	2	2	2	2	3	3	3
170	2	2	2	2	2	2	2	2	3	3	3	3	3	



31 to 37.5 Degrees															
Number of Rails Per 40" x 78" PV Panel															
Snow Load															
	0	10	20	30	40	50	60	70	80	90	100	110	120		
100	2	2	2	2	2	2	2	2	2	2	2	2	2		
110	2	2	2	2	2	2	2	2	2	2	2	2	2		
120	2	2	2	2	2	2	2	2	2	2	2	2	2		
130	2	2	2	2	2	2	2	2	2	2	2	2	3		
140	2	2	2	2	2	2	2	2	2	2	2	3	3		
150	2	2	2	2	2	2	2	2	2	2	2	3	3		
160	2	2	2	2	2	2	2	2	2	2	2	3	3		
170	2	2	2	2	2	2	2	2	2	2	3	3	3		



37.6 to 45 Degrees															
Wind Velocity (Vult) mph	Number of Rails Per 40" x 78" pV Panel														
	Snow Load														
		0	10	20	30	40	50	60	70	80	90	100	110	120	
	100	2	2	2	2	2	2	2	2	2	2	2	2	2	
	110	2	2	2	2	2	2	2	2	2	2	2	2	2	
	120	2	2	2	2	2	2	2	2	2	2	2	2	2	
	130	2	2	2	2	2	2	2	2	2	2	2	2	2	
	140	2	2	2	2	2	2	2	2	2	2	2	2	3	
	150	2	2	2	2	2	2	2	2	2	2	2	3	3	
	160	2	2	2	2	2	2	2	2	2	2	2	3	3	
170	2	2	2	2	2	2	2	2	2	2	2	3	3		



Maximum Moments for Two or Three Rail Configuration

Maximum Moment (2 Rails - 66" panels) = 187.1 in-lb / in

Maximum Moment (3 Rails - 66" panels) = 280.6 in-lb / in

Maximum Moment (2 Rails - 78" panels) = 155.9 in-lb / in

Maximum Moment (3 Rails - 78" panels) = 233.8 in-lb / in

SnapNrack™
PV Mounting Systems

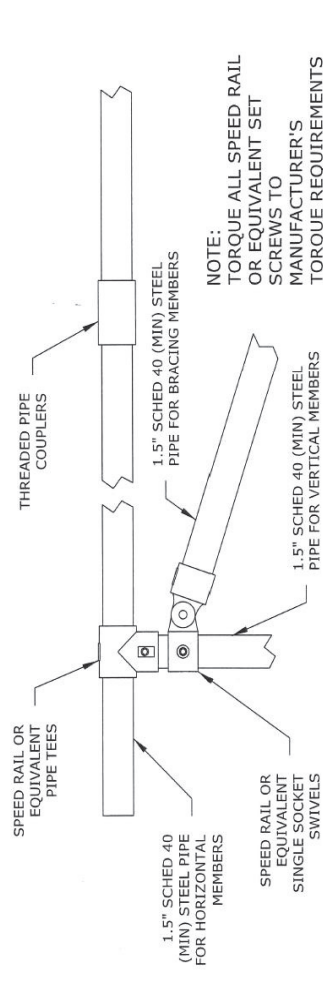
Schedule 40 and Schedule 80 pipe design values are as follows

Diagram illustrating the structural components and bracing of a solar collector assembly. The components labeled include:

- GROUND RAIL
- HORIZONTAL PIPE
- POST
- BRACE F
- NOTE: BOTTOM CLAMP OF BRACE A SHOULD ALWAYS BE CLOSEST TO TOP OF FOUNDATION
- BRACE A
- BRACE E

Diaphragm of Typical Mounting System with Braces

* For Standard Installation Braces E and F are Omitted



Typical Connection Specifications

Series 200

Footing Calculations for Cast Inplace Piers

NON-CONSTRAINED FOOTING CALCULATION

$$d = \frac{A}{2} \left(1 + \sqrt{1 + \frac{4.36 h}{A}} \right)$$

$$A = \frac{2.34 p}{S_1 b}$$

$$S_1 = 150 \left(\frac{d}{3} \right) (2)$$

$$P = R_H \text{ (lbs)}$$

$$h = 0.5 \text{ (FT)}$$

$$d = \text{FOOTING DEPTH (FT)}$$

$$b = 1.0 \text{ (FT)}$$



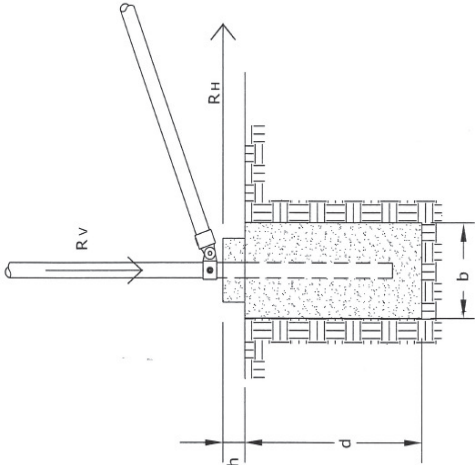
SKIN FRICTION

SURFACE AREA
$$S_A = 2 \pi r d$$

ARROW SF = $2 \pi r d \left(\frac{1500}{6} \right)$

Notes:

- 1) Footing design assumes 1500 psf soil bearing pressures, 150 pcf lateral bearing pressure and a skin friction value of 250 psf.

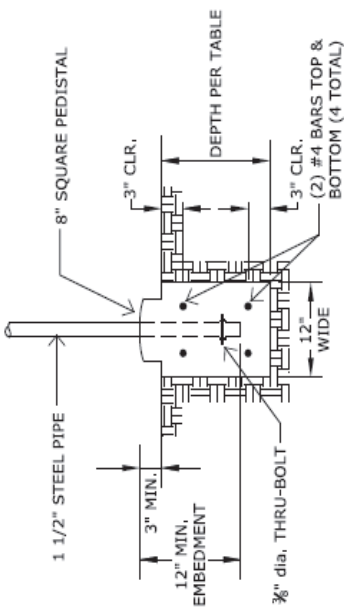


Footing Calculations

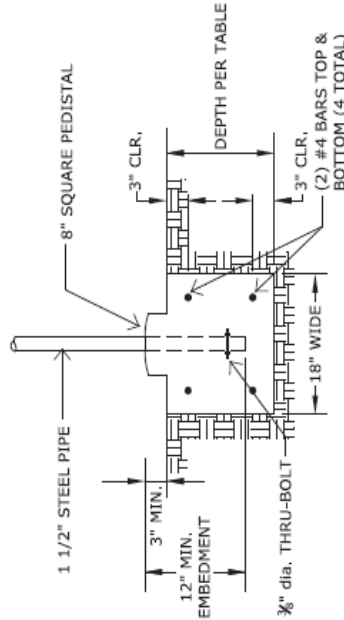
Footing Calculations							
d	S1	b	h	A	P	D	SF
3	466	1.0	0.33	3.16	629	3	2735
4	599	1.0	0.33	4.16	1064	4	3529
5	732	1.0	0.33	5.15	1612	5	4313
6	865	1.0	0.33	6.15	2274	6	5098
7	998	1.0	0.33	7.15	3051	7	5885
8	1132	1.0	0.33	8.15	3941	8	6670

Series 200

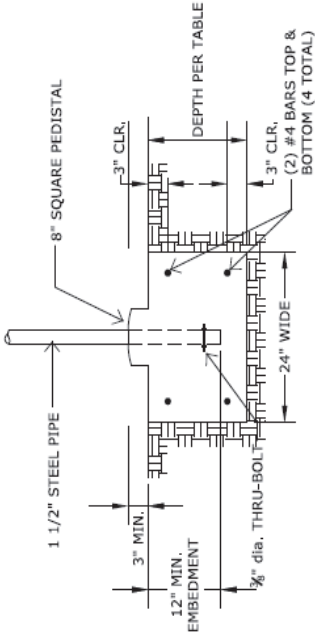
Footing Option for Grade Beam Foundation



12" Wide Grade Beam



18" Wide Grade Beam



24" Wide Grade Beam

Conversion Chart for Pier to Grade Beam Footings			
12 dia. Pier	12" wide Grade Beams	18" wide Grade Beams	24" wide Grade Beams
Depth	Depth (in)	Depth (in)	Depth (in)
3 ft	12	12	12
4 ft	17	15	13
5 ft	20	18	17
6 ft	24	22	20
7 ft	29	26	23

Notes:

- 1) Footing design assumes 1500 psf soil bearing pressures, 150 pcf lateral bearing pressure and a skin friction value of 250 psf.

Norman Scheel
Structural Engineer
5022 Sunrise Boulevard
Fair Oaks, CA 95628
(916) 536-9585

Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:06AM

Steel Column

File = G:\Jobfiles\12065\Enercalc\12065.ec6
ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. #: KW-06002320

Licensee: NORMAN SCHEEL SE

Description: Brace A

Code References

Calculations per AISC 360-05, IBC 2009, CBC 2010, ASCE 7-10
Load Combinations Used: 2006 IBC & ASCE 7-05

General Information

Steel Section Name:	HSS 1.900X0.145	Overall Column Height	8.150 ft
Analysis Method:	Allowable Strength	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade	A-36, Carbon Steel, Fy = 36 ksi	Brace condition for deflection (buckling) along columns:	
Fy: Steel Yield	36.0 ksi	X-X (width) axis:	
E: Elastic Bending Modulus	29,000.0 ksi	Unbraced Length for X-X Axis buckling = 8.5 ft, K = 1.0	
Load Combination:	2006 IBC & ASCE 7-05	Y-Y (depth) axis:	
		Unbraced Length for Y-Y Axis buckling = 8.5 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included: 22.171 lbs * Dead Load Factor
AXIAL LOADS ...
Axial Load at 8.150 ft, D = 4.20 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio =	0.9957 : 1	Maximum SERVICE Load Reactions . .	
Load Combination	D Only	Top along X-X	0.0 k
Location of max.above base	0.0 ft	Bottom along X-X	0.0 k
At maximum location values are . . .		Top along Y-Y	0.0 k
Pa: Axial	4.222 k	Bottom along Y-Y	0.0 k
Pn / Omega: Allowable	4.240 k	Maximum SERVICE Load Deflections . .	
Ma-x: Applied	0.0 k-ft	Along Y-Y	0.0 in at 0.0 ft above base
Mn-x / Omega: Allowable	0.7563 k-ft	for load combination:	
Ma-y: Applied	0.0 k-ft	Along X-X	0.0 in at 0.0 ft above base
Mn-y / Omega: Allowable	0.7563 k-ft	for load combination:	
PASS Maximum Shear Stress Ratio =	0.0 : 1		
Load Combination			
Location of max.above base	0.0 ft		
At maximum location values are . . .			
Va: Applied	0.0 k		
Vn / Omega: Allowable	0.0 k		

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
D Only	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+L+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+Lr+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+S+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+W+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.70E+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.750W+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.750W+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.5250E+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.5250E+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+W+H	0.597	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+0.70E+H	0.597	PASS	0.00 ft	0.000	PASS	0.00 ft

Norman Scheel
Structural Engineer
5022 Sunrise Boulevard
Fair Oaks, CA 95628
(916) 536-9585

Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:06AM

Steel Column

File = G:\Jobfiles\12065\Enercalc\12065.ec6
ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31
Licensee : NORMAN SCHEEL SE

Lic. # : KW-06002320

Description : Brace A

Note: Only non-zero reactions are listed.

Maximum Reactions - Unfactored

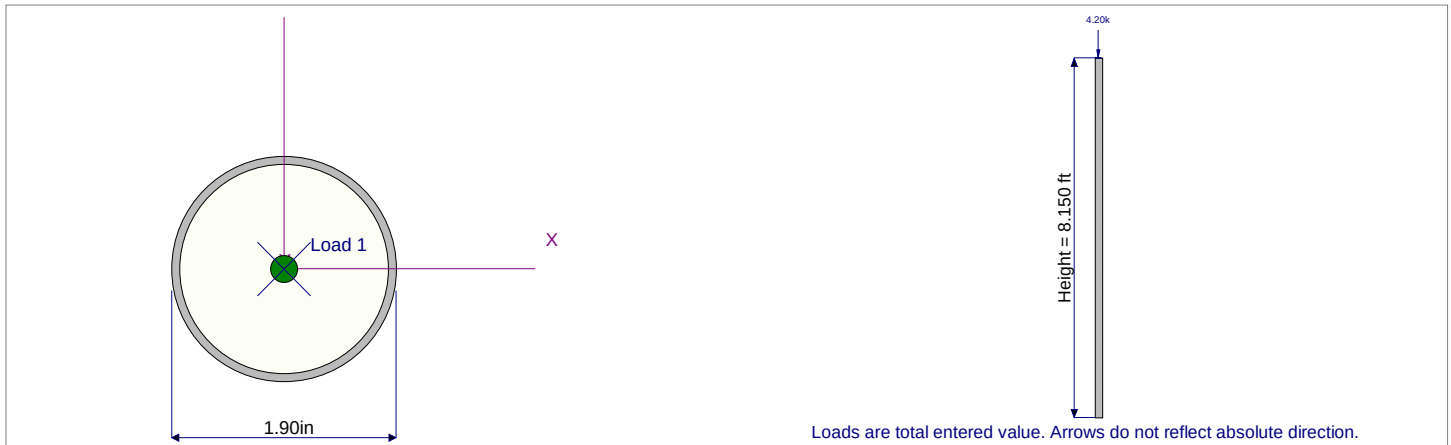
Load Combination	X-X Axis Reaction		Y-Y Axis Reaction		Axial Reaction @ Base
	@ Base	@ Top	@ Base	@ Top	
D Only					4.222 k

Maximum Deflections for Load Combinations - Unfactored Loads

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Steel Section Properties : HSS 1.900X0.145

Depth	=	1.900 in	I xx	=	0.29 in^4	J	=	0.586 in^4
			S xx	=	0.31 in^3			
Diameter	=	1.900 in	R xx	=	0.626 in			
Wall Thick	=	0.145 in	Zx	=	0.421 in^3			
Area	=	0.749 in^2	I yy	=	0.293 in^4	C	=	0.617 in^3
Weight	=	2.720 plf	S yy	=	0.309 in^3			
			R yy	=	0.626 in			
Ycg	=	0.000 in						



Norman Scheel
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5022 Sunrise Boulevard
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(916) 536-9585

Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:06AM

Steel Column

File = G:\Jobfiles\12065\Enercalc\12065.ec6
ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. #: KW-06002320

Licensee: NORMAN SCHEEL SE

Description: Brace C

Code References

Calculations per AISC 360-05, IBC 2009, CBC 2010, ASCE 7-10
Load Combinations Used: 2006 IBC & ASCE 7-05

General Information

Steel Section Name:	HSS 1.900X0.145	Overall Column Height	11.310 ft
Analysis Method:	Allowable Strength	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade	A-36, Carbon Steel, Fy = 36 ksi	Brace condition for deflection (buckling) along columns:	
Fy: Steel Yield	36.0 ksi	X-X (width) axis:	
E: Elastic Bending Modulus	29,000.0 ksi	Unbraced Length for X-X Axis buckling = 8.5 ft, K = 1.0	
Load Combination:	2006 IBC & ASCE 7-05	Y-Y (depth) axis:	
		Unbraced Length for Y-Y Axis buckling = 8.5 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included: 30.767 lbs * Dead Load Factor

AXIAL LOADS ...

Axial Load at 11.310 ft, D = 4.20 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio =	0.9977 : 1	Maximum SERVICE Load Reactions ...	
Load Combination	D Only	Top along X-X	0.0 k
Location of max.above base	0.0 ft	Bottom along X-X	0.0 k
At maximum location values are ...		Top along Y-Y	0.0 k
Pa: Axial	4.231 k	Bottom along Y-Y	0.0 k
Pn / Omega: Allowable	4.240 k	Maximum SERVICE Load Deflections ...	
Ma-x: Applied	0.0 k-ft	Along Y-Y	0.0 in at 0.0 ft above base
Mn-x / Omega: Allowable	0.7563 k-ft	for load combination:	
Ma-y: Applied	0.0 k-ft	Along X-X	0.0 in at 0.0 ft above base
Mn-y / Omega: Allowable	0.7563 k-ft	for load combination:	
PASS Maximum Shear Stress Ratio =	0.0 : 1		
Load Combination			
Location of max.above base	0.0 ft		
At maximum location values are ...			
Va: Applied	0.0 k		
Vn / Omega: Allowable	0.0 k		

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
D Only	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+L+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+Lr+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+S+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+W+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.70E+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.750W+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.750W+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.5250E+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.5250E+H	0.998	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+W+H	0.599	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+0.70E+H	0.599	PASS	0.00 ft	0.000	PASS	0.00 ft

Norman Scheel
Structural Engineer
5022 Sunrise Boulevard
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(916) 536-9585

Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:06AM

Steel Column

File = G:\Jobfiles\12065\Enercalc\12065.ec6
ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. # : KW-06002320

Licensee : NORMAN SCHEEL SE

Description : Brace C

Note: Only non-zero reactions are listed.

Maximum Reactions - Unfactored

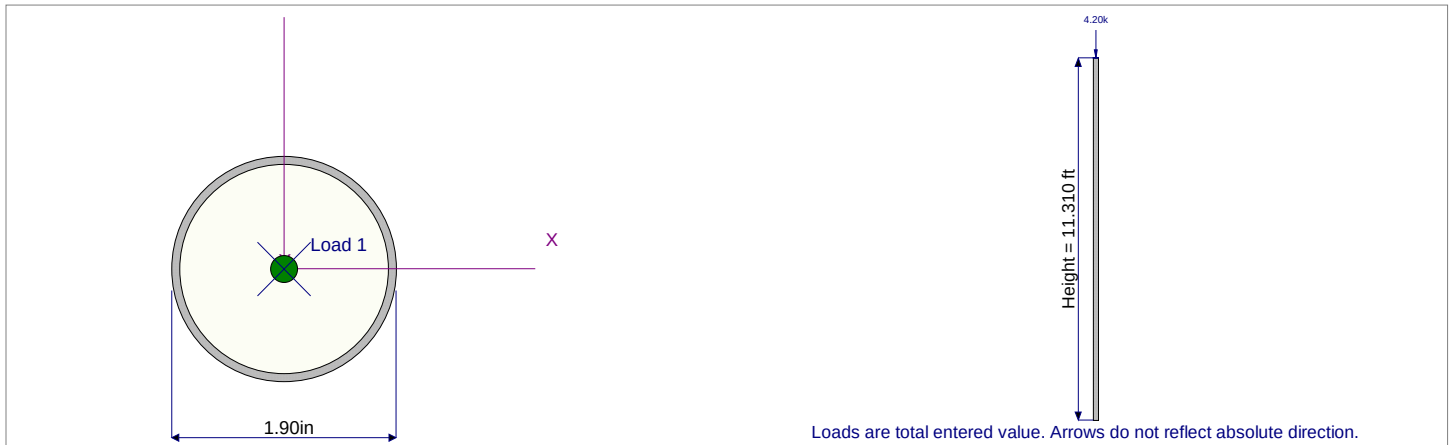
Load Combination	X-X Axis Reaction		Y-Y Axis Reaction		Axial Reaction @ Base
	@ Base	@ Top	@ Base	@ Top	
D Only					4.231 k

Maximum Deflections for Load Combinations - Unfactored Loads

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Steel Section Properties : HSS 1.900X0.145

Depth	=	1.900 in	I xx	=	0.29 in^4	J	=	0.586 in^4
			S xx	=	0.31 in^3			
Diameter	=	1.900 in	R xx	=	0.626 in			
Wall Thick	=	0.145 in	Zx	=	0.421 in^3			
Area	=	0.749 in^2	I yy	=	0.293 in^4	C	=	0.617 in^3
Weight	=	2.720 plf	S yy	=	0.309 in^3			
			R yy	=	0.626 in			
Ycg	=	0.000 in						



Norman Scheel
Structural Engineer
5022 Sunrise Boulevard
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Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:06AM

Steel Column

File = G:\Jobfiles\12065\Enercalc\12065.ec6
ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. #: KW-06002320

Licensee: NORMAN SCHEEL SE

Description: Brace D

Code References

Calculations per AISC 360-05, IBC 2009, CBC 2010, ASCE 7-10
Load Combinations Used: 2006 IBC & ASCE 7-05

General Information

Steel Section Name:	HSS 1.900X0.145	Overall Column Height	8.060 ft
Analysis Method:	Allowable Strength	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade	A-36, Carbon Steel, Fy = 36 ksi	Brace condition for deflection (buckling) along columns:	
Fy: Steel Yield	36.0 ksi	X-X (width) axis:	
E: Elastic Bending Modulus	29,000.0 ksi	Unbraced Length for X-X Axis buckling = 8.5 ft, K = 1.0	
Load Combination:	2006 IBC & ASCE 7-05	Y-Y (depth) axis:	
		Unbraced Length for Y-Y Axis buckling = 8.5 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included: 21.926 lbs * Dead Load Factor
AXIAL LOADS ...
Axial Load at 8.060 ft, D = 4.20 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio =	0.9956 : 1	Maximum SERVICE Load Reactions . .	
Load Combination	D Only	Top along X-X	0.0 k
Location of max.above base	0.0 ft	Bottom along X-X	0.0 k
At maximum location values are . . .		Top along Y-Y	0.0 k
Pa: Axial	4.222 k	Bottom along Y-Y	0.0 k
Pn / Omega: Allowable	4.240 k	Maximum SERVICE Load Deflections . . .	
Ma-x: Applied	0.0 k-ft	Along Y-Y	0.0 in at 0.0 ft above base
Mn-x / Omega: Allowable	0.7563 k-ft	for load combination:	
Ma-y: Applied	0.0 k-ft	Along X-X	0.0 in at 0.0 ft above base
Mn-y / Omega: Allowable	0.7563 k-ft	for load combination:	
PASS Maximum Shear Stress Ratio =	0.0 : 1		
Load Combination			
Location of max.above base	0.0 ft		
At maximum location values are . . .			
Va: Applied	0.0 k		
Vn / Omega: Allowable	0.0 k		

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
D Only	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+L+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+Lr+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+S+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+W+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.70E+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.750W+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.750W+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.5250E+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.5250E+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+W+H	0.597	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+0.70E+H	0.597	PASS	0.00 ft	0.000	PASS	0.00 ft

Norman Scheel
Structural Engineer
5022 Sunrise Boulevard
Fair Oaks, CA 95628
(916) 536-9585

Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:06AM

Steel Column

File = G:\Jobfiles\12065\Enercalc\12065.ec6

ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. # : KW-06002320

Licensee : NORMAN SCHEEL SE

Description : Brace D

Note: Only non-zero reactions are listed.

Maximum Reactions - Unfactored

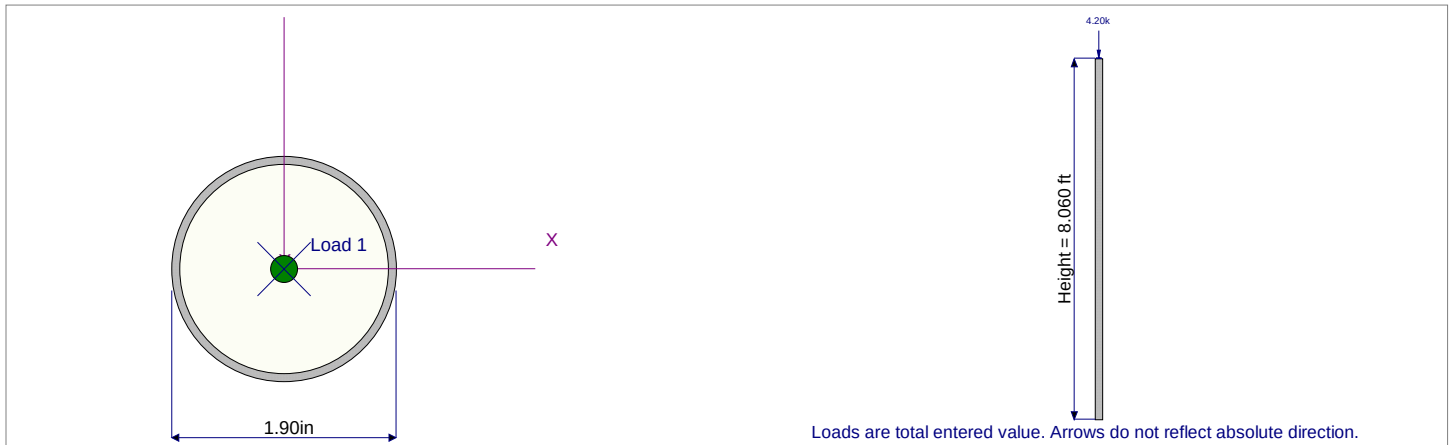
Load Combination	X-X Axis Reaction		Y-Y Axis Reaction		Axial Reaction @ Base
	@ Base	@ Top	@ Base	@ Top	
D Only					4.222 k

Maximum Deflections for Load Combinations - Unfactored Loads

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Steel Section Properties : HSS 1.900X0.145

Depth	=	1.900 in	I xx	=	0.29 in^4	J	=	0.586 in^4
			S xx	=	0.31 in^3			
Diameter	=	1.900 in	R xx	=	0.626 in			
Wall Thick	=	0.145 in	Zx	=	0.421 in^3			
Area	=	0.749 in^2	I yy	=	0.293 in^4	C	=	0.617 in^3
Weight	=	2.720 plf	S yy	=	0.309 in^3			
			R yy	=	0.626 in			
Ycg	=	0.000 in						



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Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:07AM

Steel Column

File = G:\Jobfiles\12065\Enercalc\12065.ec6
ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. #: KW-06002320

Licensee: NORMAN SCHEEL SE

Description: Brace E

Code References

Calculations per AISC 360-05, IBC 2009, CBC 2010, ASCE 7-10
Load Combinations Used: 2006 IBC & ASCE 7-05

General Information

Steel Section Name:	HSS 1.900X0.145	Overall Column Height	9.360 ft
Analysis Method:	Allowable Strength	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade	A-36, Carbon Steel, Fy = 36 ksi	Brace condition for deflection (buckling) along columns:	
Fy: Steel Yield	36.0 ksi	X-X (width) axis:	
E: Elastic Bending Modulus	29,000.0 ksi	Unbraced Length for X-X Axis buckling = 8.5 ft, K = 1.0	
Load Combination:	2006 IBC & ASCE 7-05	Y-Y (depth) axis:	
		Unbraced Length for Y-Y Axis buckling = 8.5 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included: 25.463 lbs * Dead Load Factor

AXIAL LOADS ...

Axial Load at 9.360 ft, D = 4.20 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio =	0.9965 : 1	Maximum SERVICE Load Reactions . .	
Load Combination	D Only	Top along X-X	0.0 k
Location of max.above base	0.0 ft	Bottom along X-X	0.0 k
At maximum location values are . . .		Top along Y-Y	0.0 k
Pa: Axial	4.225 k	Bottom along Y-Y	0.0 k
Pn / Omega: Allowable	4.240 k	Maximum SERVICE Load Deflections . . .	
Ma-x: Applied	0.0 k-ft	Along Y-Y	0.0 in at 0.0 ft above base
Mn-x / Omega: Allowable	0.7563 k-ft	for load combination:	
Ma-y: Applied	0.0 k-ft	Along X-X	0.0 in at 0.0 ft above base
Mn-y / Omega: Allowable	0.7563 k-ft	for load combination:	
PASS Maximum Shear Stress Ratio =	0.0 : 1		
Load Combination			
Location of max.above base	0.0 ft		
At maximum location values are . . .			
Va: Applied	0.0 k		
Vn / Omega: Allowable	0.0 k		

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
D Only	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+L+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+Lr+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+S+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+W+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.70E+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.750W+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.750W+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.5250E+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.5250E+H	0.996	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+W+H	0.598	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+0.70E+H	0.598	PASS	0.00 ft	0.000	PASS	0.00 ft

Norman Scheel
Structural Engineer
5022 Sunrise Boulevard
Fair Oaks, CA 95628
(916) 536-9585

Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:07AM

Steel Column

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ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. # : KW-06002320

Licensee : NORMAN SCHEEL SE

Description : Brace E

Note: Only non-zero reactions are listed.

Maximum Reactions - Unfactored

Load Combination	X-X Axis Reaction		Y-Y Axis Reaction		Axial Reaction @ Base
	@ Base	@ Top	@ Base	@ Top	
D Only					4.225 k

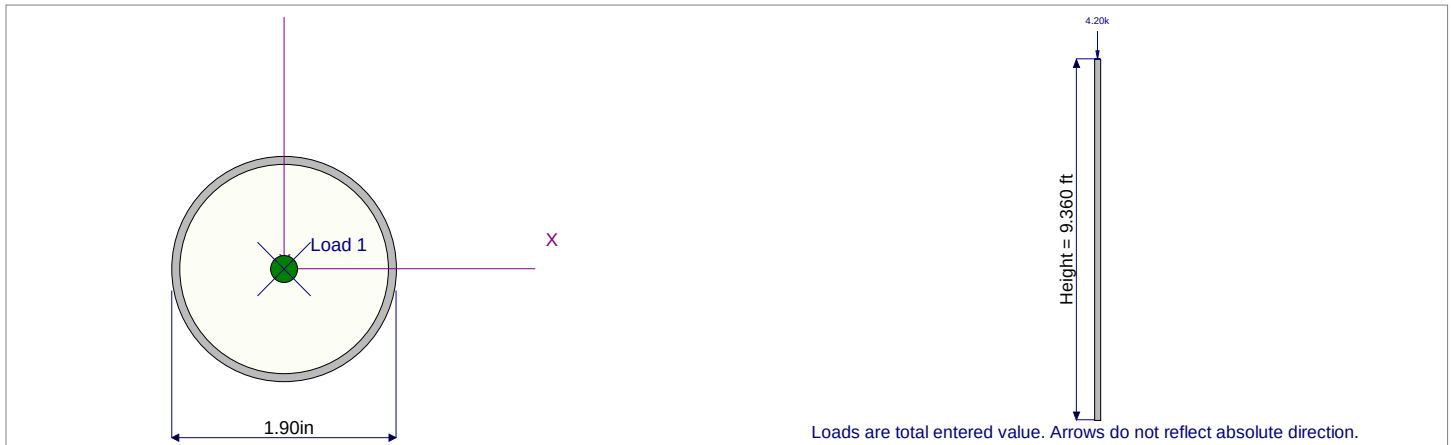
Maximum Deflections for Load Combinations - Unfactored Loads

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Steel Section Properties : HSS 1.900X0.145

Depth	=	1.900 in	I xx	=	0.29 in^4	J	=	0.586 in^4
			S xx	=	0.31 in^3			
Diameter	=	1.900 in	R xx	=	0.626 in			
Wall Thick	=	0.145 in	Zx	=	0.421 in^3			
Area	=	0.749 in^2	I yy	=	0.293 in^4	C	=	0.617 in^3
Weight	=	2.720 plf	S yy	=	0.309 in^3			
			R yy	=	0.626 in			

Ycg = 0.000 in



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Structural Engineer
5022 Sunrise Boulevard
Fair Oaks, CA 95628
(916) 536-9585

Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:07AM

Steel Column

File = G:\Jobfiles\12065\Enercalc\12065.ec6
ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. #: KW-06002320

Licensee: NORMAN SCHEEL SE

Description: Brace F

Code References

Calculations per AISC 360-05, IBC 2009, CBC 2010, ASCE 7-10
Load Combinations Used: 2006 IBC & ASCE 7-05

General Information

Steel Section Name:	HSS 1.900X0.145	Overall Column Height	5.060 ft
Analysis Method:	Allowable Strength	Top & Bottom Fixity	Top & Bottom Pinned
Steel Stress Grade	A-36, Carbon Steel, Fy = 36 ksi	Brace condition for deflection (buckling) along columns:	
Fy: Steel Yield	36.0 ksi	X-X (width) axis:	
E: Elastic Bending Modulus	29,000.0 ksi	Unbraced Length for X-X Axis buckling = 8.5 ft, K = 1.0	
Load Combination:	2006 IBC & ASCE 7-05	Y-Y (depth) axis:	
		Unbraced Length for Y-Y Axis buckling = 8.5 ft, K = 1.0	

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included: 13.765 lbs * Dead Load Factor

AXIAL LOADS...

Axial Load at 5.060 ft, D = 4.20 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS Max. Axial+Bending Stress Ratio =	0.9937 : 1	Maximum SERVICE Load Reactions...	
Load Combination	D Only	Top along X-X	0.0 k
Location of max.above base	0.0 ft	Bottom along X-X	0.0 k
At maximum location values are...		Top along Y-Y	0.0 k
Pa: Axial	4.214 k	Bottom along Y-Y	0.0 k
Pn / Omega: Allowable	4.240 k	Maximum SERVICE Load Deflections...	
Ma-x: Applied	0.0 k-ft	Along Y-Y	0.0 in at 0.0 ft above base
Mn-x / Omega: Allowable	0.7563 k-ft	for load combination:	
Ma-y: Applied	0.0 k-ft	Along X-X	0.0 in at 0.0 ft above base
Mn-y / Omega: Allowable	0.7563 k-ft	for load combination:	
PASS Maximum Shear Stress Ratio =	0.0 : 1		
Load Combination			
Location of max.above base	0.0 ft		
At maximum location values are...			
Va: Applied	0.0 k		
Vn / Omega: Allowable	0.0 k		

Load Combination Results

Load Combination	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
	Stress Ratio	Status	Location	Stress Ratio	Status	Location
D Only	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+L+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+Lr+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+S+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+W+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.70E+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.750W+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.750W+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750Lr+0.750L+0.5250E+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+D+0.750L+0.750S+0.5250E+H	0.994	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+W+H	0.596	PASS	0.00 ft	0.000	PASS	0.00 ft
+0.60D+0.70E+H	0.596	PASS	0.00 ft	0.000	PASS	0.00 ft

Norman Scheel
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Project Title: 200 Series Ground Mount
Engineer:
Project Descr:

Project ID: 12065

Printed: 9 JAN 2014, 10:07AM

Steel Column

File = G:\Jobfiles\12065\Enercalc\12065.ec6
ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31
Licensee : NORMAN SCHEEL SE

Lic. # : KW-06002320

Description : Brace F

Note: Only non-zero reactions are listed.

Maximum Reactions - Unfactored

Load Combination	X-X Axis Reaction		Y-Y Axis Reaction		Axial Reaction @ Base
	@ Base	@ Top	@ Base	@ Top	
D Only					4.214 k

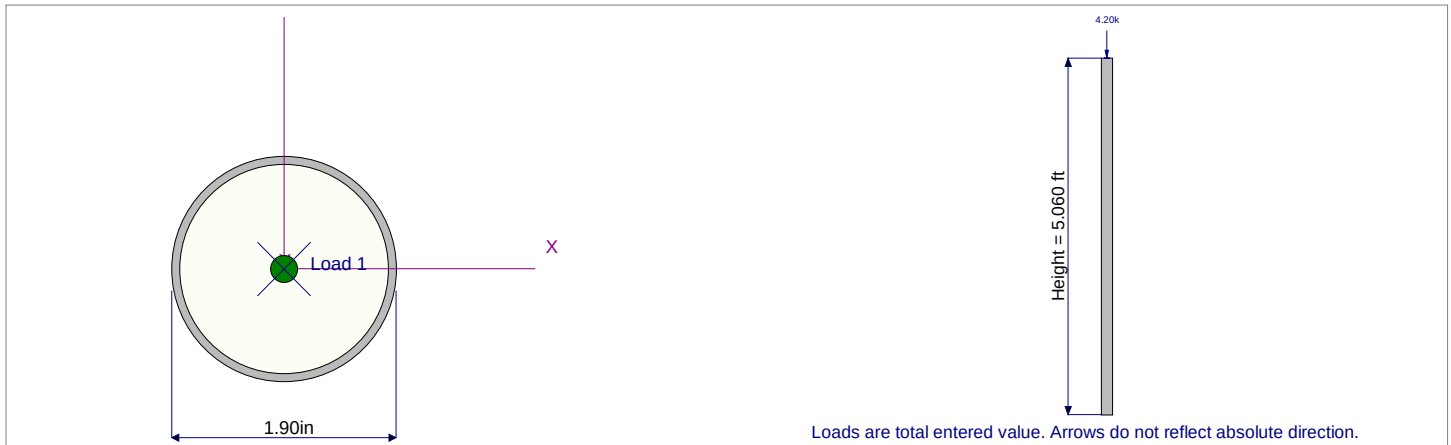
Maximum Deflections for Load Combinations - Unfactored Loads

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Steel Section Properties : HSS 1.900X0.145

Depth	=	1.900 in	I xx	=	0.29 in^4	J	=	0.586 in^4
			S xx	=	0.31 in^3			
Diameter	=	1.900 in	R xx	=	0.626 in			
Wall Thick	=	0.145 in	Zx	=	0.421 in^3			
Area	=	0.749 in^2	I yy	=	0.293 in^4	C	=	0.617 in^3
Weight	=	2.720 plf	S yy	=	0.309 in^3			
			R yy	=	0.626 in			

Ycg = 0.000 in

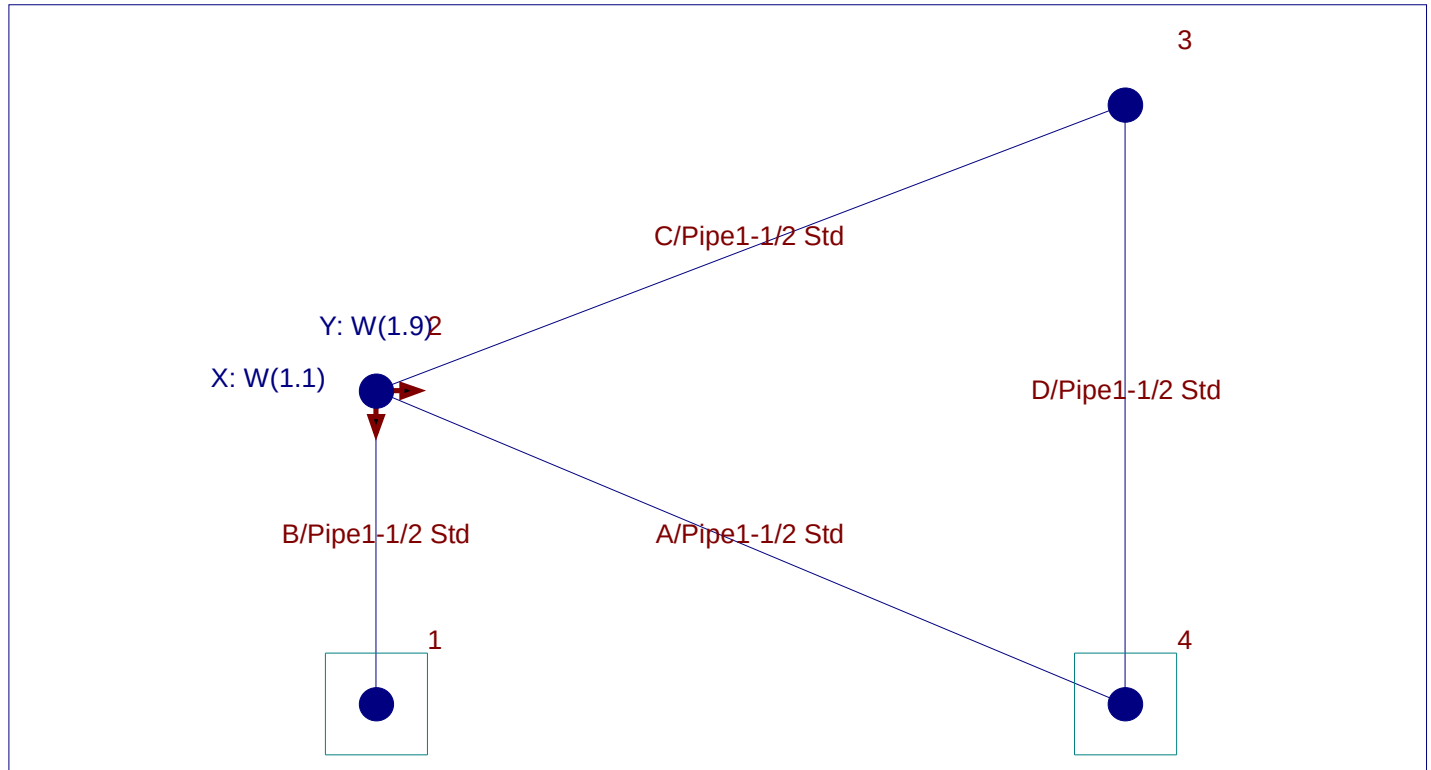


2-D Frame Analysis

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ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31
Licensee : NORMAN SCHEEL SE

Lic. # : KW-06002320

Description : Frame



Joints...

Joint Label	Joint Coordinates X ft Y ft	X Restraint	Y Restraint	Z Restraint	Joint Temp deg F
1	0.0 0.0	Fixed	Fixed		0
2	0.0 3.060				0
3	7.310 5.850				0
4	7.310 0.0	Fixed	Fixed		0

Members...

Member Label	Property Label	Endpoint Joints I Joint J Joint	Member Length ft	I End Releases x y z	J End Releases x y z
A	Pipe1-1/2 Std	2 4	7.925	Fixed Fixed Fixed	Fixed Fixed Fixed
B	Pipe1-1/2 Std	1 2	3.060	Fixed Fixed Fixed	Fixed Fixed Fixed
C	Pipe1-1/2 Std	2 3	7.824	Fixed Fixed Fixed	Fixed Fixed Fixed
D	Pipe1-1/2 Std	3 4	5.850	Fixed Fixed Fixed	Fixed Fixed Fixed

Member Stress Check Data...

Member Label	Unbraced Lengths Lu : z ft Lu : y	Slenderness Factors K : z K : y	AISC Bending & Stability Factors Cm Cb
A	7.925 7.925	1.00 1.00	1.000 1.000
B	3.060 3.060	1.00 1.00	1.000 1.000
C	7.824 7.824	1.00 1.00	1.000 1.000
D	5.850 5.850	1.00 1.00	1.000 1.000

Materials...

Member Label	Youngs ksi	Density kcf	Thermal in/deg F	Yield ksi
Default	1.00	0.000	0.000000	1.00
Steel	29,000.00	0.490	0.000650	50.00
Tube	29,000.00	0.490	0.000650	42.00

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Printed: 9 JAN 2014, 10:05AM

2-D Frame Analysis

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ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. #: KW-06002320

Licensee: NORMAN SCHEEL SE

Description: Frame

Member Sections...

Prop Label	Group Tag	Material	Area	Depth	Width	Ixx	Iyy
Default	Group	Tube	1.0 in ²	0.0 in	0.0 in	1.0 in ⁴	1.0 in ⁴
Pipe1-1/2 Std	Group	Tube	0.750 in ²	1.90 in	1.90 in	0.2930 in ⁴	0.2930 in ⁴

Joint Loads....

Joint Label	Load Direction	Load Magnitude					
		Dead	Roof Live	Live	Snow	Seismic	Wind
2	Global X						1.10
2	Global Y						1.90

Load Combinations...

Load Combination Description	Group Multiplier	Self Weight Factors		Load Combination Factors						
		X	Y	Dead	Roof Live	Live	Snow	Seismic	Wind	Earth
+D+S+H	1.0	-1.0		1.0			1.0			1.0
+D+W+H	1.0	-1.0		1.0					1.0	1.0
+D+0.750L+0.750S+0.750W+H	1.0	-1.0		1.0		0.750	0.750		0.750	1.0
+0.60D+W+H	1.0	-1.0		0.60					1.0	1.0

Joint Displacements & Reactions by Load Combination :

Joint Label	LoadCombination	Joint Displacements			Joint Reactions		
		X in	Y in	Z Radians	X k	Y k	Z k-ft
1	+D+S+H	0.0	0.0	0.000127	0.004783	0.02791	
2	+D+S+H	-0.000010	-0.0000410	-0.000253			
3	+D+S+H	-0.0000230	-0.0000530	0.000175			
4	+D+S+H	0.0	0.0	0.000179	-0.004783	0.03503	
1	+D+W+H	0.0	0.0	-0.000040	0.003241	1.467	
2	+D+W+H	0.004614	-0.002471	-0.000297			
3	+D+W+H	0.003672	-0.0000550	0.000166			
4	+D+W+H	0.0	0.0	0.000149	-1.103	0.4955	
1	+D+0.750L+0.750S+0.750W+H	0.0	0.0	.0000020	0.003627	1.108	
2	+D+0.750L+0.750S+0.750W+H	0.003458	-0.001863	-0.000286			
3	+D+0.750L+0.750S+0.750W+H	0.002748	-0.0000540	0.000169			
4	+D+0.750L+0.750S+0.750W+H	0.0	0.0	0.000157	-0.8286	0.3804	
1	+0.60D+W+H	0.0	0.0	-0.000040	0.003241	1.467	
2	+0.60D+W+H	0.004614	-0.002471	-0.000297			
3	+0.60D+W+H	0.003672	-0.0000550	0.000166			
4	+0.60D+W+H	0.0	0.0	0.000149	-1.103	0.4955	

Extreme Member End Forces

Only Load Combinations giving maximum values are listed

Member Label	Member "I" End Forces			Member "J" End Forces		
	Axial k	Shear k	Moment k-ft	Axial k	Shear k	Moment k-ft
A	1.188	0.008910	0.007445	-0.005292	0.01022	-0.01076
Max	+D+W+H	+D+S+H	+D+S+H	+D+S+H	+D+W+H	+D+S+H
A	-0.002517	0.008435	0.005459	-1.196	0.009746	-0.01254
Min	+D+S+H	+D+W+H	+D+W+H	+D+W+H	+D+S+H	+D+W+H
B	1.467	-0.003241	0.0	-0.02010	0.004783	-0.009918
Max	+D+W+H	+D+W+H	+D+W+H	+D+S+H	+D+S+H	+D+W+H
B	0.02791	-0.004783	0.0	-1.460	0.003241	-0.01464
Min	+D+S+H	+D+S+H	+D+S+H	+D+W+H	+D+W+H	+D+S+H
C	0.00780	0.008882	0.007191	-0.000192	0.01040	-0.01068
Max	+D+W+H	+D+S+H	+D+S+H	+D+S+H	+D+W+H	+D+S+H
C	0.007312	0.008252	0.004459	-0.000680	0.009774	-0.01288
Min	+D+S+H	+D+W+H	+D+W+H	+D+W+H	+D+S+H	+D+W+H
D	0.009478	0.004345	0.01288	-0.02399	-0.003665	0.01254
Max	+D+W+H	+D+W+H	+D+W+H	+D+S+H	+D+S+H	+D+W+H
D	0.009063	0.003665	0.01068	-0.02441	-0.004345	0.01076
Min	+D+S+H	+D+S+H	+D+S+H	+D+W+H	+D+W+H	+D+S+H

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Printed: 9 JAN 2014, 10:05AM

2-D Frame Analysis

File = G:\Jobfiles\12065\Enercalc\12065.ec6
ENERCALC, INC. 1983-2013, Build:6.13.8.31, Ver:6.13.8.31

Lic. # : KW-06002320

Licensee : NORMAN SCHEEL SE

Description : Frame

Extreme Member Forces

Only Load Combinations giving maximum values are listed

Mmbr Label	Axial	Dist from "I" Joint	Moment	Dist from "I" Joint	Shear	Dist from "I" Joint
A	0.002517k	0.0 ft	0.01254 k-ft	7.925 ft	0.008910 k	0.0 ft
Max		+D+S+H		+D+W+H		+D+S+H
Min	-1.196k	7.925 ft	-0.009651 k-ft	3.558 ft	-0.01022 k	7.925 ft
		+D+W+H		+D+W+H		+D+W+H
B	-0.02010k	3.060 ft	0.01464 k-ft	3.060 ft	-0.003241 k	0.0 ft
Max		+D+S+H		+D+S+H		+D+W+H
Min	-1.467k	0.0 ft	0.0 k-ft	0.0 ft	-0.004783 k	0.0 ft
		+D+W+H		+D+S+H		+D+S+H
C	-0.000192k	7.824 ft	0.01288 k-ft	7.824 ft	0.008882 k	0.0 ft
Max		+D+S+H		+D+W+H		+D+S+H
Min	-0.00780k	0.0 ft	-0.009816 k-ft	3.513 ft	-0.01040 k	7.824 ft
		+D+W+H		+D+W+H		+D+W+H
D	-0.009063k	0.0 ft	0.01288 k-ft	0.0 ft	0.004345 k	0.0 ft
Max		+D+S+H		+D+W+H		+D+W+H
Min	-0.02441k	5.850 ft	-0.01254 k-ft	5.850 ft	0.003665 k	0.0 ft
		+D+W+H		+D+W+H		+D+S+H

Member Stress Checks...

Member Label	Section Label	Material	Max. Axial + Bending Stress Ratios				Max. Shear Stress Ratios			
			Load Combination	Ratio	Status	Dist (ft)	Load Combination	Ratio	Status	Dist (ft)
A	Group	Steel	+D+W+H	0.245	PASS	6.47	+D+W+H	0.002	PASS	7.92
B	Group	Steel	+D+W+H	0.096	PASS	0.00	+D+S+H	0.001	PASS	0.00
C	Group	Steel	+D+W+H	0.015	PASS	7.82	+D+W+H	0.002	PASS	7.82
D	Group	Steel	+D+W+H	0.016	PASS	5.85	+D+W+H	0.001	PASS	0.00

Appendix A: ASCE-2010 to 2005 conversion sheet

The 200 Series report's results have been calculated according to the ASCE-2010 guidelines. If the results would rather be examined in terms of the ASCE-2005 codes, the following conversions must be applied for the two codes' results to be of equivalence.

This appendix also applies for converting to different years for IBC codes. For 2006 and 2009 IBC, use the ASCE-2005 codes, and for the 2012 and 2015 IBC, use the ASCE-2010 codes.

Factors specific to this report

- 1) The ground-mounted solar panels are in terms of Risk Category I
- 2) The importance factor for the ASCE-2005 code is $I = .77$
- 3) The ASCE-2010 code has no importance factor for the wind loads
- 4) The snow load's importance factor remains the same for both the 2005 and 2010 codes
- 5) Thus, calculations that utilize wind loads are the ONLY ones that need conversions

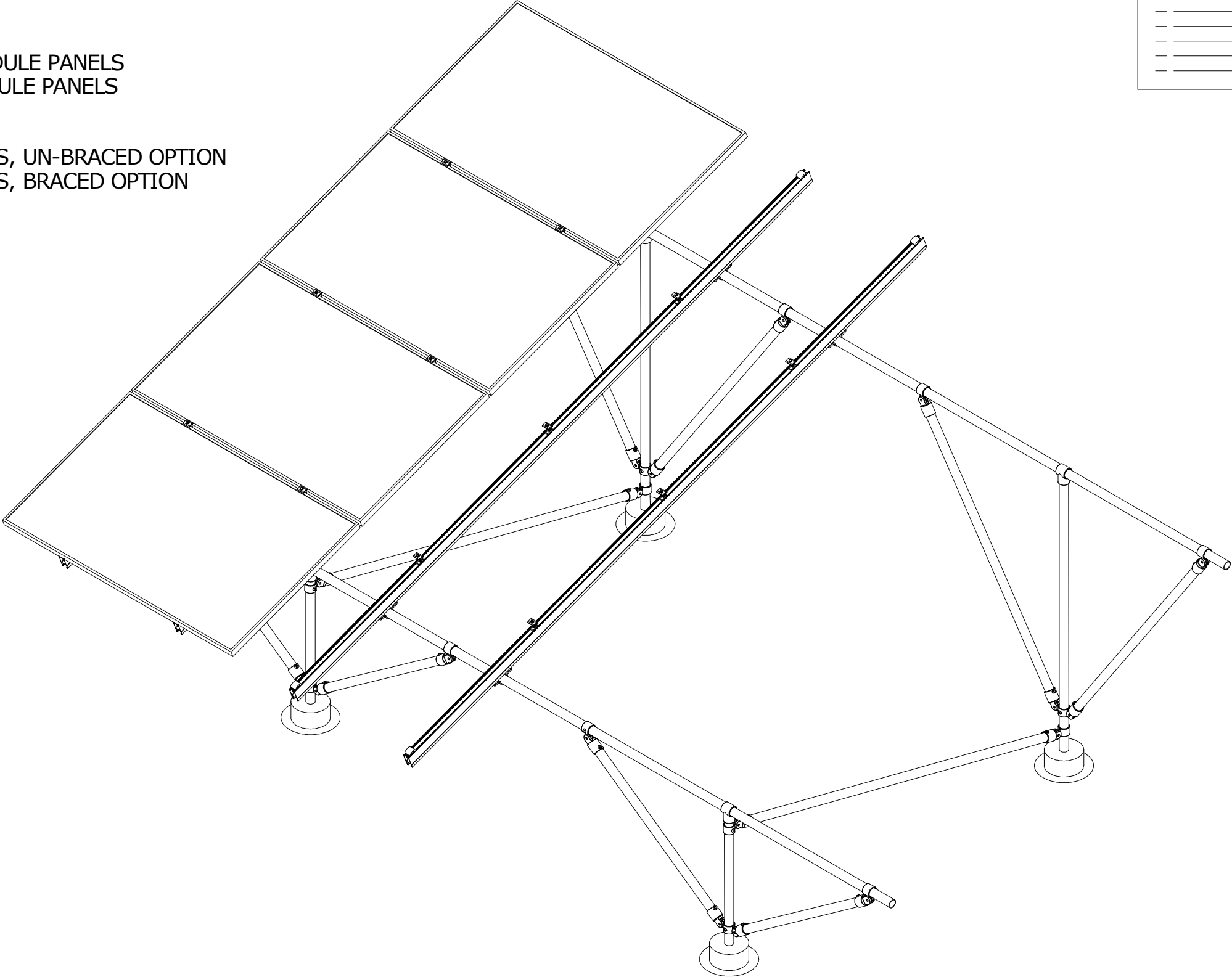
Velocity Equivalence (mph)

$V_{3\text{-sec}}$ (ASCE7-05)	$V_{\text{ult.}}$ (ASCE7-10)
85	100
90	116
100	129
110	142
120	155
130	168
140	181
150	194

The following velocities listed in the graph refer to some V_{2005} being equal to some V_{2010} . In other words, use the following velocities in accordance with either ASCE-2005 or ASCE-2010.

- S200 D00: SERIES 200 DRAWING SET COVER
- S200 D01: SERIES 200 OVERVIEW
- S200 D02: SERIES 200 SYSTEM DETAILS
- S200 D03: SERIES 200 BRACED OPTION
- S200 D04: SERIES 200 SYSTEM DETAILS, 3 MODULE PANELS
- S200 D05: SERIES 200 BRACED OPTION, 3 MODULE PANELS
- S200 D06: SERIES 200 PIER DETAILS
- S200 D07: SERIES 200 GRADE BEAM OPTION
- S200 D08: SERIES 200 3-RAIL CONFIGURATIONS, UN-BRACED OPTION
- S200 D09: SERIES 200 3-RAIL CONFIGURATIONS, BRACED OPTION

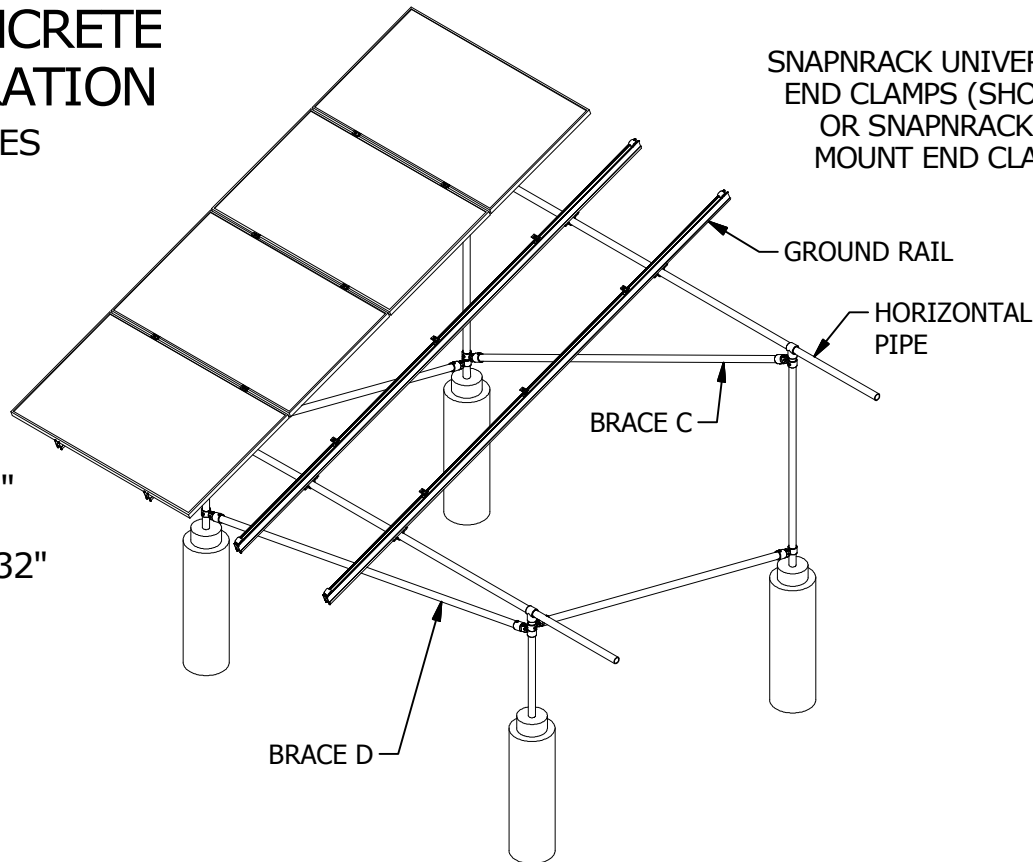
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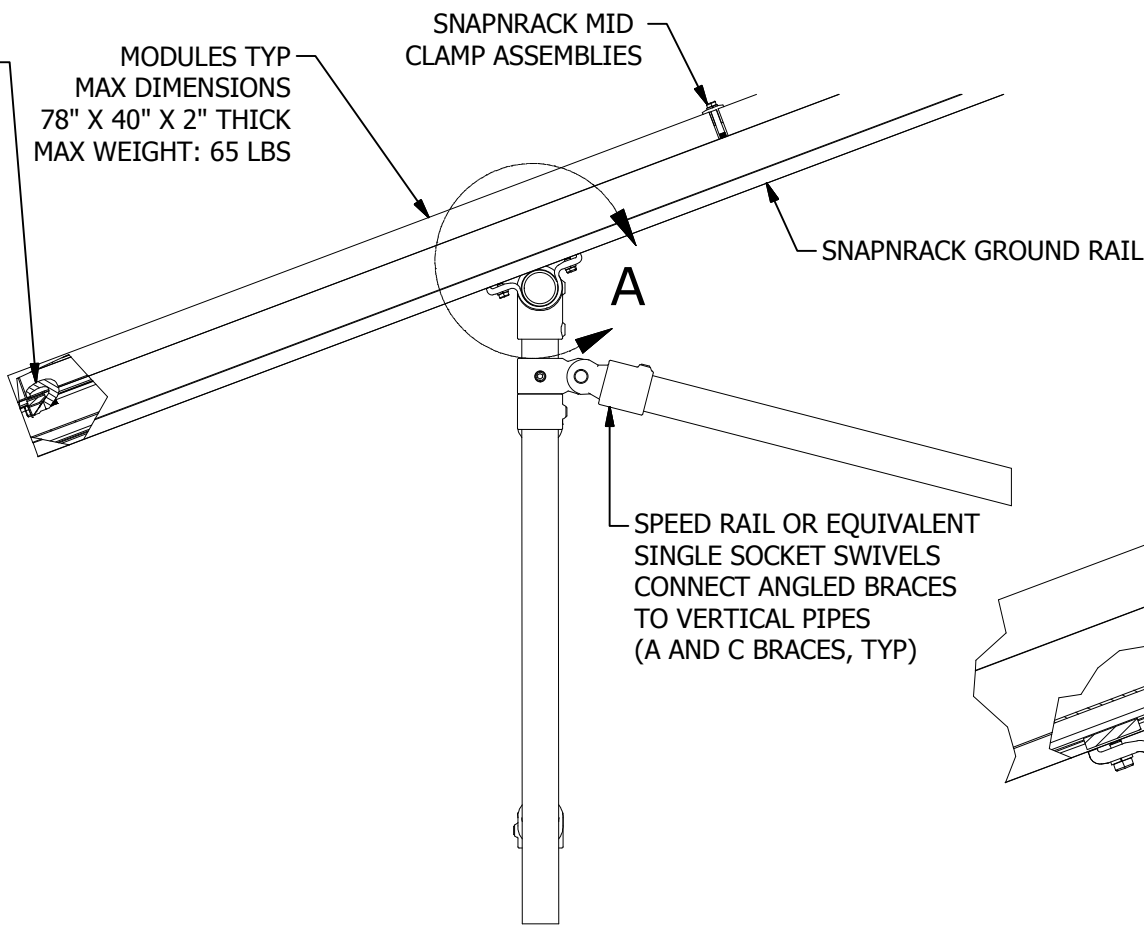
STANDARD CONCRETE
PIER CONFIGURATION

SEE ENGINEERING TABLES
FOR PIER DEPTHS AND
SPAN LIMITATIONS.

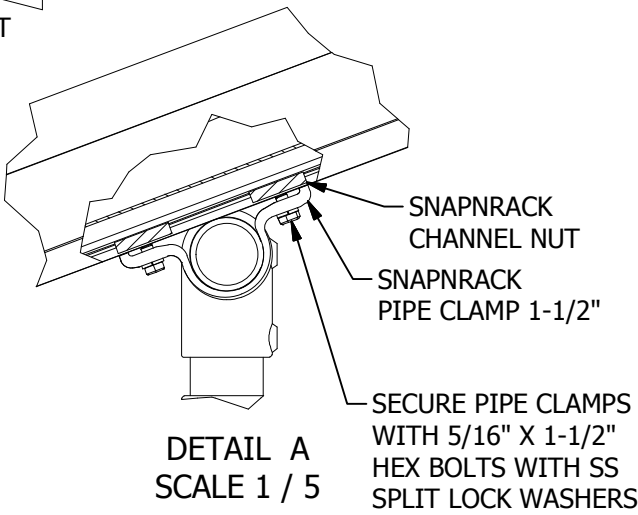
UNLESS OTHERWISE
SPECIFIED IN
ENGINEERING DOCS,
THE FOLLOWING
VALUES APPLY:
MAX RAIL LENGTH: 162"
RAIL SPAN: 96"
MAX RAIL OVERHANG: 32"



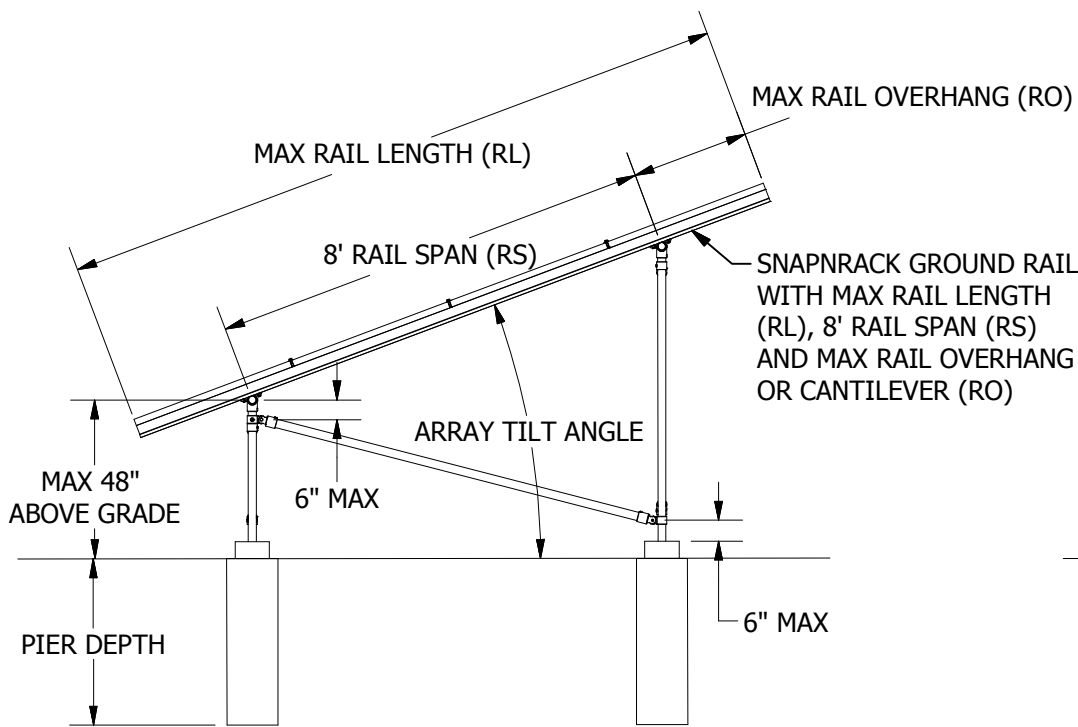
ISO VIEW OF RACKING ASSEMBLY



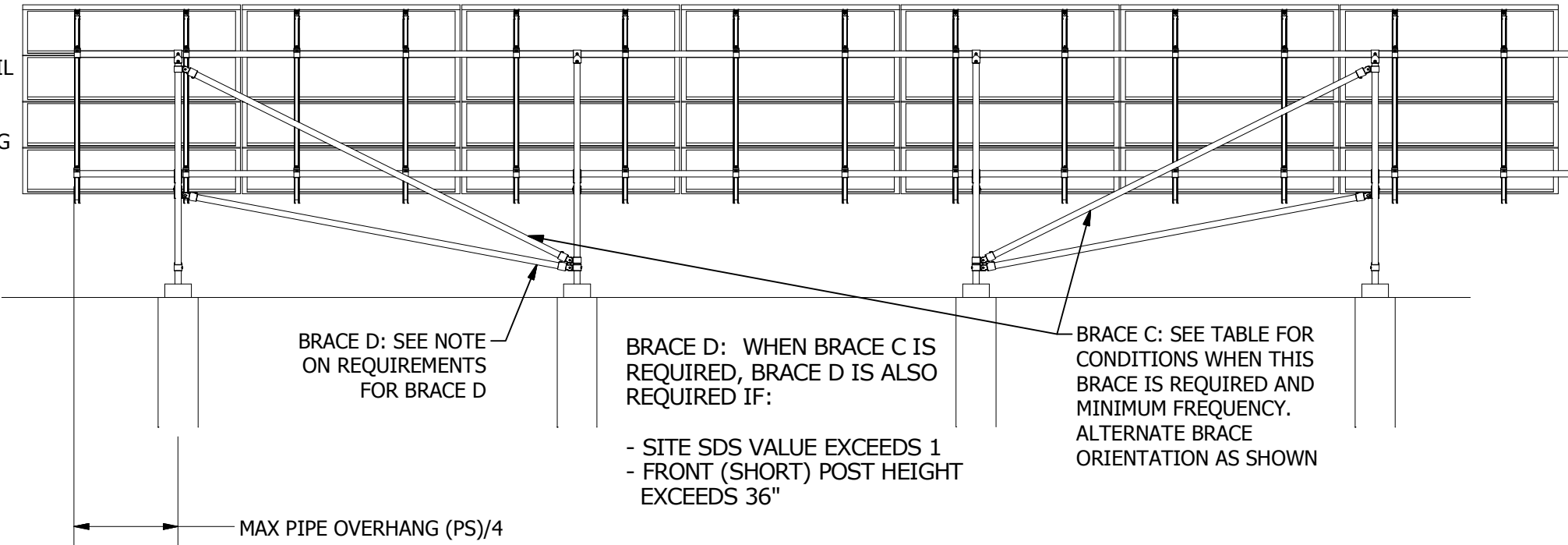
DETAILED VIEW OF PIPE TO RAIL AND BRACING INTERFACE



DETAIL A
SCALE 1 / 5

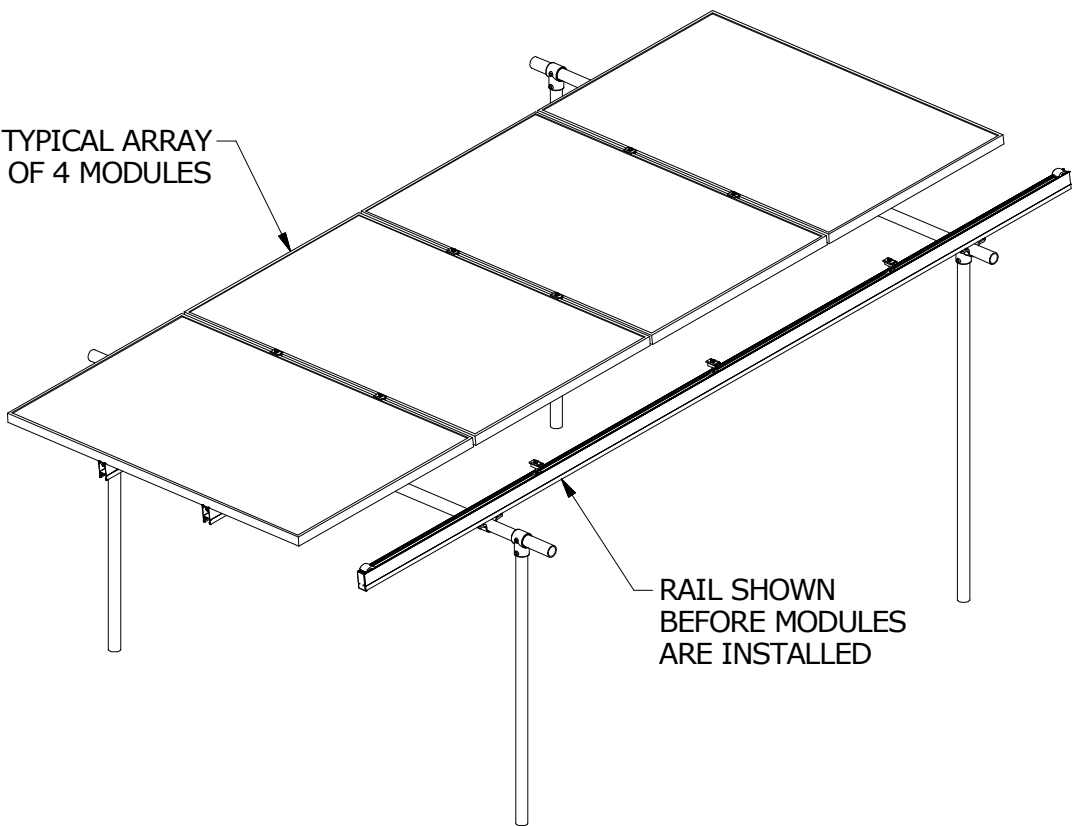


ARRAY SIDE VIEW



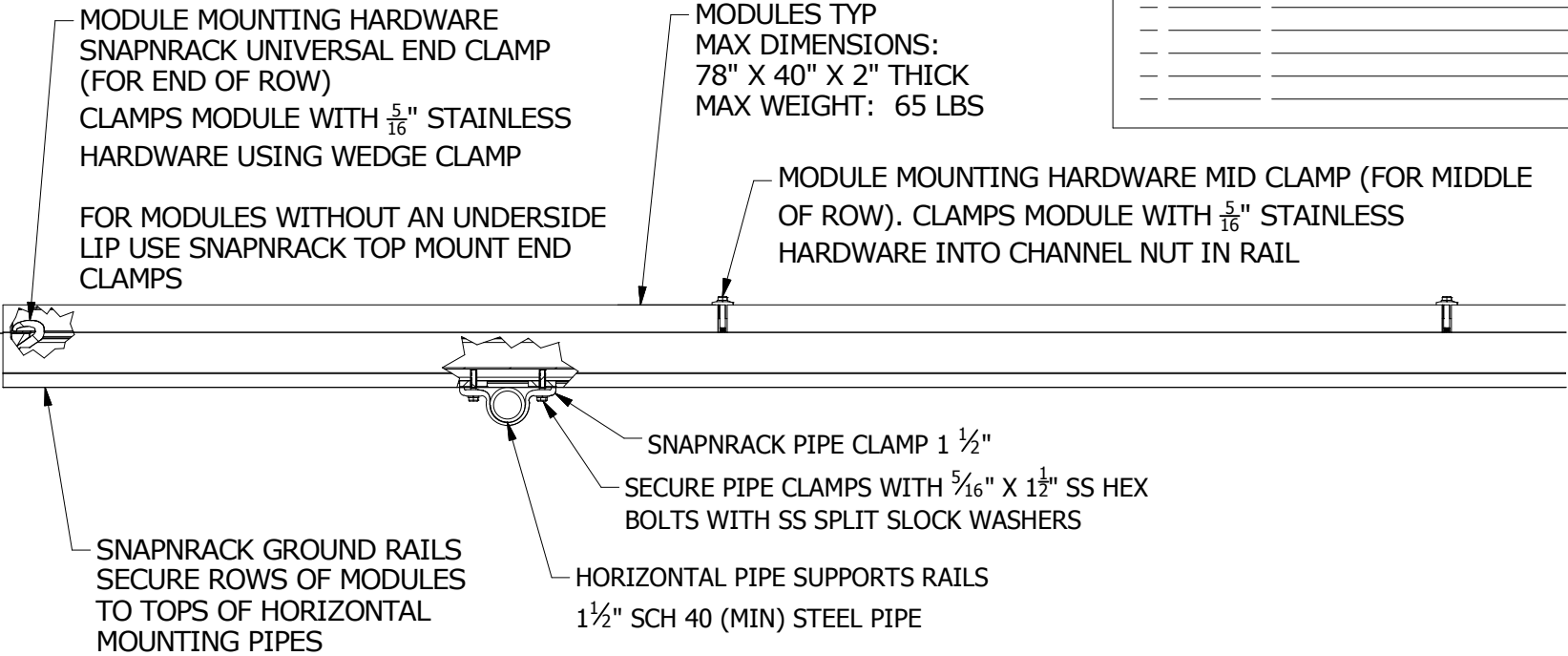
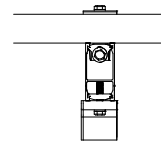
ARRAY BACK VIEW

REVISION:



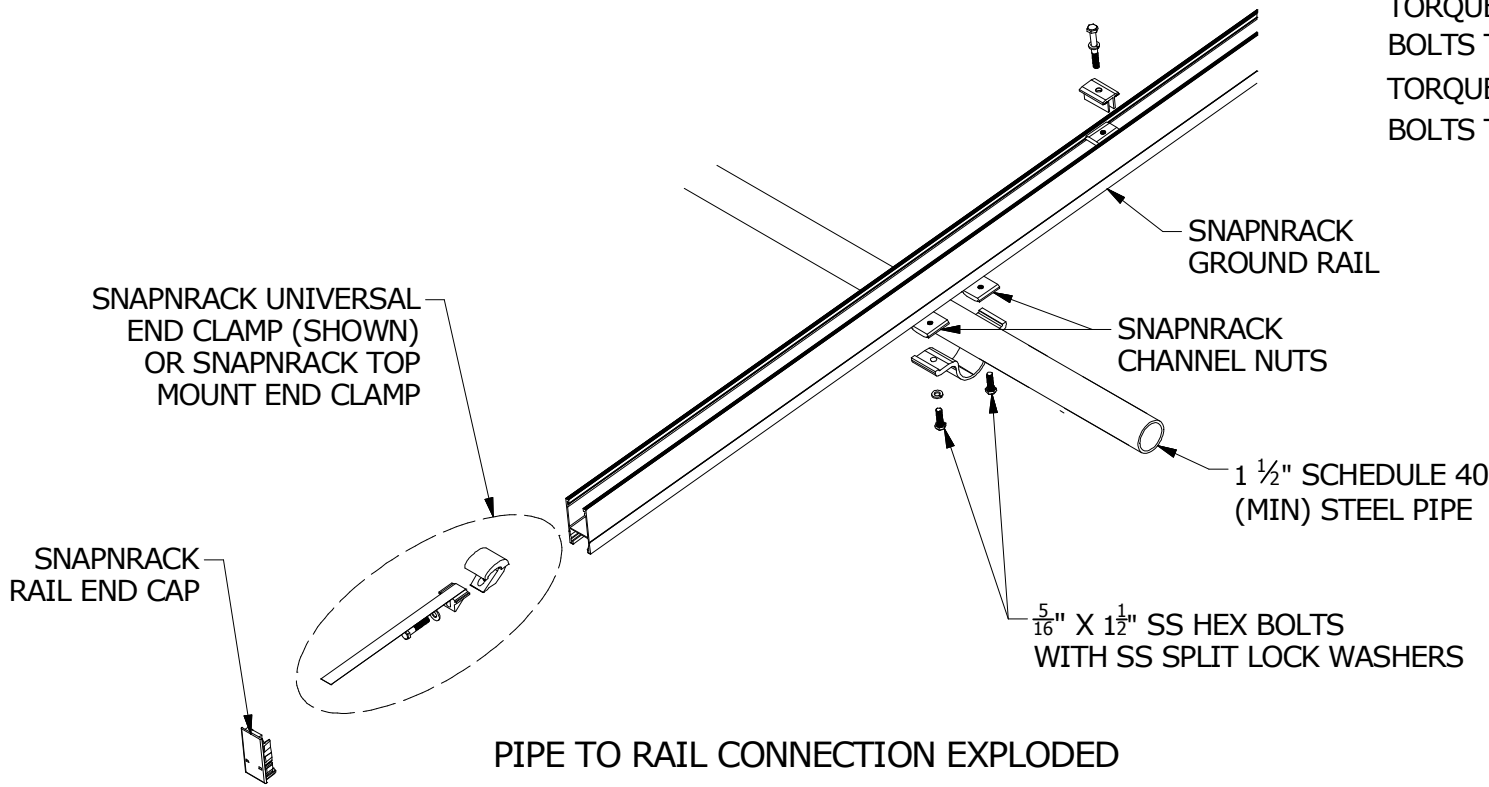
ISO VIEW OF RACKING ASSEMBLY

NOTE:
TORQUE 5/16" SS SILVER HEX BOLTS TO 10-16 FT-LBS
TORQUE 5/16" SS BLACK HEX BOLTS TO 7-9 FT-LBS



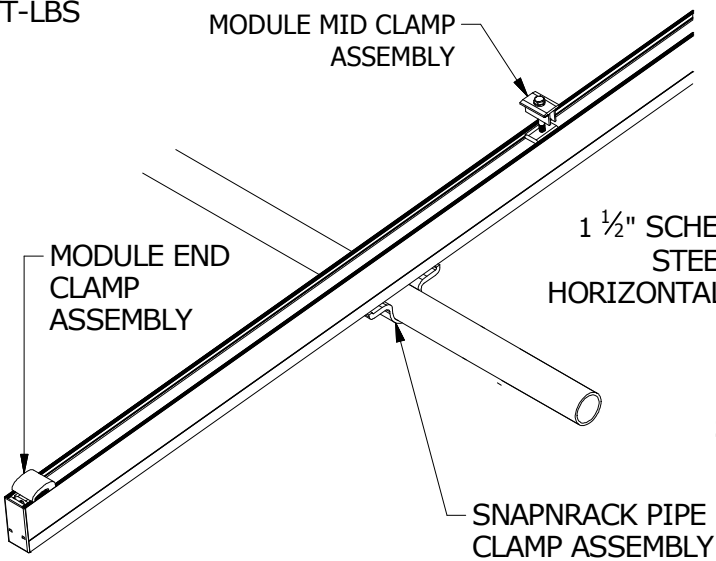
MODULE AND RAIL ATTACHMENT DETAILS

REVISION:		

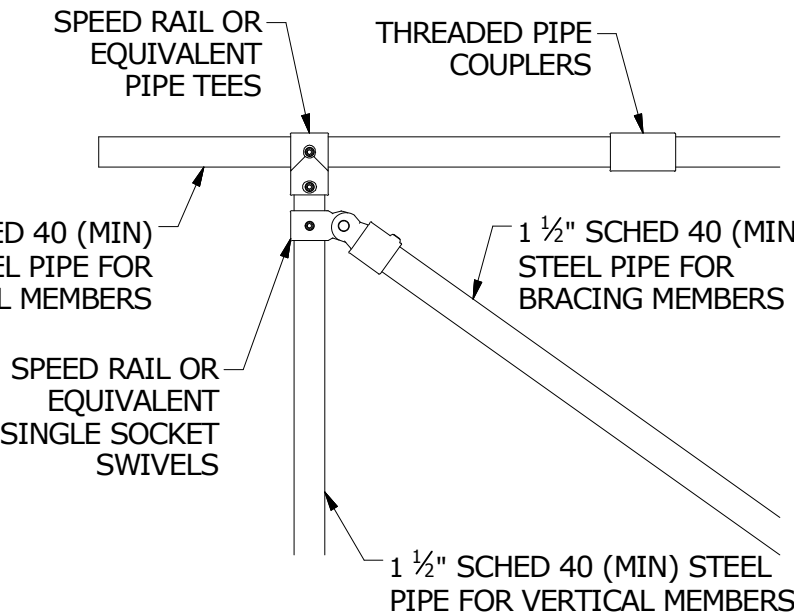


PIPE TO RAIL CONNECTION EXPLODED

NOTE:
TORQUE 5/16" SS SILVER HEX BOLTS TO 10-16 FT-LBS
TORQUE 5/16" SS BLACK HEX BOLTS TO 7-9 FT-LBS



PIPE TO RAIL CONNECTION



PIPE FITTING DETAILS

BRACING OPTION FOR HIGH LOAD OR LONGER SPAN APPLICATIONS

SEE ENGINEERING TABLES FOR PIER DEPTHS AND SPAN LIMITATIONS.

COMPATIBLE WITH ALL PIER OPTIONS INCLUDING STANDARD PIERS AND GRADE BEAMS

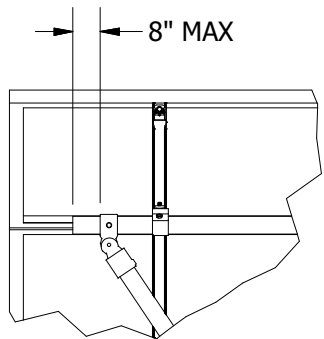
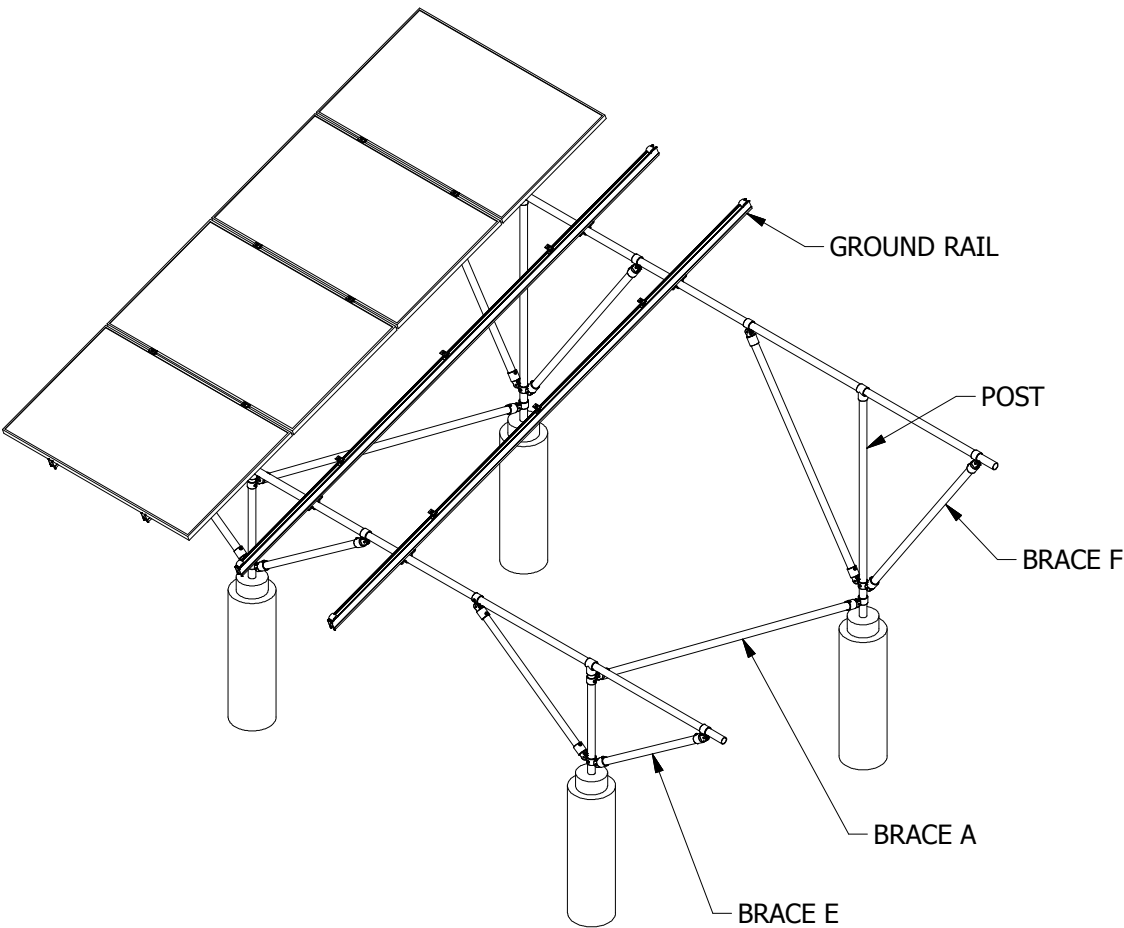
UNLESS OTHERWISE SPECIFIED IN ENGINEERING DOCS, THE FOLLOWING VALUES APPLY:

MAX RL: 162"

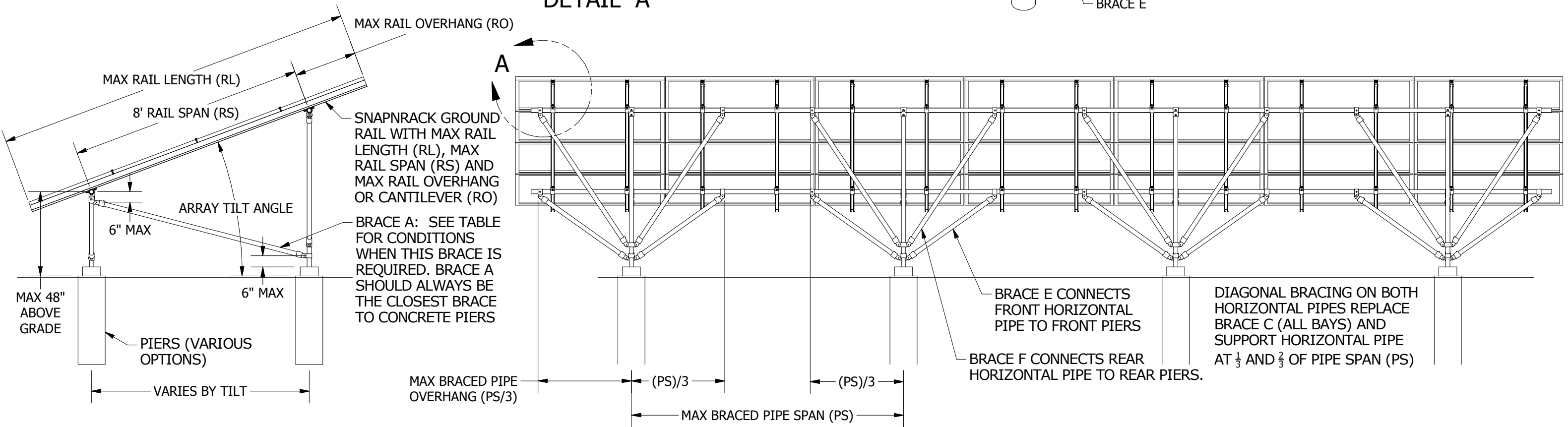
RS: 96"

MAX RO: 32"

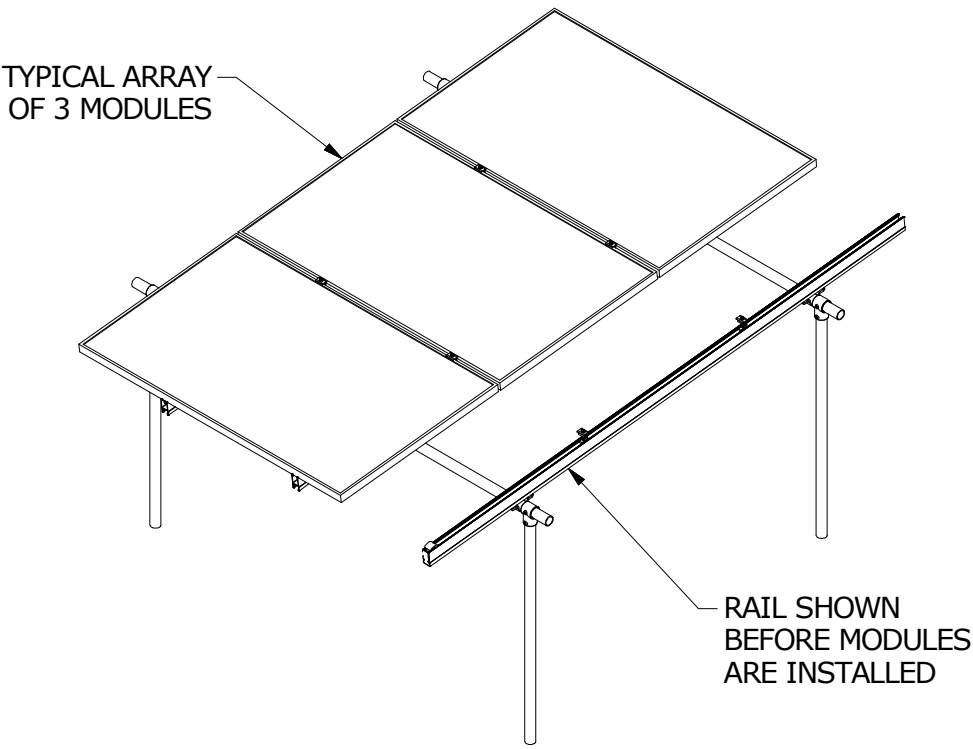
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DETAIL A

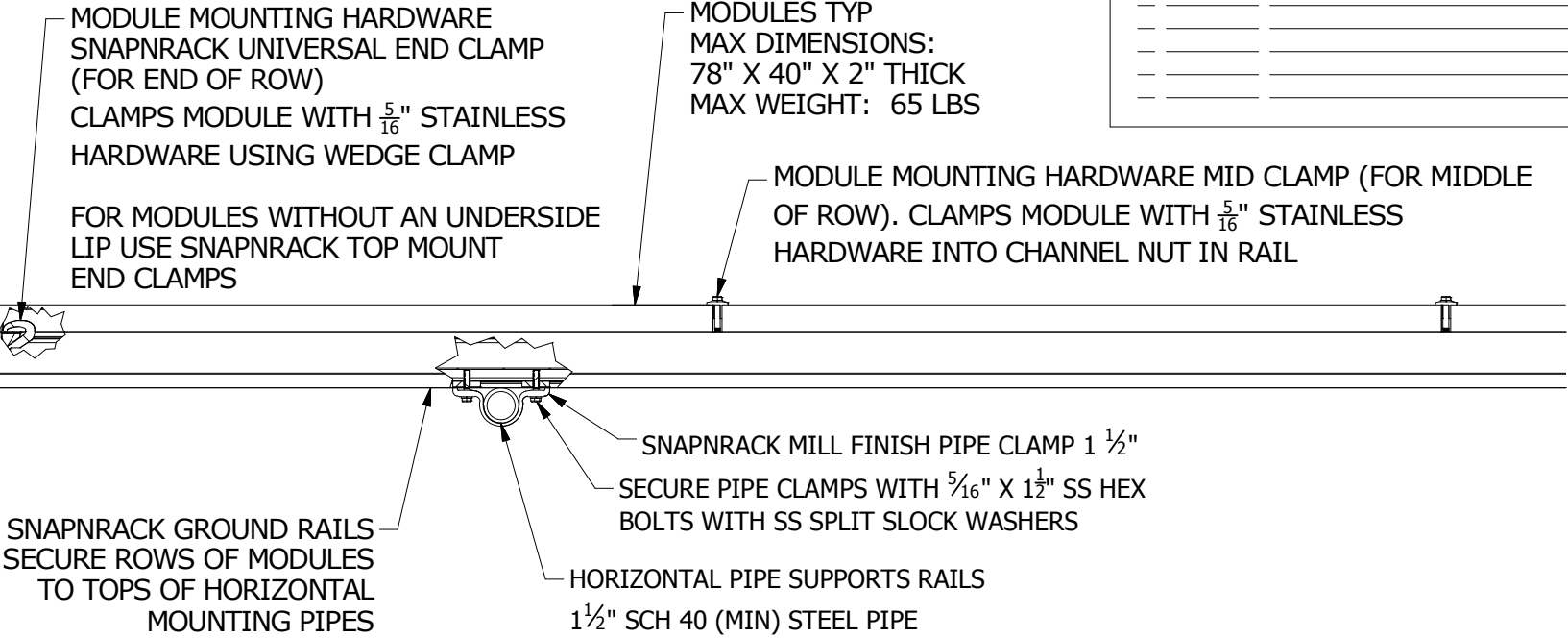
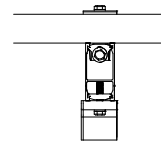


	MAINSTREAM ENERGY CORP. 775 FIERO LANE, SUITE 200 • SAN LUIS OBISPO, CA 93401 USA PHONE (805) 528-9705 • FAX (805) 528-9701 THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY. ANY REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF MAINSTREAM ENERGY CORPORATION.	DESIGNER: <u>G. McPheeters</u> DRAFTER: <u>D. Ryan</u> APPROVED BY: _____	SCALE: <u>DNS</u>	PART NUMBER: <u>S200 D03</u>	DESCRIPTION: <u>SERIES 200 BRACED OPTION</u>	REV <u>G</u>
			DATE: <u>120113</u>			

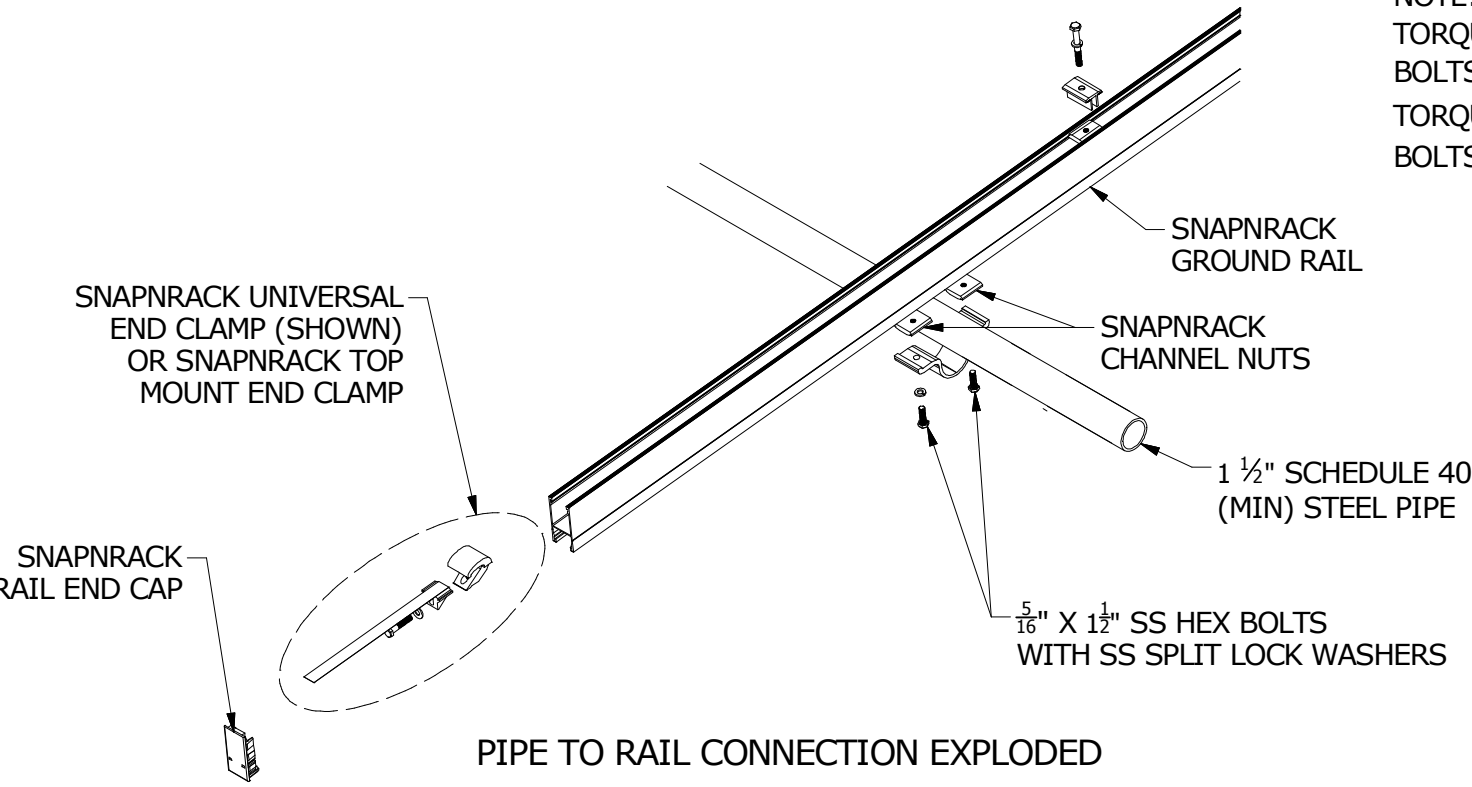


ISO VIEW OF RACKING ASSEMBLY

NOTE:
TORQUE $\frac{5}{16}$ " SS SILVER HEX BOLTS TO 10-16 FT-LBS
TORQUE $\frac{5}{16}$ " SS BLACK HEX BOLTS TO 7-9 FT-LBS

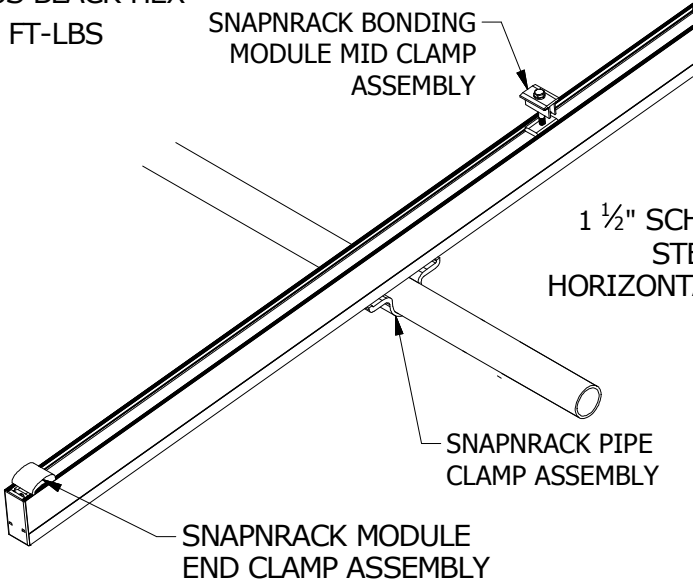


MODULE AND RAIL ATTACHMENT DETAILS

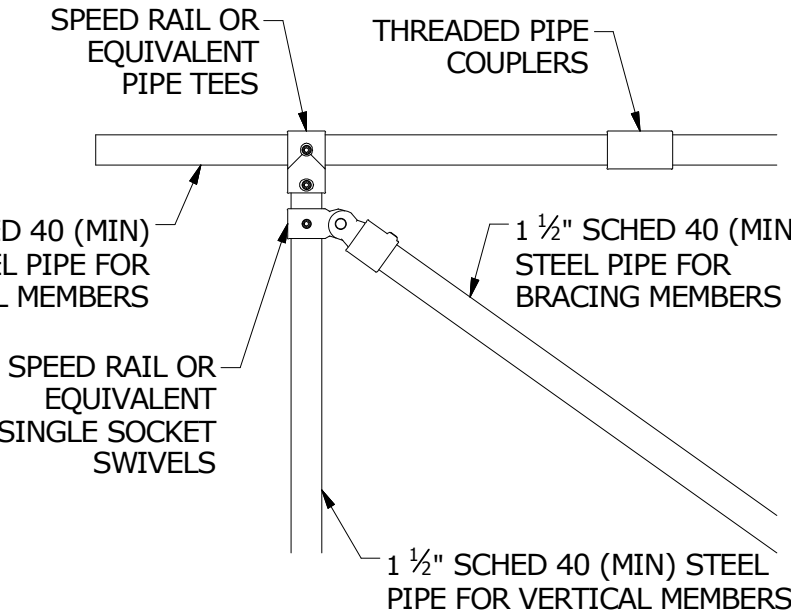


PIPE TO RAIL CONNECTION EXPLODED

NOTE:
TORQUE $\frac{5}{16}$ " SS SILVER HEX BOLTS TO 10-16 FT-LBS
TORQUE $\frac{5}{16}$ " SS BLACK HEX BOLTS TO 7-9 FT-LBS



PIPE TO RAIL CONNECTION



PIPE FITTING DETAILS

BRACING OPTION FOR HIGH LOAD OR LONGER SPAN APPLICATIONS - 3 MODULE PANELS

SEE ENGINEERING TABLES FOR PIER DEPTHS AND SPAN LIMITATIONS.

COMPATIBLE WITH ALL PIER OPTIONS INCLUDING STANDARD PIERS AND GRADE BEAMS

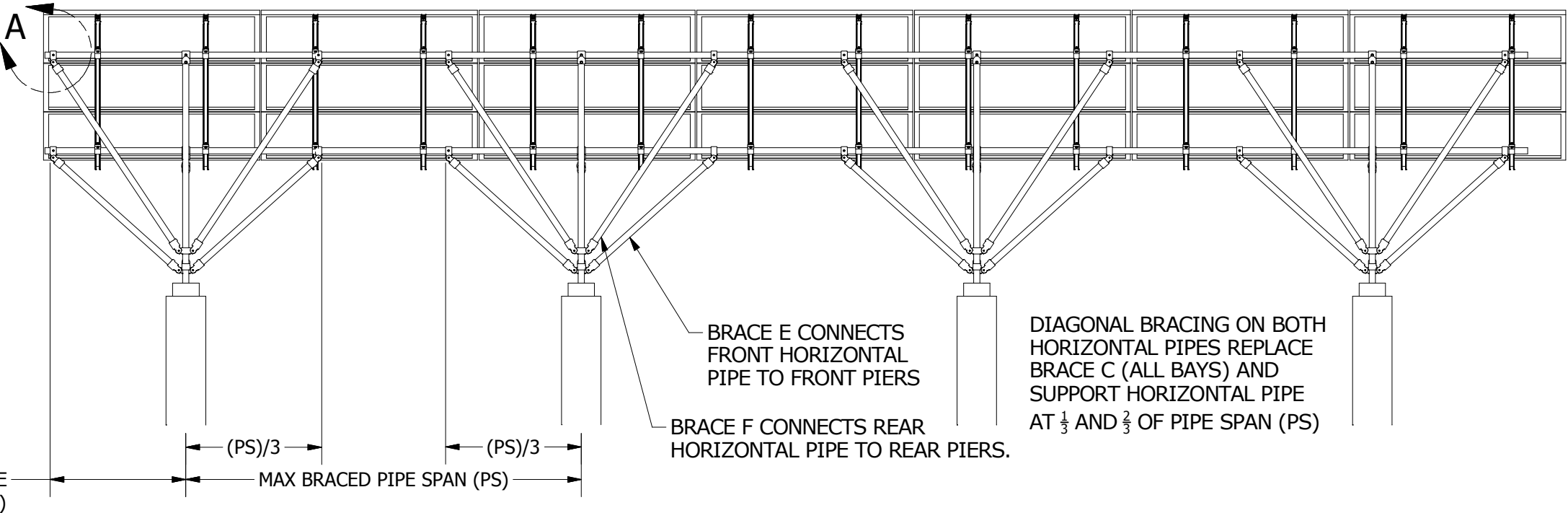
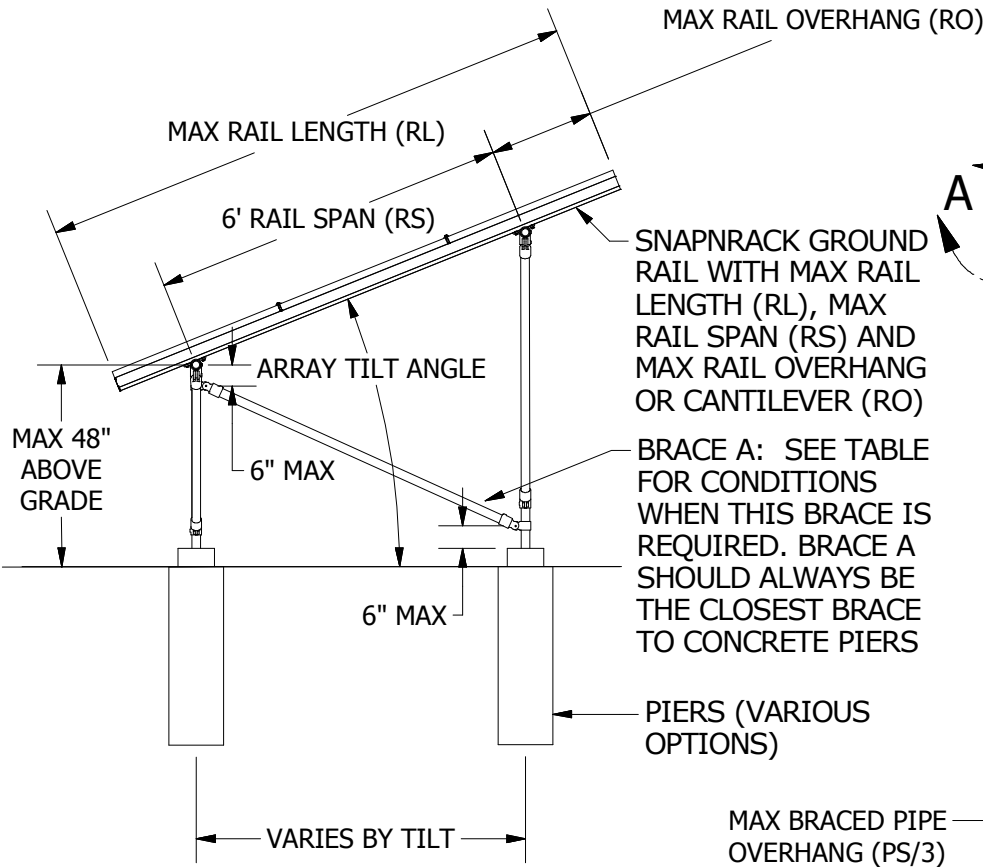
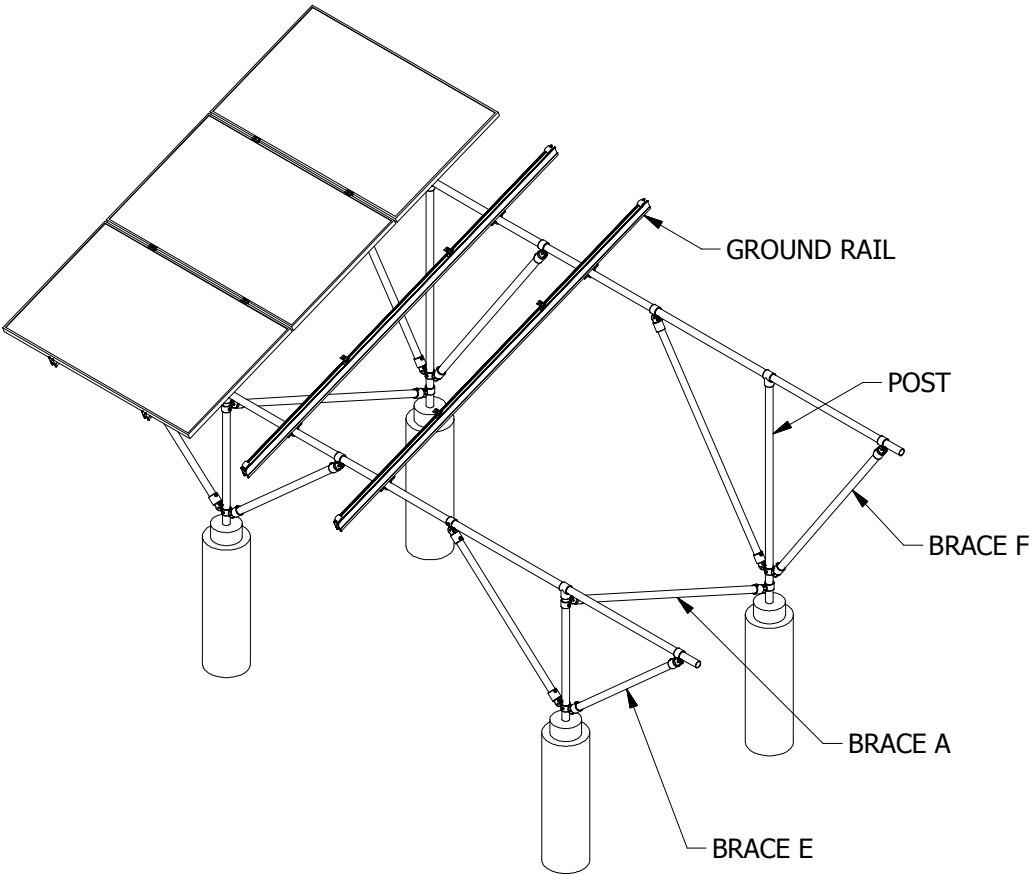
UNLESS OTHERWISE SPECIFIED IN ENGINEERING DOCS, THE FOLLOWING VALUES APPLY:

MAX RL: 122"
RS: 72"
MAX RO: 24"

REVISION:		

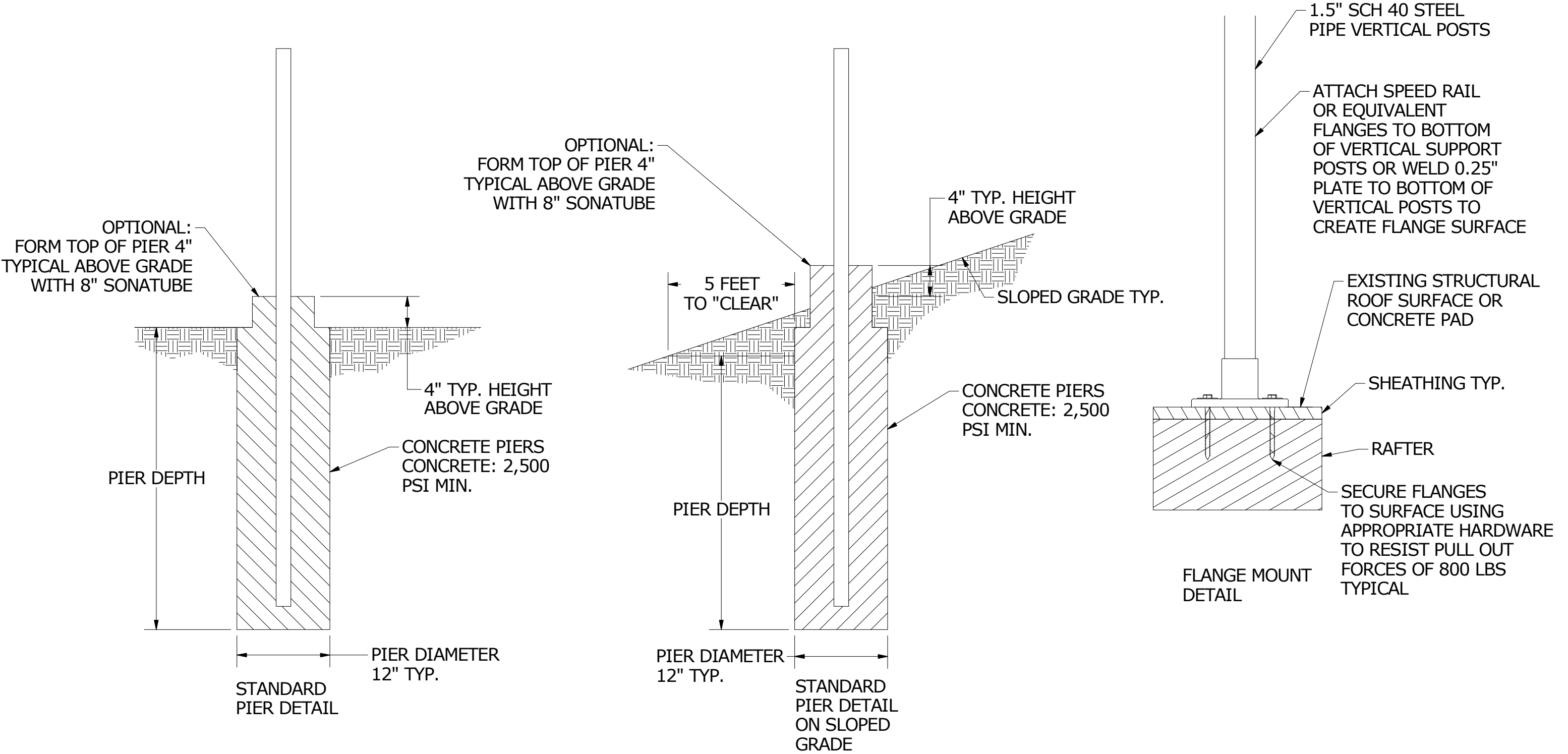


DETAIL A



NOTE:
FLANGE MOUNTS ARE A VIABLE OPTION FOR INSTALLATION
OF GROUND MOUNT SYSTEMS ON CONCRETE PADS OR
VARIOUS TYPES OF ROOF TOP STRUCTURES, BUT ARE NOT
SPECIFIED IN DETAIL IN THE STANDARD ENGINEERING
REVIEW FOR 2013.

REVISION:	



SnapNrack PV Mounting Systems	MAINSTREAM ENERGY CORP. 775 FIERO LANE, SUITE 200 • SAN LUIS OBISPO, CA 93401 USA PHONE (805) 528-9705 • FAX (805) 528-9701 THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY. ANY REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF MAINSTREAM ENERGY CORPORATION.	DESIGNER: G. McPheeters DRAFTER: D. Ryan APPROVED BY: _____	SCALE: DNS	PART NUMBER: S200 D06	DESCRIPTION: SERIES 200 PIER DETAILS	REV G
			DATE: 120113			

GRADE BEAM FOUNDATION CONFIGURATION

SEE ENGINEERING TABLES FOR SPAN LIMITATIONS.

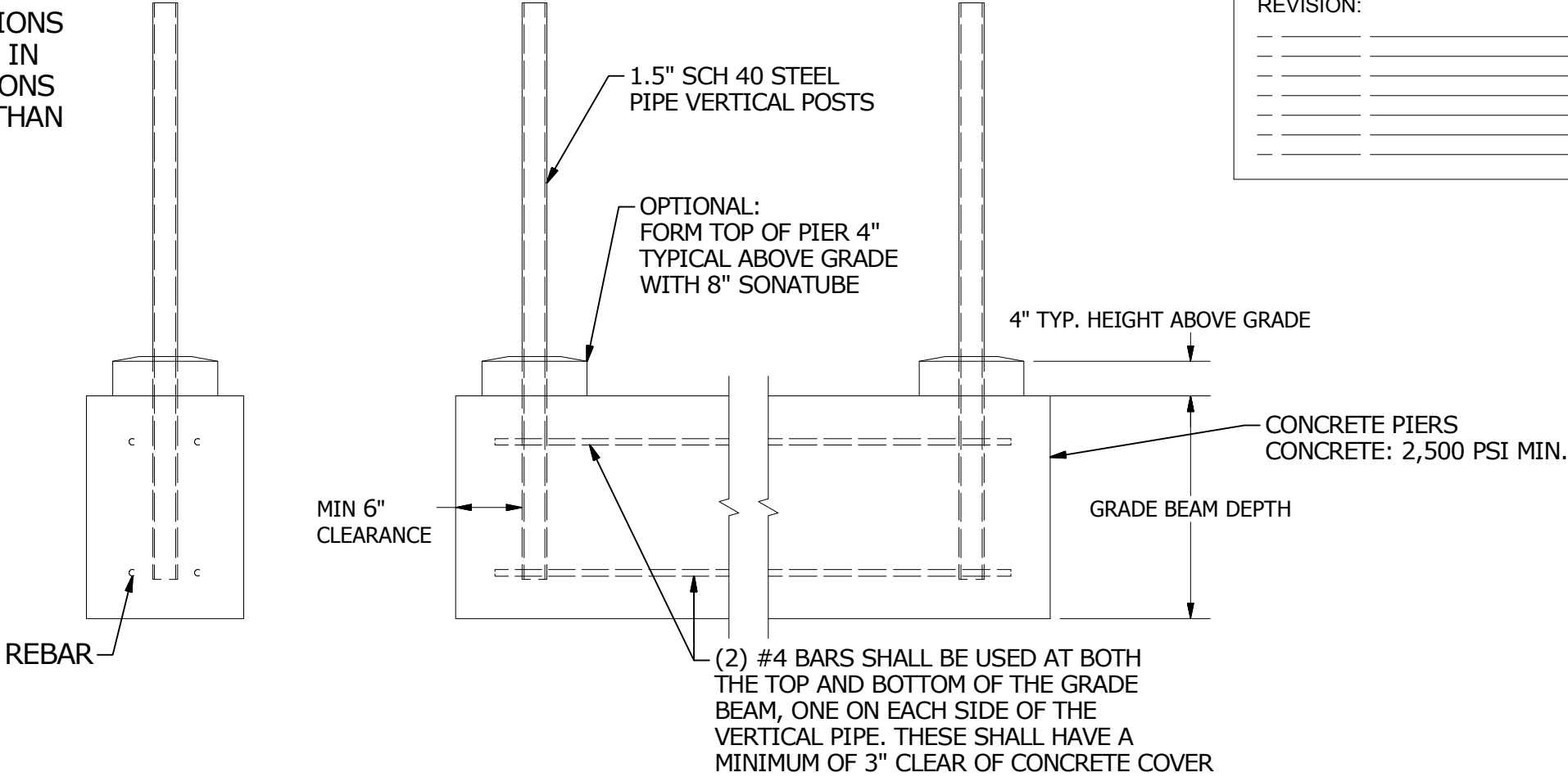
UNLESS OTHERWISE SPECIFIED IN ENGINEERING DOCS, THE FOLLOWING VALUES APPLY:
MAX RL: 162"
RS: 96"
MAX RO: 32"

MIN GBW: 12"
MIN GBD: 18"

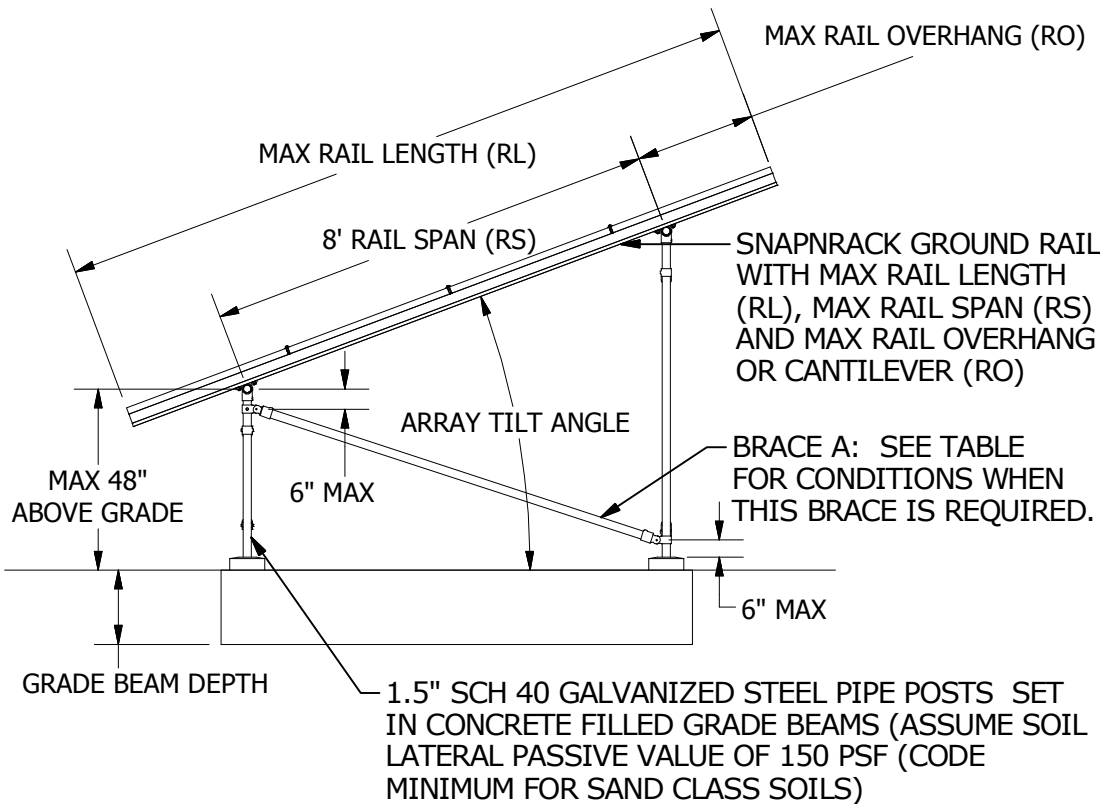
GRADE BEAM FOUNDATIONS SHOULD ONLY BE USED IN FLAT GROUND CONDITIONS (GROUND SLOPE LESS THAN 5 DEGREES TYPICAL)

COMPATIBLE WITH ALL BRACING OPTIONS

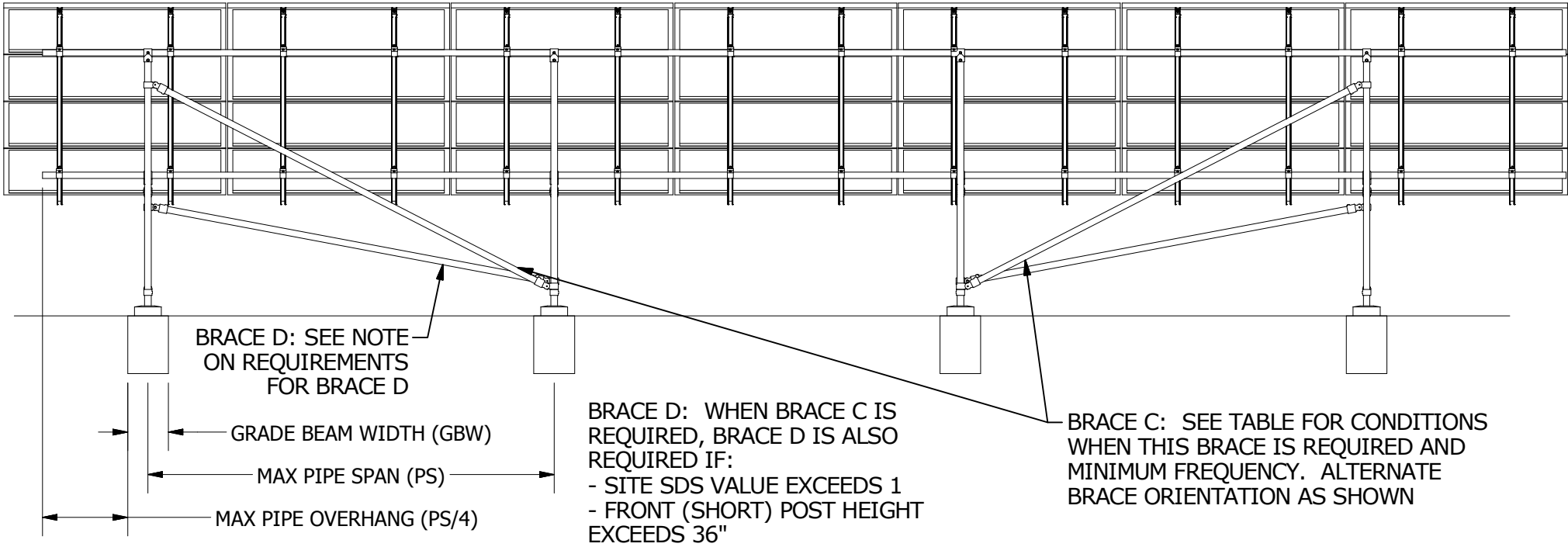
REVISION:	



GRADE BEAM FOUNDATION DETAIL



ARRAY SIDE VIEW

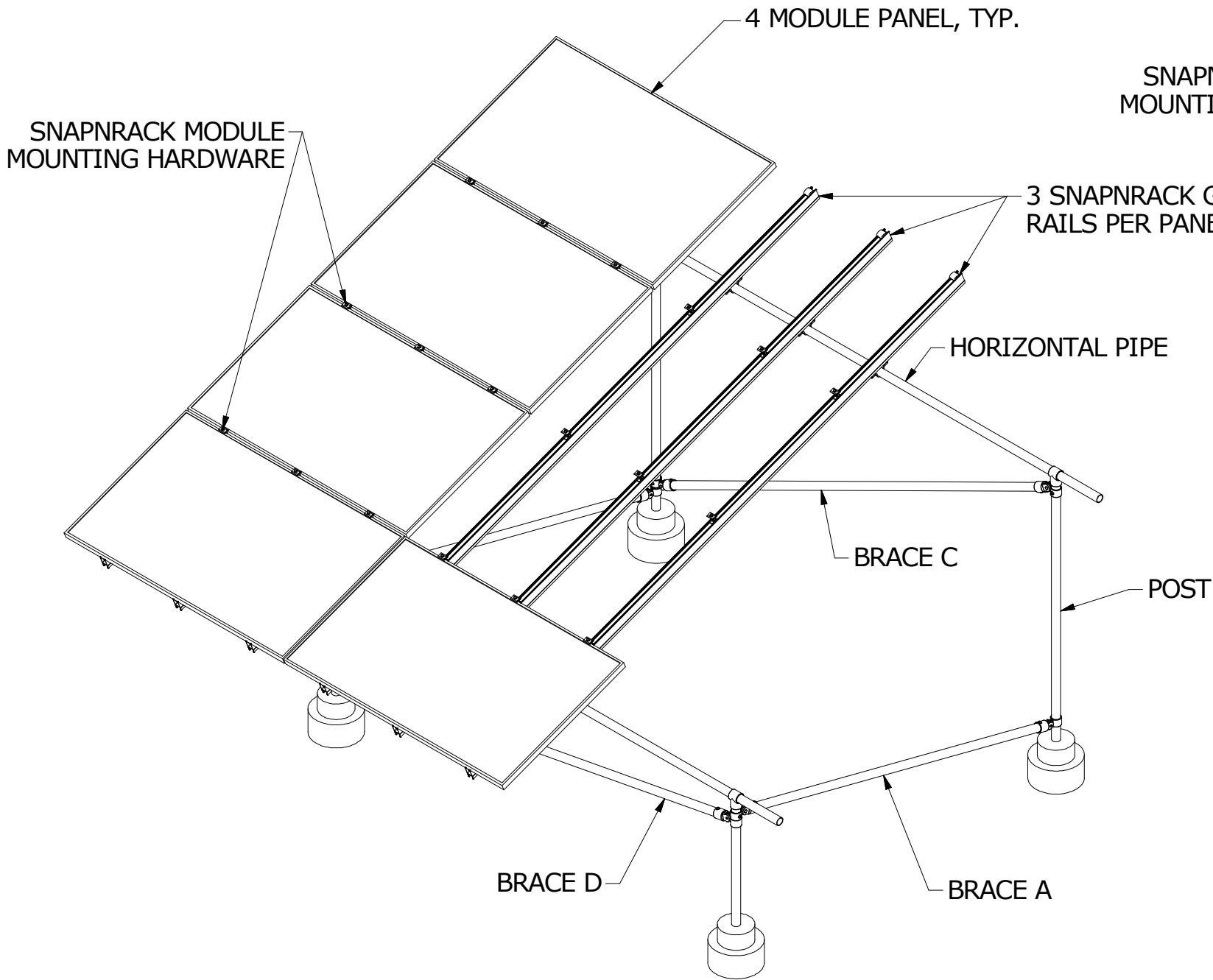


ARRAY BACK VIEW

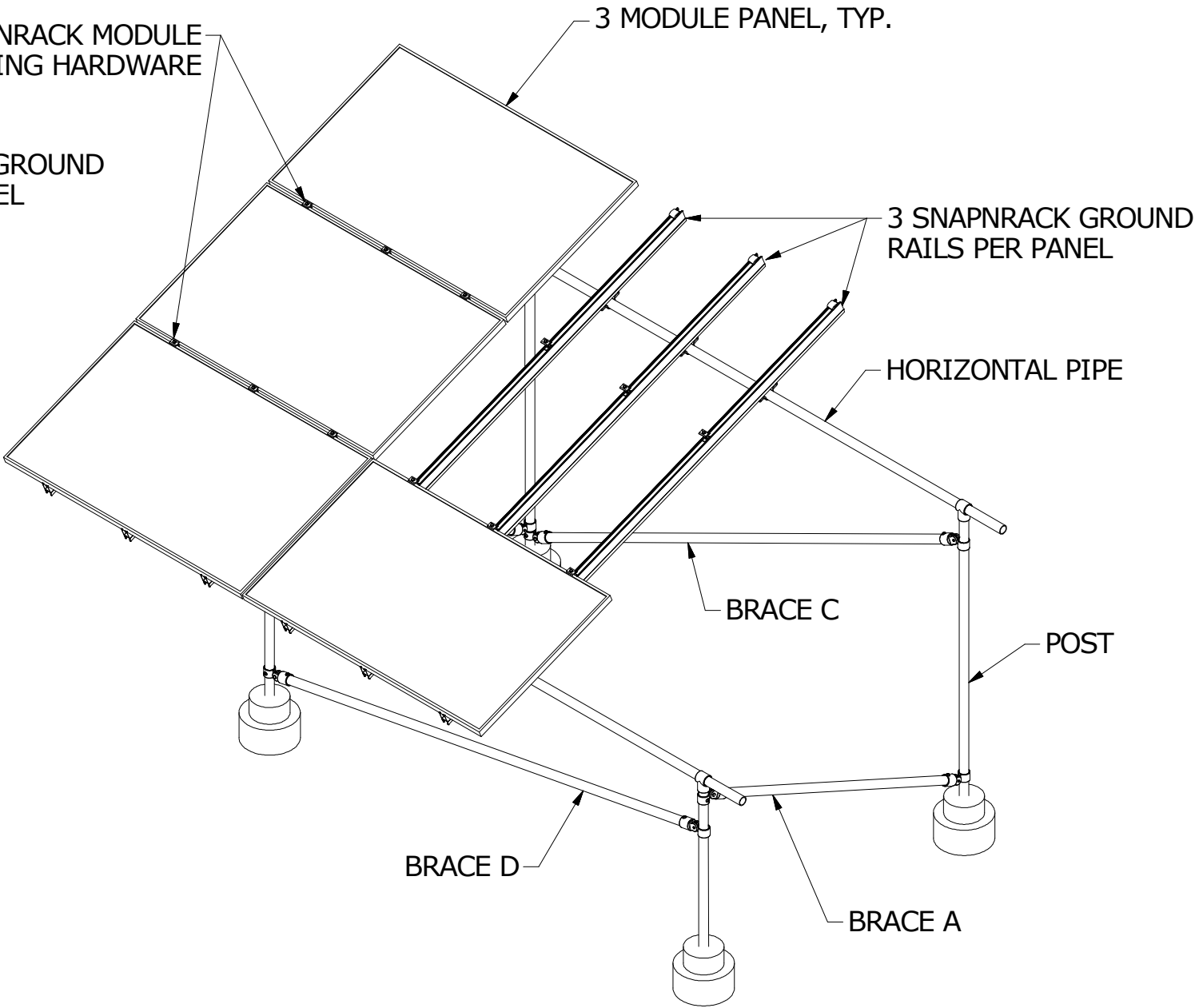
	MAINSTREAM ENERGY CORP. 775 FIERO LANE, SUITE 200 • SAN LUIS OBISPO, CA 93401 USA PHONE (805) 528-9705 • FAX (805) 528-9701 THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY. ANY REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF MAINSTREAM ENERGY CORPORATION.	DESIGNER: <u>G McPheeters</u> DRAFTER: <u>D Ryan</u> APPROVED BY: _____	SCALE: DNS	PART NUMBER: S200 D07	DESCRIPTION: SERIES 200 GRADE BEAM OPTION	REV G
			DATE: 120113			

SERIES 200 3-RAIL CONFIGURATIONS
THE SERIES 200 3-RAIL OPTION CAN BE SET UP
FOR 3 MODULE AND 4 MODULE PANELS USING 3
RAILS PER PANEL.

REVISION:	



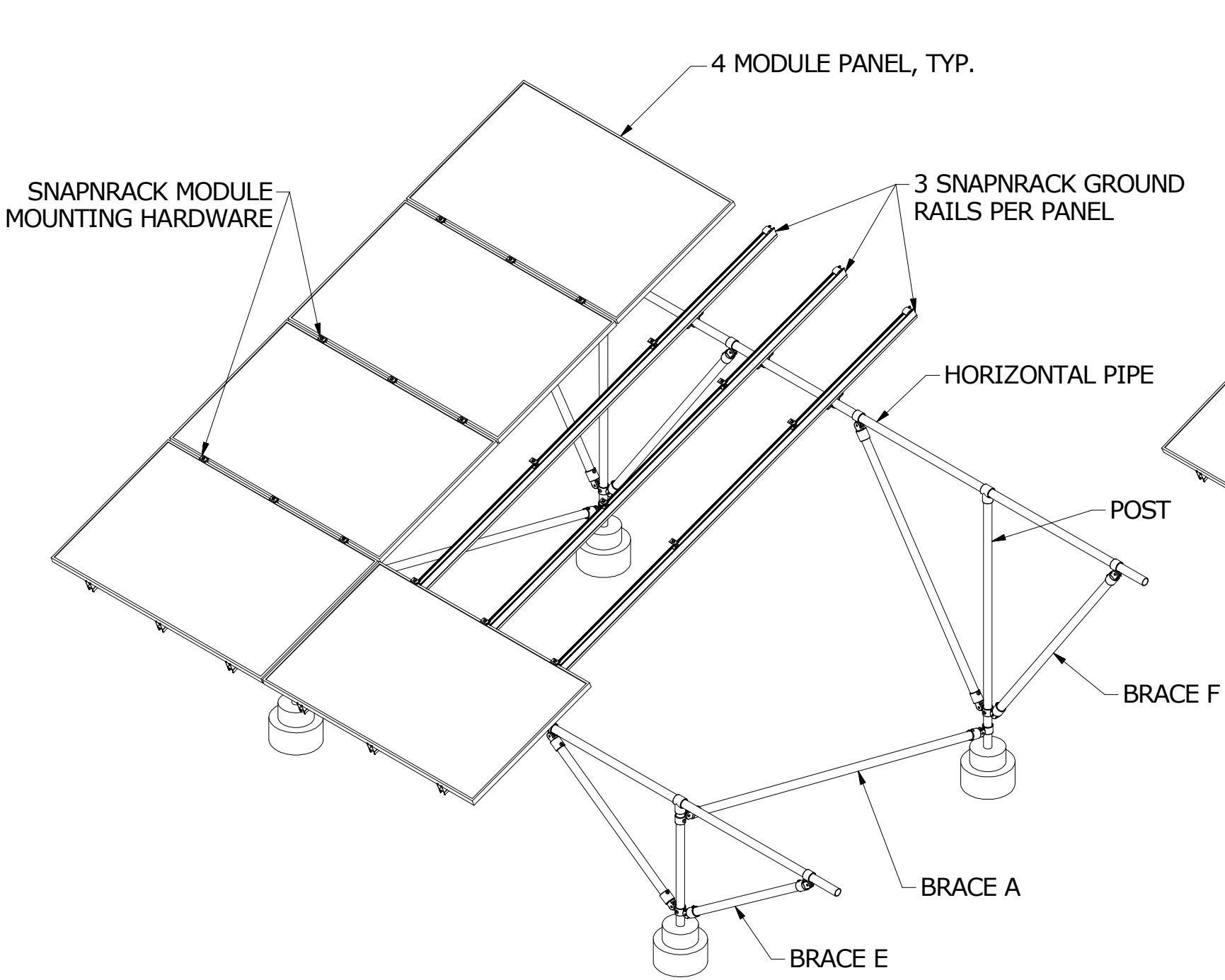
4 MODULE PANEL CONFIGURATION



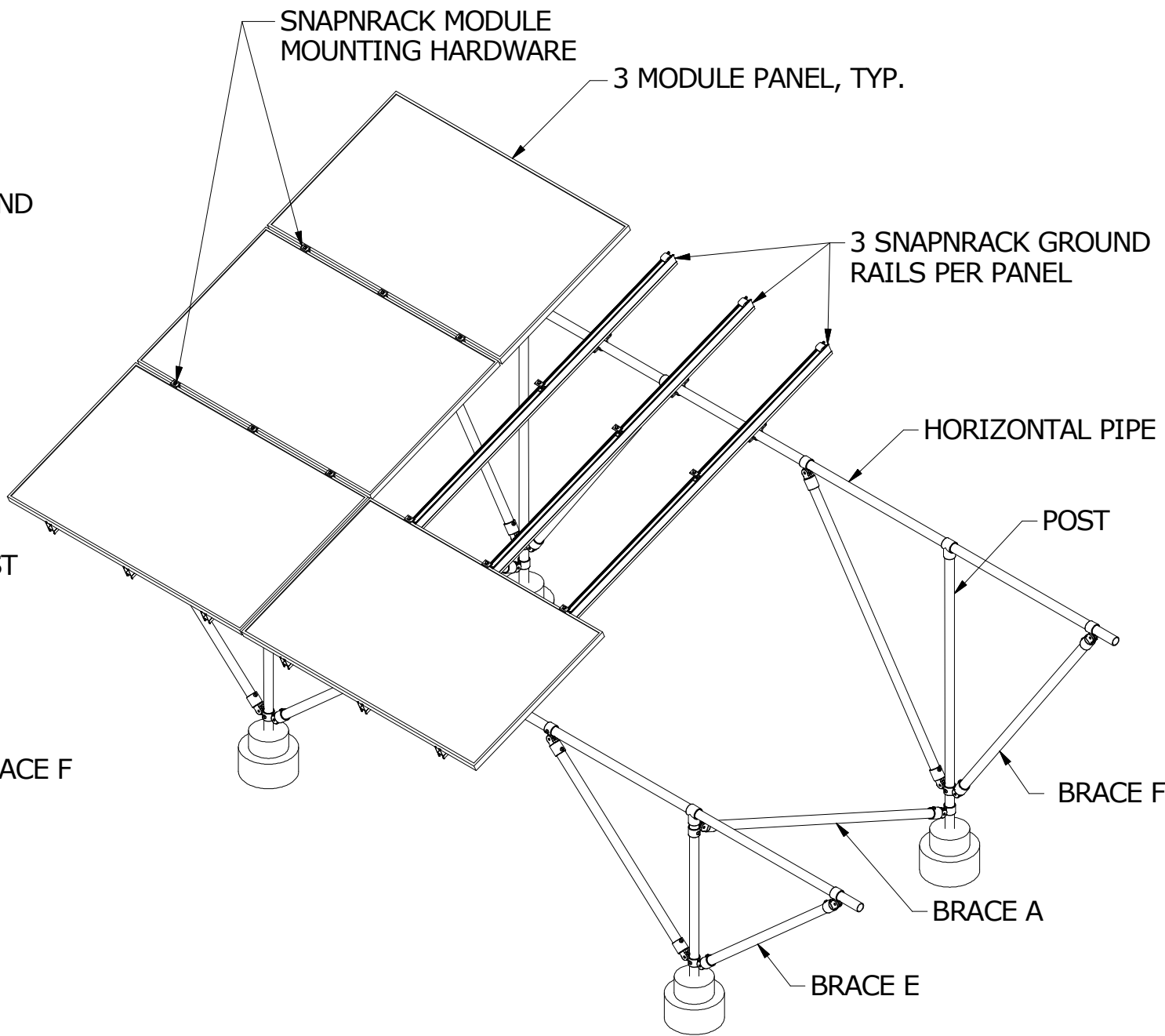
3 MODULE PANEL CONFIGURATION

SERIES 200 3-RAIL CONFIGURATIONS
THE SERIES 200 3-RAIL OPTION CAN BE SET UP
FOR 3 MODULE AND 4 MODULE PANELS USING 3
RAILS PER PANEL.

REVISION:	



4 MODULE PANEL CONFIGURATION



3 MODULE PANEL CONFIGURATION

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			DATE: 120113			