

POWER PEAK™ GS

ASSEMBLY INSTRUCTIONS

step-by-step
assembly and installation

SAFETY CONSIDERATIONS

This application procedure is not intended to supersede any company construction or safety standards. This procedure is offered only to illustrate safe application for the individual. **FAILURE TO FOLLOW THESE PROCEDURES MAY RESULT IN PERSONAL INJURY OR DEATH.**

Do not modify this product under any circumstances, except where noted in this application procedure.

This product is intended for use by trained technicians only. **This product should not be used by anyone who is not familiar with, and not trained to use it.**

When working in the area of energized lines, extra care should be taken to prevent accidental electrical contact. Be sure to wear proper safety equipment per your company protocol.

For proper performance and personal safety, be sure to select the proper size PREFORMED™ product before application.

PREFORMED products are precision devices. To ensure proper performance, they should be stored in cartons under cover and handled carefully.

POWER PEAK™ GS Ratings

The POWER PEAK™ GS conforms to ANSI/UL UL2703 (2015) Standard for Safety First Edition: Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels.

Electrical

Note: Electrical installations must be in accordance with the National Electric Code ANSI / NFPA 70. Contact your local Authorities Having Jurisdiction (AHJ) for additional details.

Max Overcurrent Protective Device (OCPD)
Rating: 25A

Equipment Grounding Conductor Sizing:

Module Fuse Rating	Copper Wire Size
<15 AMPS	#14 AWG 90°C
<20 AMPS	#12 AWG 90°C
20-60 AMPS	#10 AWG 90°C

Structural Certification

Mechanical Load Rating: Designed and Certified for Compliance with IBC & ASCE/SEI-7 through separate PE reviews.

Marking

Product markings identified per UL2703 are to be located in a location that is readily accessible for inspection.

Periodic Inspection

Periodic re-inspection is a recommended system maintenance procedure to check for loose components or corrosion. If any loose components and/or corrosion is found, the affected components are required to be replaced immediately, with the original mounting system manufacturer's component parts.

POWER PEAK™ GS

WARNING

Follow the procedures and precautions in these instructions carefully.

About the product

The POWER PEAK GS is designed to mount on standard I-Beams which are commonly pile driven directly into the soil to reduce foundation work and associated labor cost. Additionally, each POWER PEAK GS is designed to site-specific conditions, and arrives on the project site ready to assemble. PV modules are mounted in a two-row portrait configuration where the number of modules in each row equals the specified string size for easier wiring and reduction in materials. In addition, the POWER PEAK GS may be designed for continuous row applications where multiple strings may be combined running east/west.

The POWER PEAK GS mounting system features bottom access PV module clamping which eliminates the need for ladders during module installations. The module clamps are preassembled with no loose parts for faster installation and provide code-compliant integrated electrical bonding.

The POWER PEAK GS system features multiple slots and adjustments, allowing the table tops to be squared easily thus resulting in a professional finish.

Important Installation Considerations

I-Beam size and foundation requirements are based on several factors including the array surface area, maximum design wind speed, exposure category, snow loading, tilt angle, soil type and front edge clearance.

Consulting with a local building department and/or professional engineer is recommended.

For foundation and I-Beam recommendations on a specific installation, please:

Contact us by Phone: 800-260-3792

Send an Email request: info@plpsolar.com

Grounding Considerations

The POWER PEAK GS utilizes integrated module grounding clamps designed to meet UL 2703 grounding standards.

About these instructions:

- They include information on assembling the product and are intended to be used by individuals with sufficient technical skills for the task. Knowledge and use of hand tools, measuring devices and torque values is also required.
- They included various Notes, Cautions, and Warnings that are intended to draw your attention and assist in the assembly process and/or to draw attention to the fact that certain assembly steps may be dangerous and could cause serious physical injury and/or damage to components. Follow the procedures and precautions in these instructions carefully.

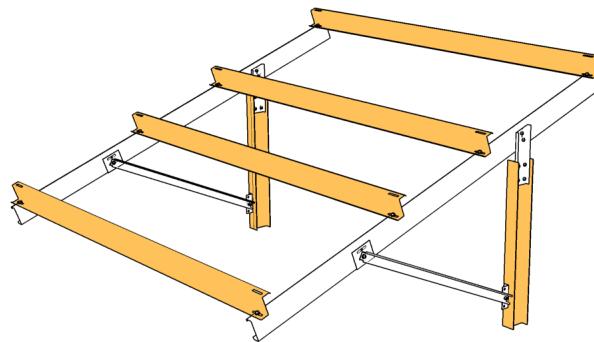
Required Tools

- 7/8 inch wrench or socket for 1/2 inch module clamp hardware
- 1/2 inch wrench or socket for 5/16 inch hardware
- Torque wrench
- Ratchet wrench
- Ratchet extension bar
- String
- Framing Square
- Tape Measure
- Inclinometer

POWER PEAK™ GS is Available in 4 Configuration

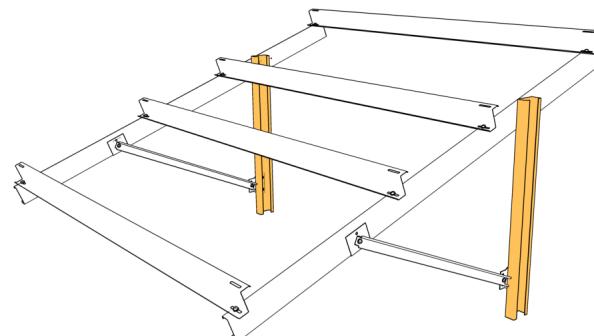
POWER PEAK GS

Standard product offering incorporating galvanized steel components and I-Beam pile.



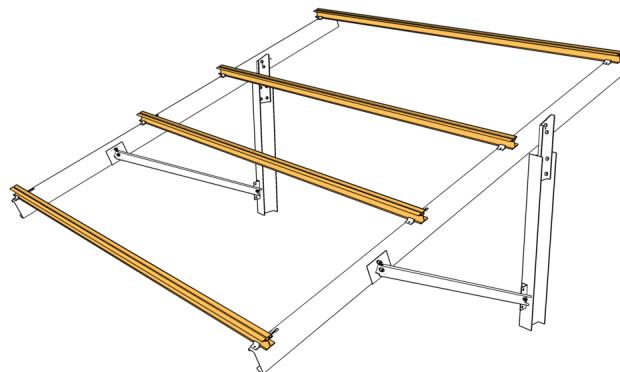
POWER PEAK GSC

Standard "I-Beam" pile replaced with equivalent strength roll formed C-Channel pile.



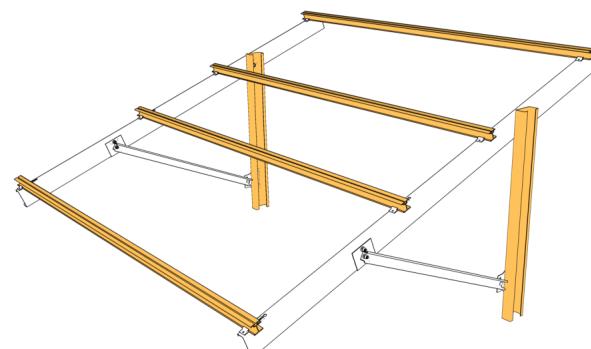
POWER PEAK GSH

Standard roll formed horizontal Z purlins replaced with aluminium rails to adapt to more severe rolling terrain changes.

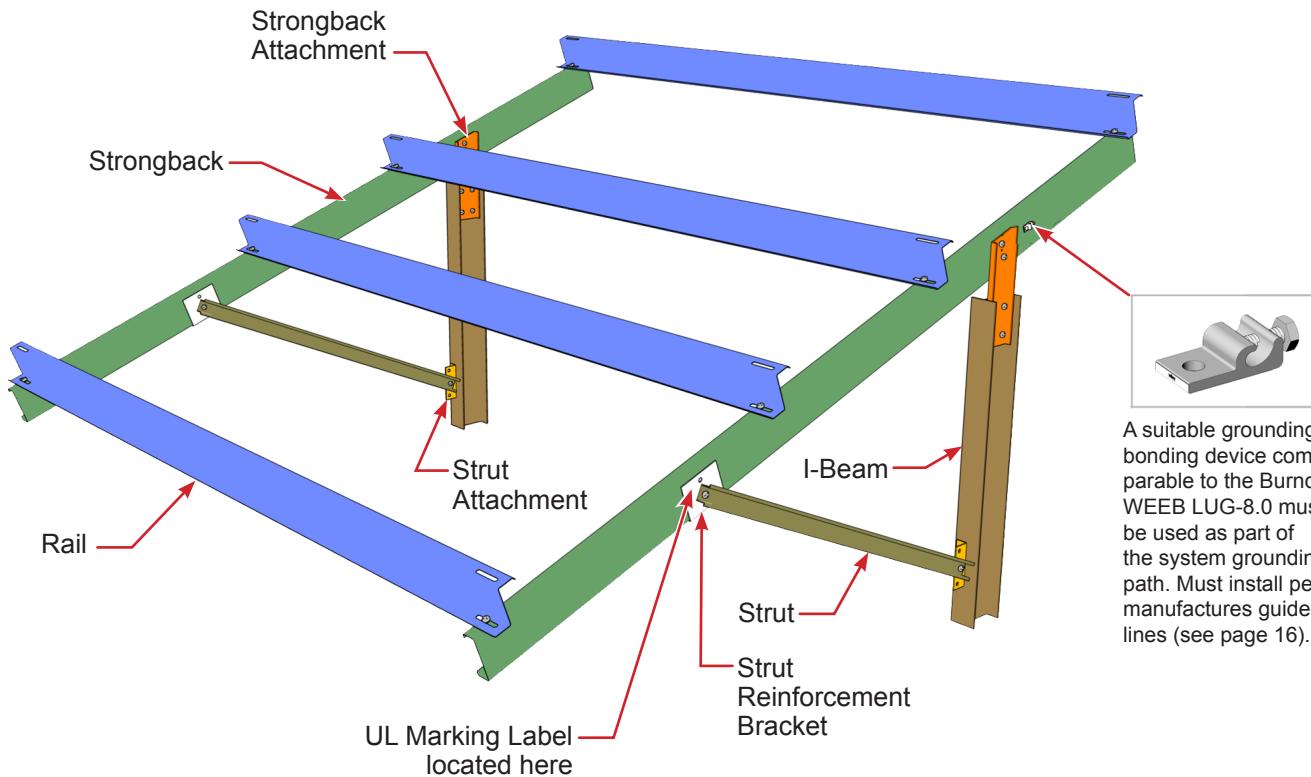


POWER PEAK GSCH

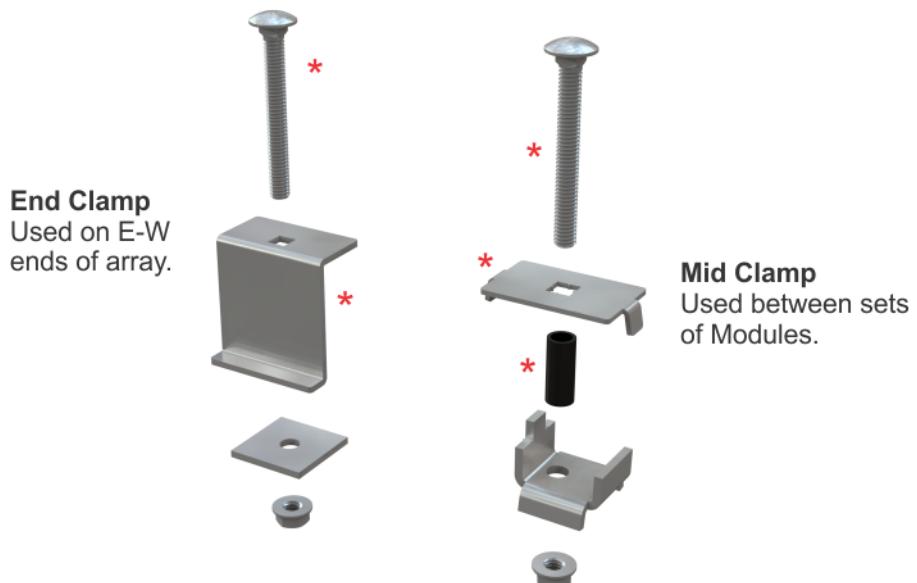
Standard "I-Beam" pile replaced with equivalent strength roll formed C-Channel pile. Standard roll formed horizontal Z purlins replaced with aluminium rails to adapt to more severe rolling terrain changes.



POWER PEAK™ GS Main Components



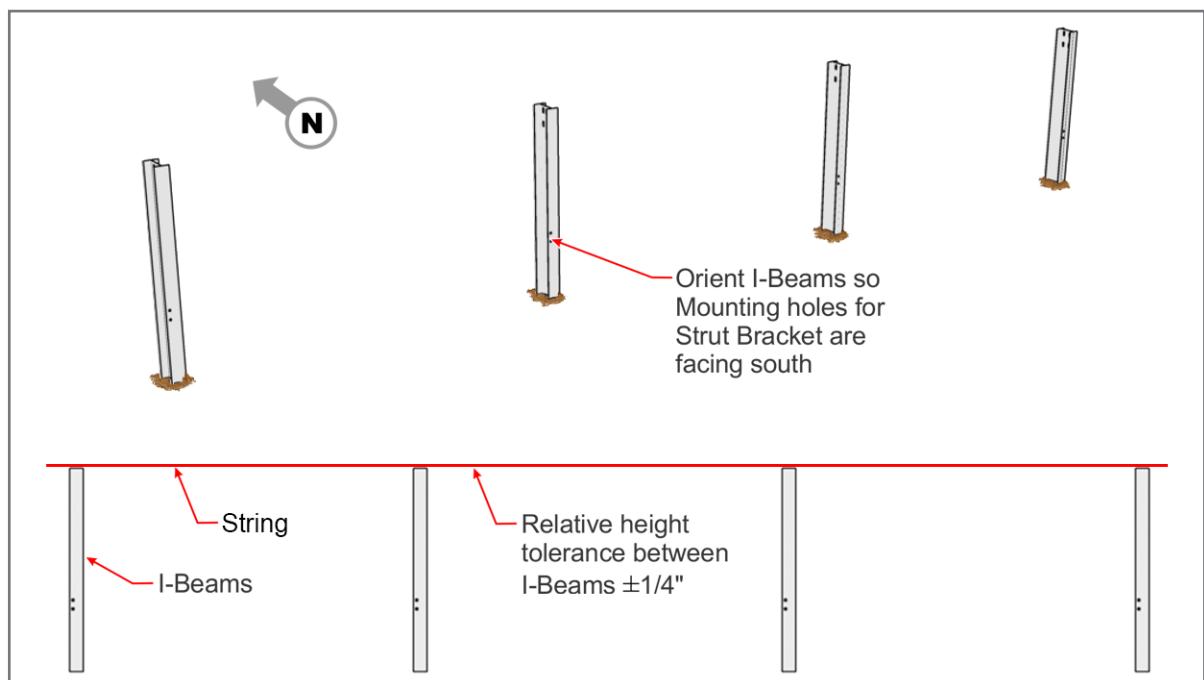
There are seven main components and attaching hardware.



1 Set I-Beam Posts

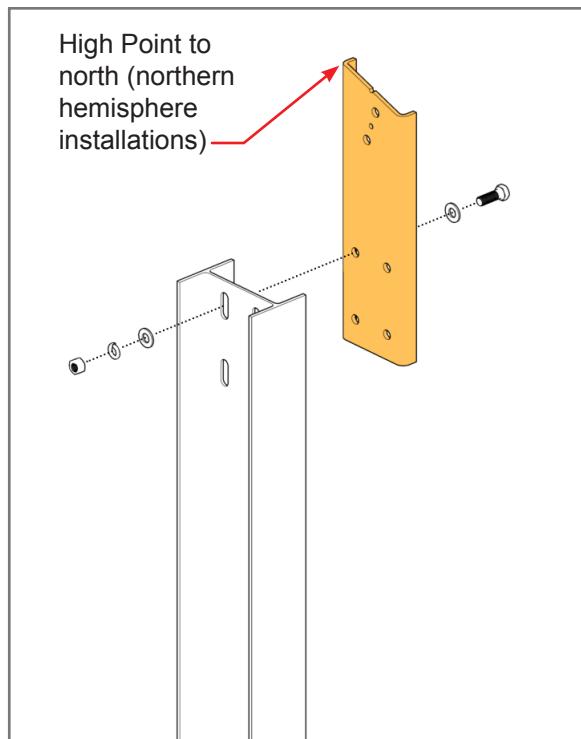
CAUTION

Failure to meet the site specific embedment depths and I-Beam height variance tolerance can lead to structural failure and/or serious injury or death. Additionally, it would void the system warranty.



Set I-Beams into the ground with spacing and embedment depth to match the push-pull test and the site specific drawings.

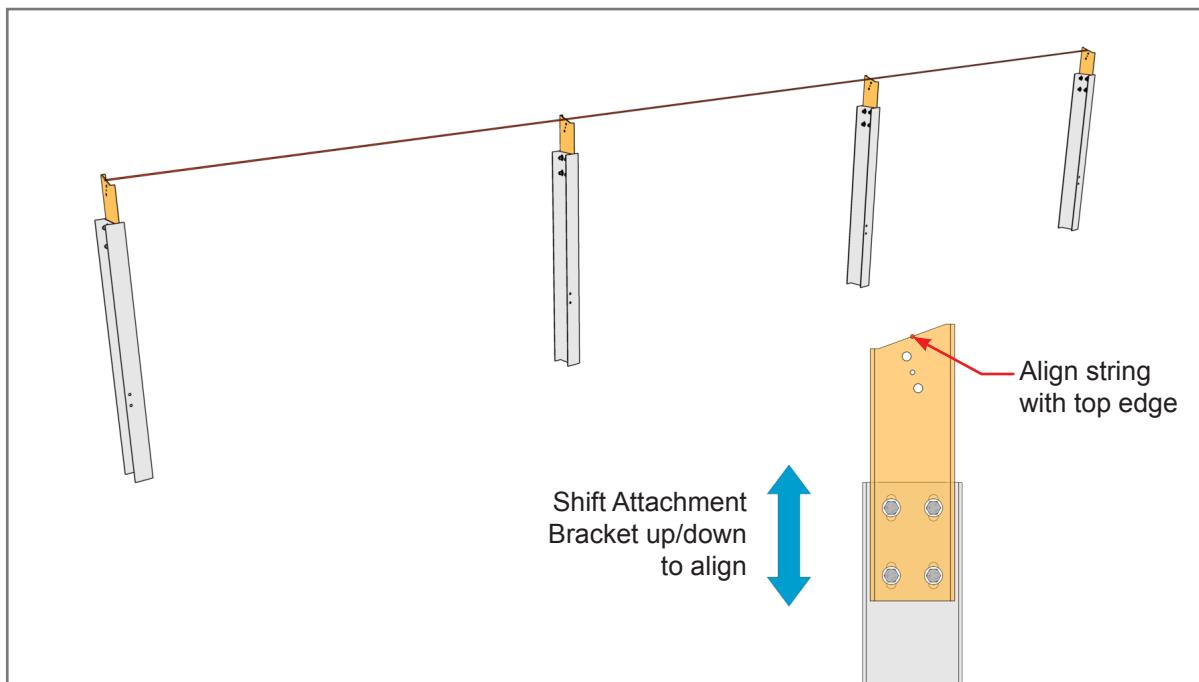
2 Install the Strongback Attachment Bracket



Install the Strongback Attachment Bracket with set of four 1/2"-13 x 1-1/2" Hex Bolt, Flat Washers, Lock Washer and Hex Nut. Allow the slots of the Strongback Attachment to come to rest on the Bolts.

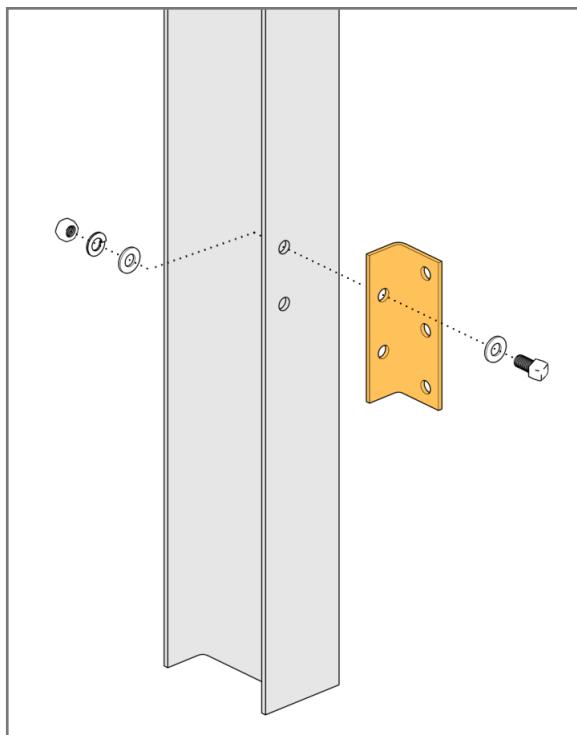
Hand tighten for now.

POWER PEAK™ Compatible Modules - these modules meet the UL2703 standard



Use string between a minimum of three spans. The slotted holes of the I-Beams provide for the up/down movement of the Brackets. After alignment, tighten hardware and **torque to 65-70 ft.-lbs.**

4 Install the Strut Bracket

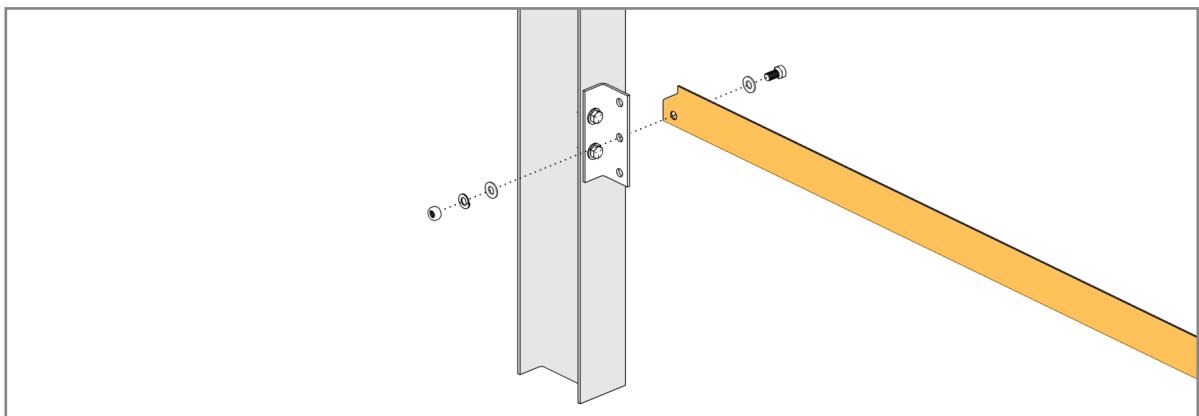


Install the Strut Bracket with set of two 1/2"-13 x 1-1/2" Hex Bolt, Flat Washer, Lock Washer and Hex Nut.
Torque to 65-70 ft.-lbs.

5 Attach the Strut to the Strut Bracket

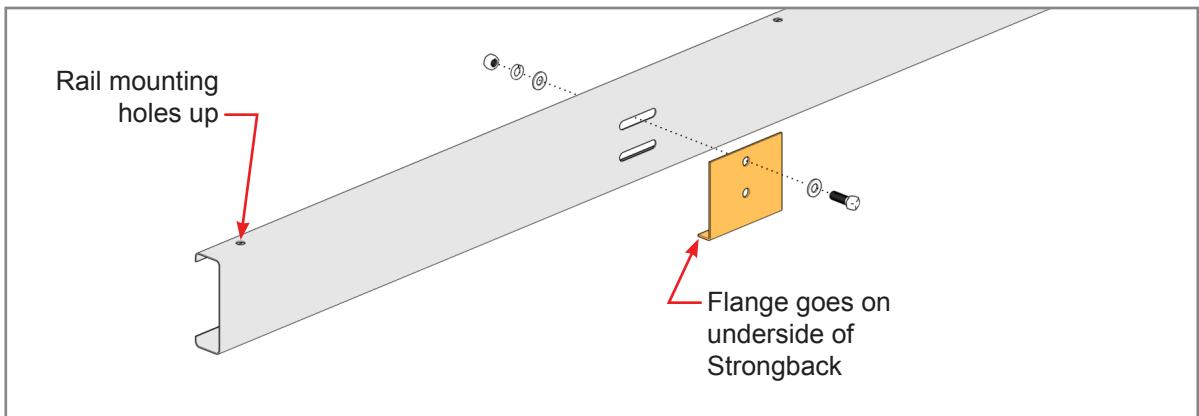
NOTE

Although the Strut Bracket includes three holes for attaching the Strut, it is recommended that the middle hole be used initially. The outer two holes provide an additional ± 2 degrees of tilt adjustment if needed.



Install the Strut with 1/2"-13 x 1-1/2" Hex Bolt, Flat Washers, Lock Washer and Hex Nut. **Hand tighten for now.**

6 Attach the Strut Reinforcement Bracket to the Strongback



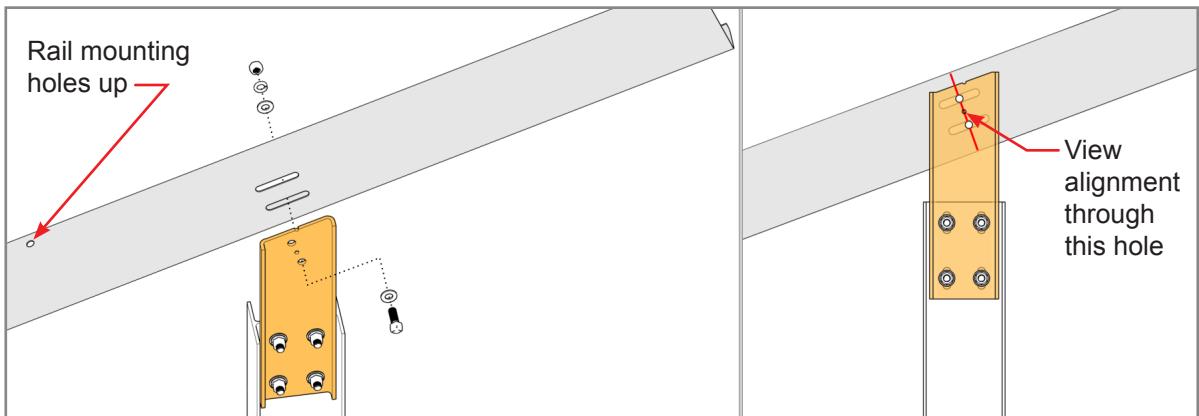
Install the Strut Reinforcement Bracket with one sets of 1/2"-13 x 1-1/2" Hex Bolt, Flat Washers, Lock Washer and Hex Nut installed in the upper slot only.

The lower slot/hole is reserved for attaching the Strut.
Torque to 65-70 ft.-lbs.

7 Install and Align the Strongback

NOTE

At this stage the Strongback positioning is considered a temporary position - the intent is to establish a starting position for each Strongback. Further adjustments to align the Strongbacks will take place later.



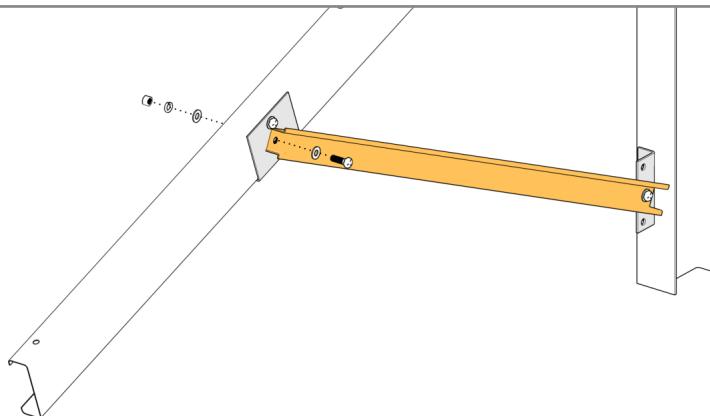
Install the Strongback with two sets of 1/2"-13 x 1-1/2" Hex Bolt, Flat Washers, Lock Washer and Hex Nut. Adjust position of Strongback so its alignment mark

is visible within the small hole of the Strongback Attachment. **Tool tighten hardware for now to hold in place.**

POWER PEAK™ Compatible Modules - these modules meet the UL2703 standard

NOTE

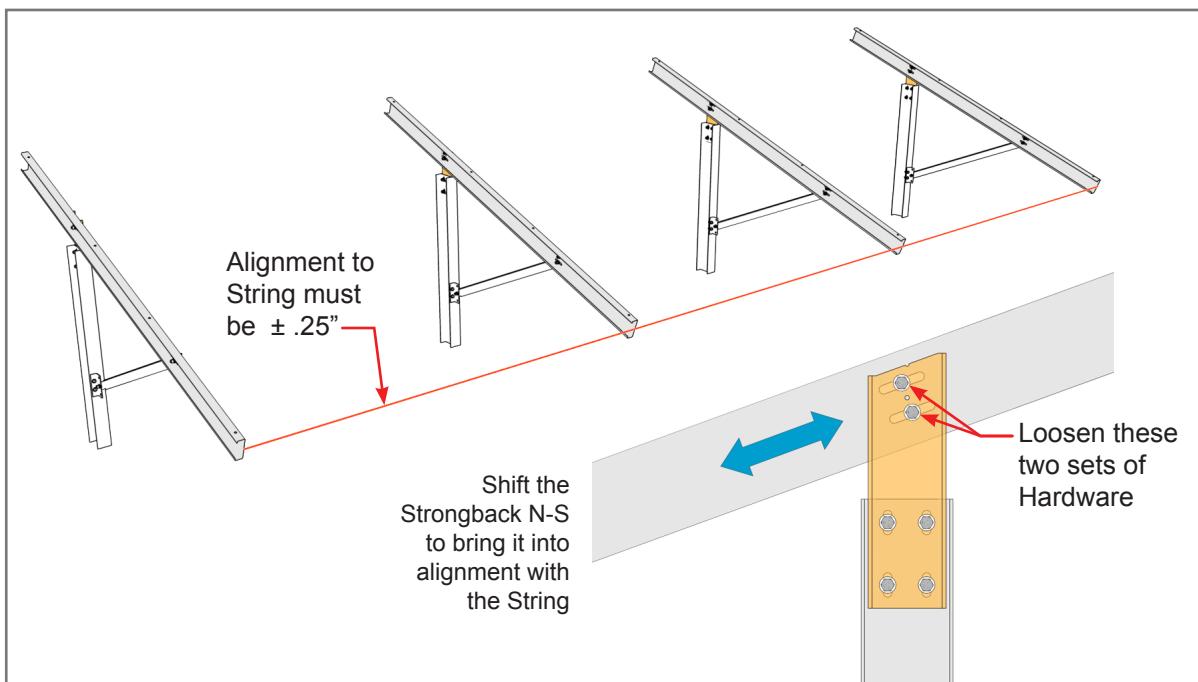
Check to see that the Strongback Alignment Mark is still aligned with the small hole on the Attachment Plate. Adjust (if needed) to bring the Mark into alignment.



Secure the Strut with 1/2"-13 x 1-1/2" Hex Bolt, Flat Washers, Lock Washer and Hex Nut. Hand tighten for now, allowing movement between the Strut and the

Strongback in order to align the Strongbacks and also set the tilt angle..

9 Adjust the Strongback N-S alignment to one another



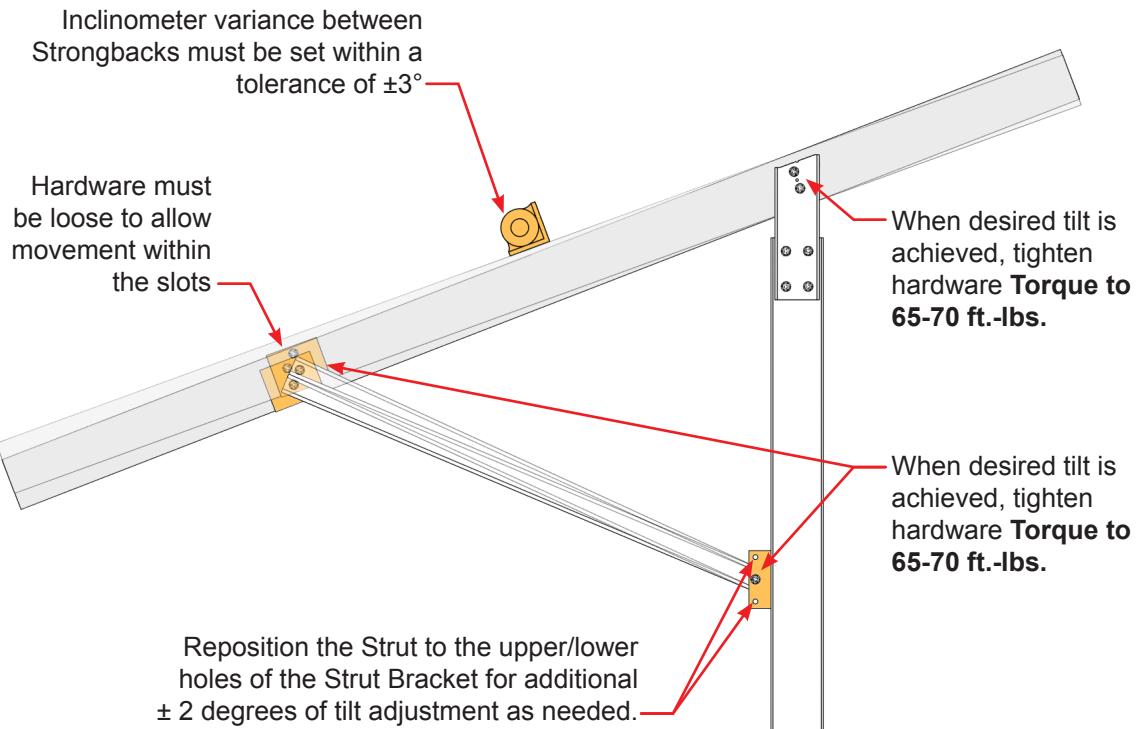
Alignment may be needed to compensate for I-Beam misalignment. Use a string between a minimum of three spans. The slotted holes of the Strongback

provide for its N-S movement. Tool tighten the two sets hardware leaving them loose enough to adjust the tilt in the next step.

10 Verify/Set the Final Tilt Angle

CAUTION

This is a two person activity. During the tilt adjustment, one person must hold the southern end of the Strongback while a second loosens the hardware and then re-tightens the hardware after the desired tilt has been achieved.

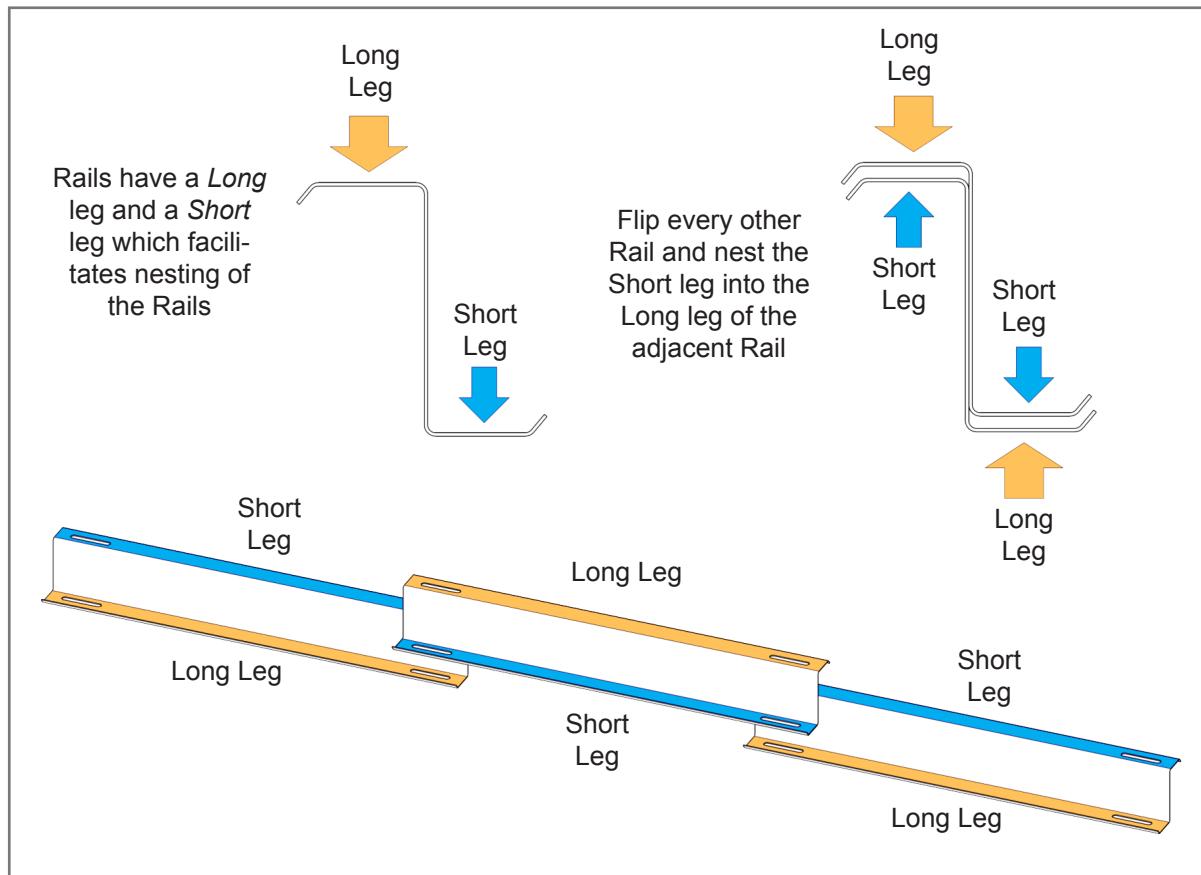


There will likely be deviations from one Strongback to another due to variances in I-Beam alignment.

To remedy this, it is recommended that the tilt angle of each Strongback be evaluated and set to a

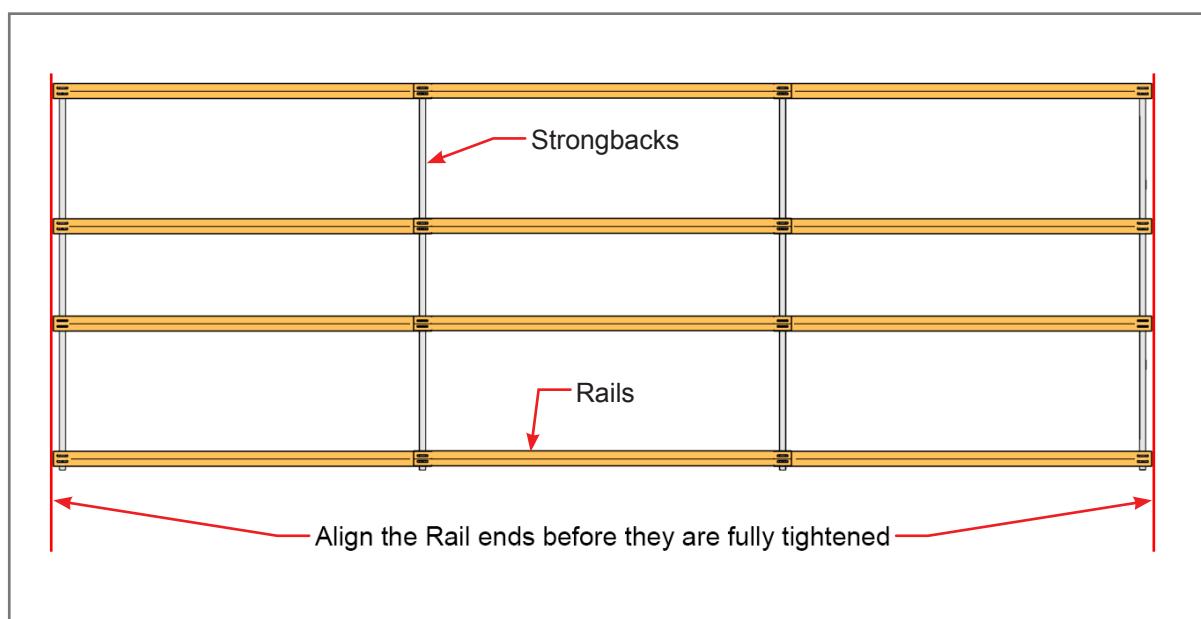
consistent angle. Make sure that the Strut attachment hardware is sufficiently loose to allow movement of the Strongback.

11 Attach the Rails to the Strongbacks



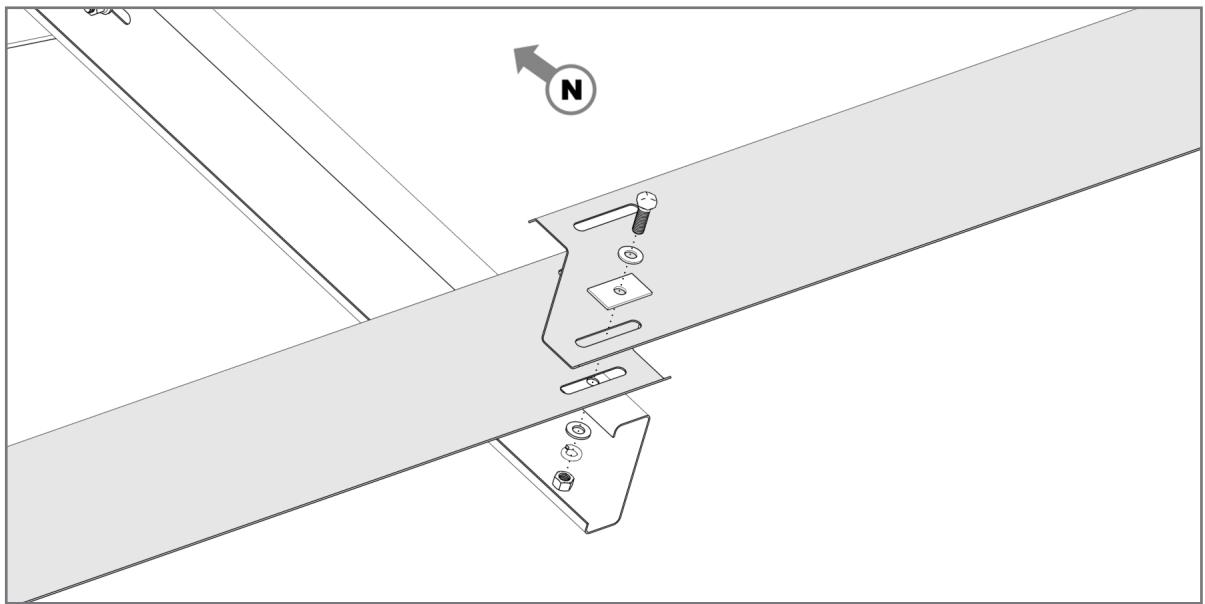
The Rails must have an alternating overlap. As shown above, the Rails are designed to overlap by aligning their slotted holes and nest into one another by alternating and mating a *Short* leg with a *Long* leg.

Where overlapping occurs, Rail lengths provide for as much as 6" of overlap. Make sure that with each overlapping Rail the slotted holes overlap and are in alignment.



Align the Rail ends at E-W edges of the array before tightening hardware.

11 Attach the Rails to the Strongbacks (continued)



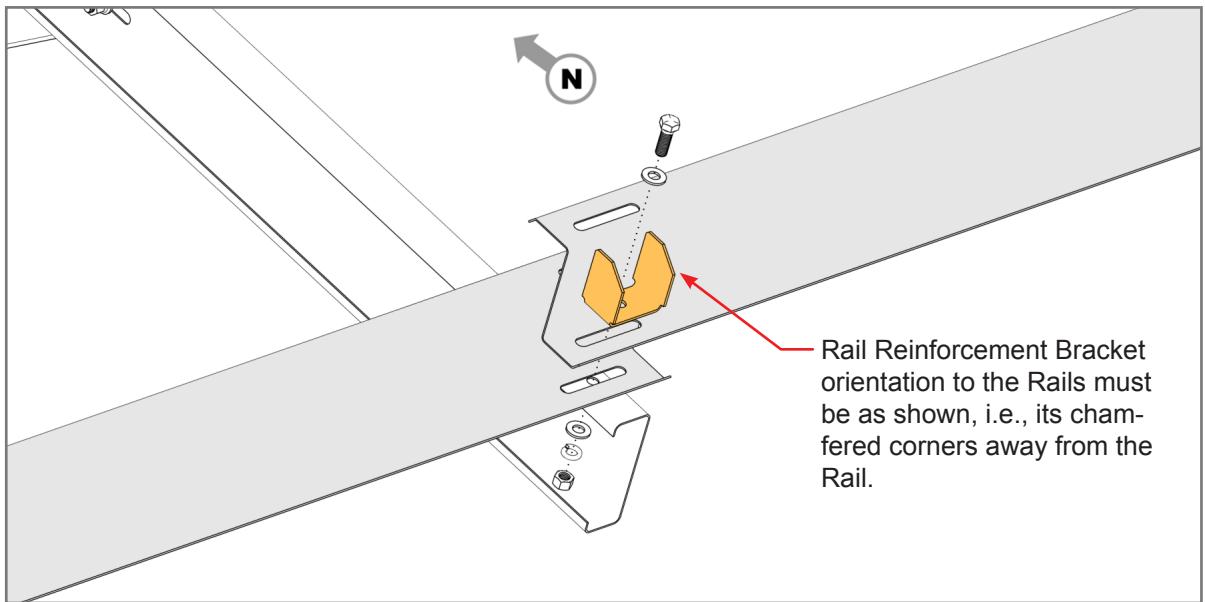
Be sure to orient the Rail as shown above. The upper flange must be pointing north.

The mounting holes of the Rails are slotted for E-W directional adjustments and alignment as the Rails are

installed. Secure Rails with 1/2"-13 x 1-1/2" Hex Bolt, Flat Washers, Lock Washer and Hex Nut. After aligning their ends, tighten and **torque to 65-70 ft.-lbs.**

NOTE

The Rail Reinforcement Bracket is not used on all systems, it is an optional item. It's primarily used in those regions where heavy snow loads may occur.

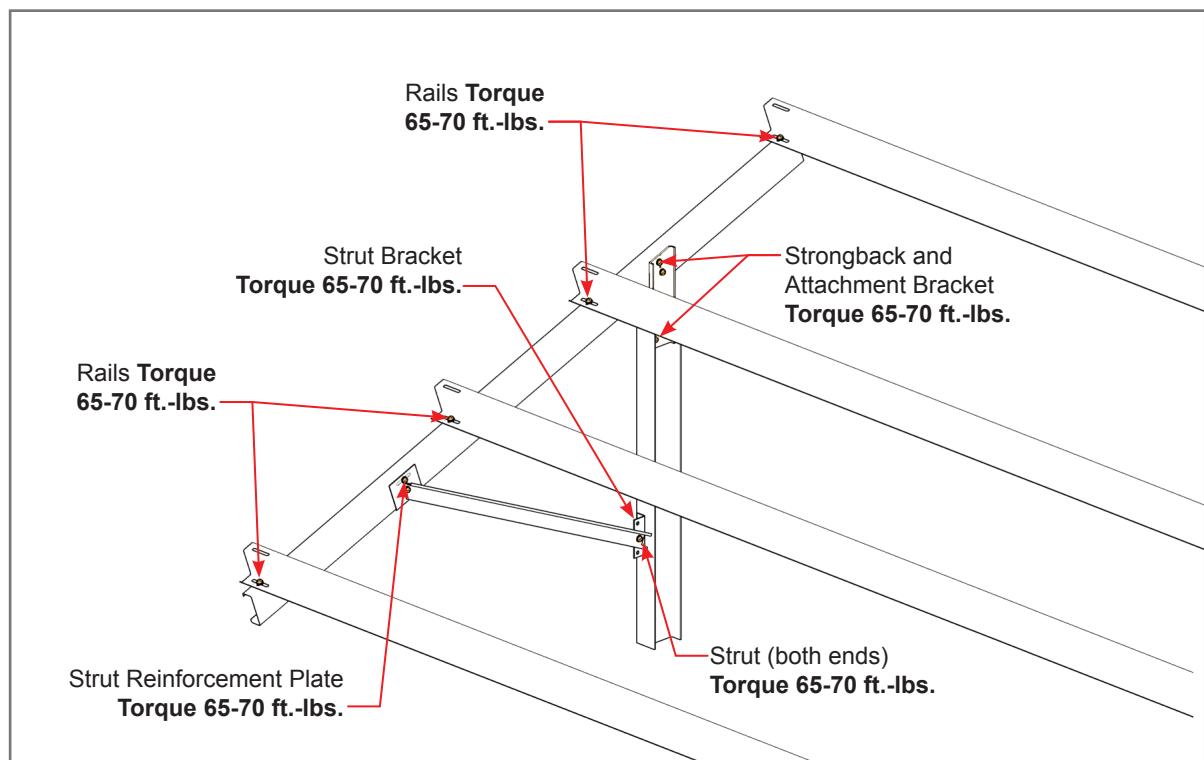


Install the Rail Reinforcement Bracket (optional item). Secure Rails and Reinforcement Bracket with 1/2"-13 x 1-1/2" Hex Bolt, Flat Washers, Lock Washer and Hex Nut. After aligning their ends, tighten and **torque to 65-70 ft.-lbs.**

12 Tighten and Torque the Hardware

CAUTION

Exceeding torque values can result in damage to components and/or hardware.

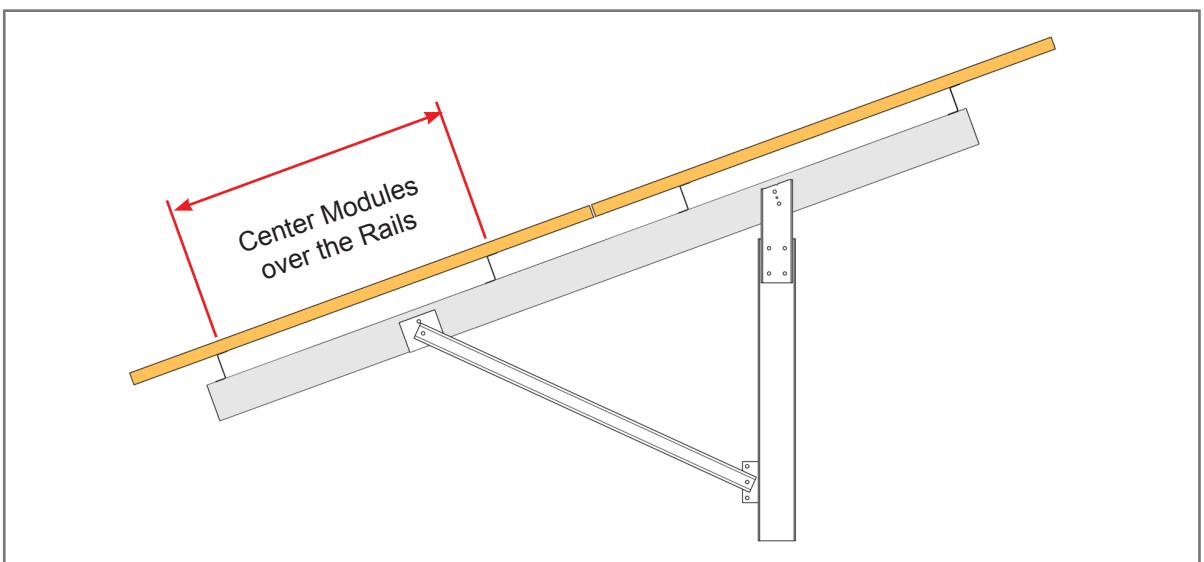
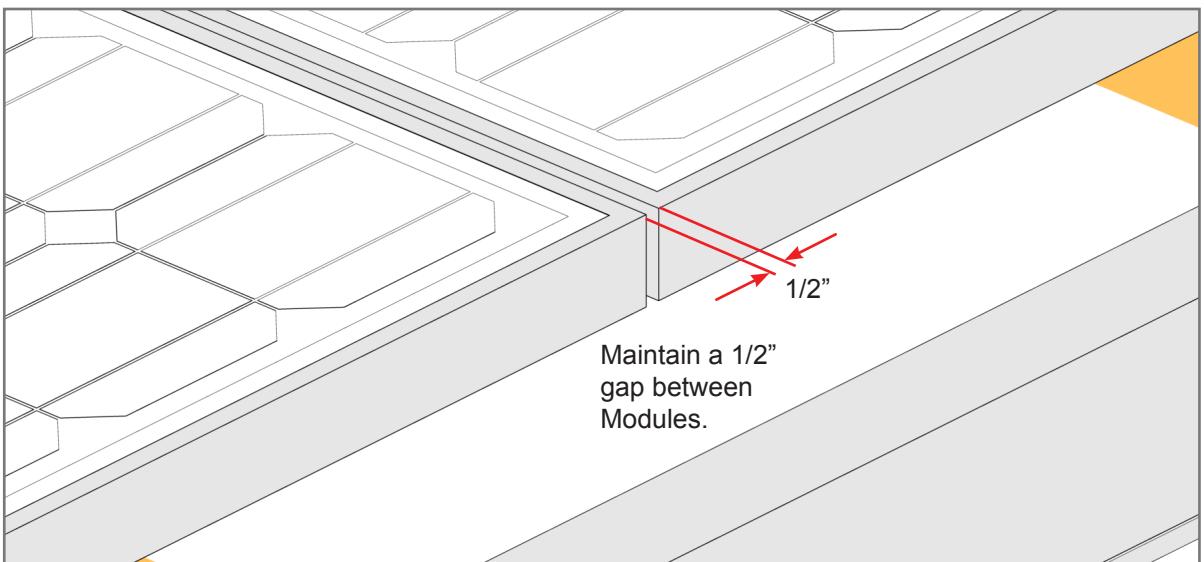
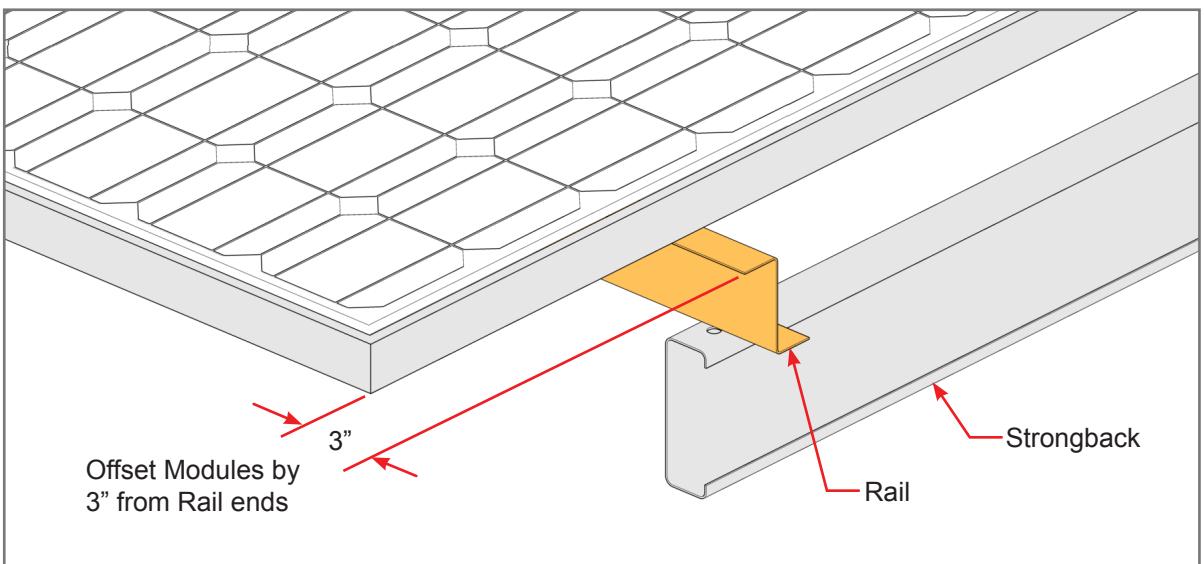


It's extremely important to tighten and torque all hardware as specified above.

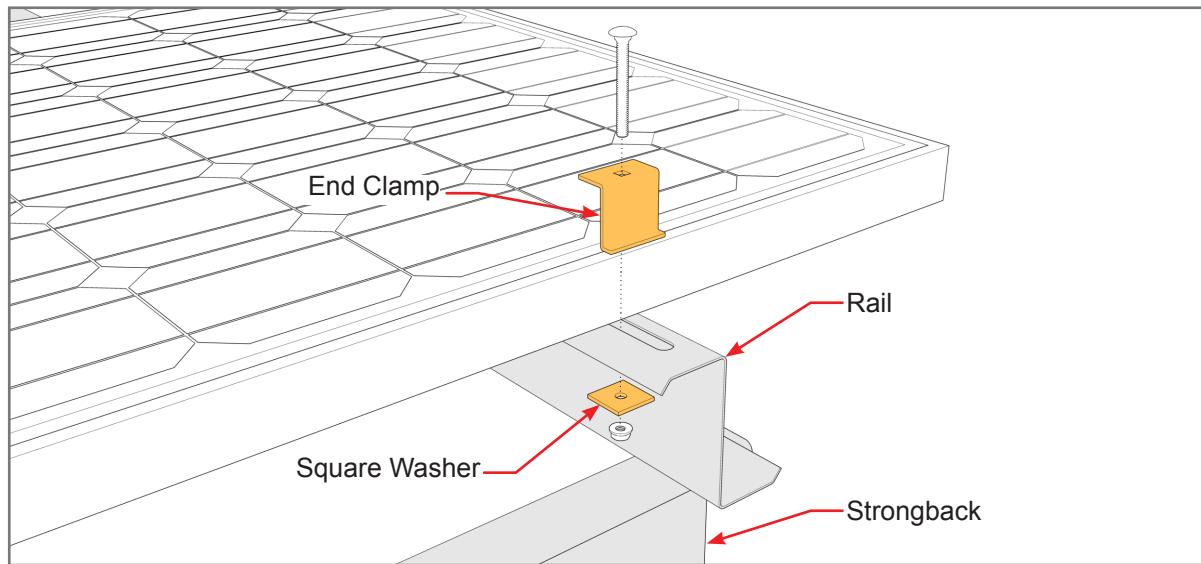
13 Installing the Modules

TIP!

1. Work sequentially, installing the Modules by columns.
2. Periodically check to ensure that the Modules are square to the Rails.
3. Make a simple Module positioning jig to quickly and accurately center the Modules over the Rails.
4. Always tighten each Module's Clamps before installing the next-in-line Module.



13 Installing the Modules (continued)



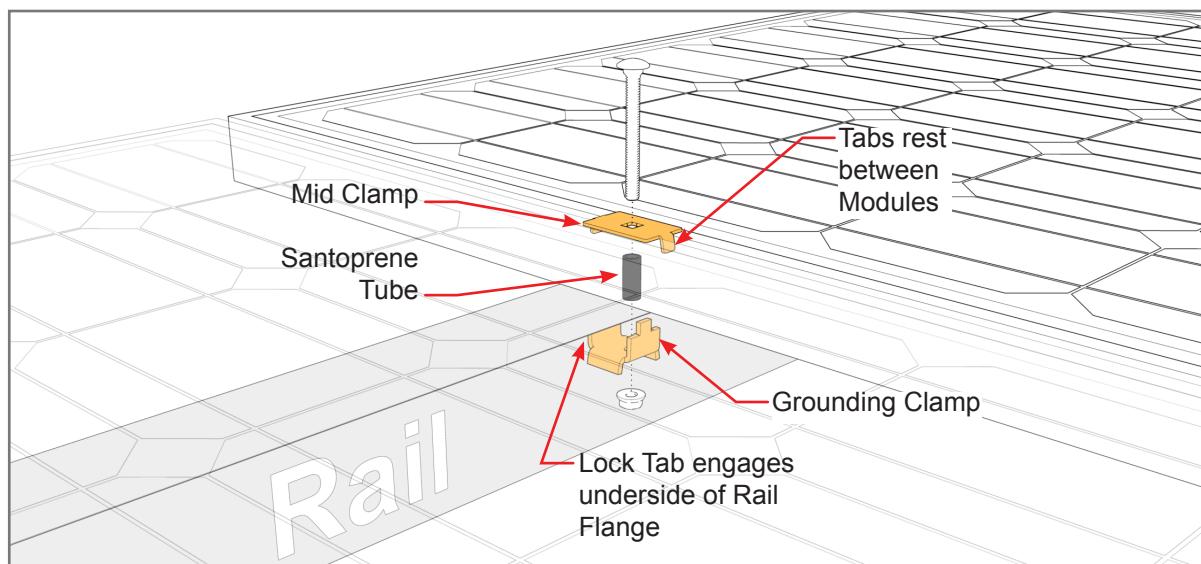
Installing End Clamps. The End Clamp is used only in the orientation shown at right. Do not attempt to flip the End Clamp over or use in any other orientation. Secure Module to Rails with 5/16" Carriage Bolt, End Clamp, Square Washer and Flange Nut. **Torque to 15 ft.-lbs.**

Mid Clamp Installation

Position the Mid Clamp Assembly with the tabs of the Mid Clamp and the Grounding Clamp between the two Modules. Additionally, position the Lock Tab underneath the Rail Flange and push the entire Mid Clamp Assembly against the Rail, ensuring the maximum holding pressure of the Lock Tab to the Rail.

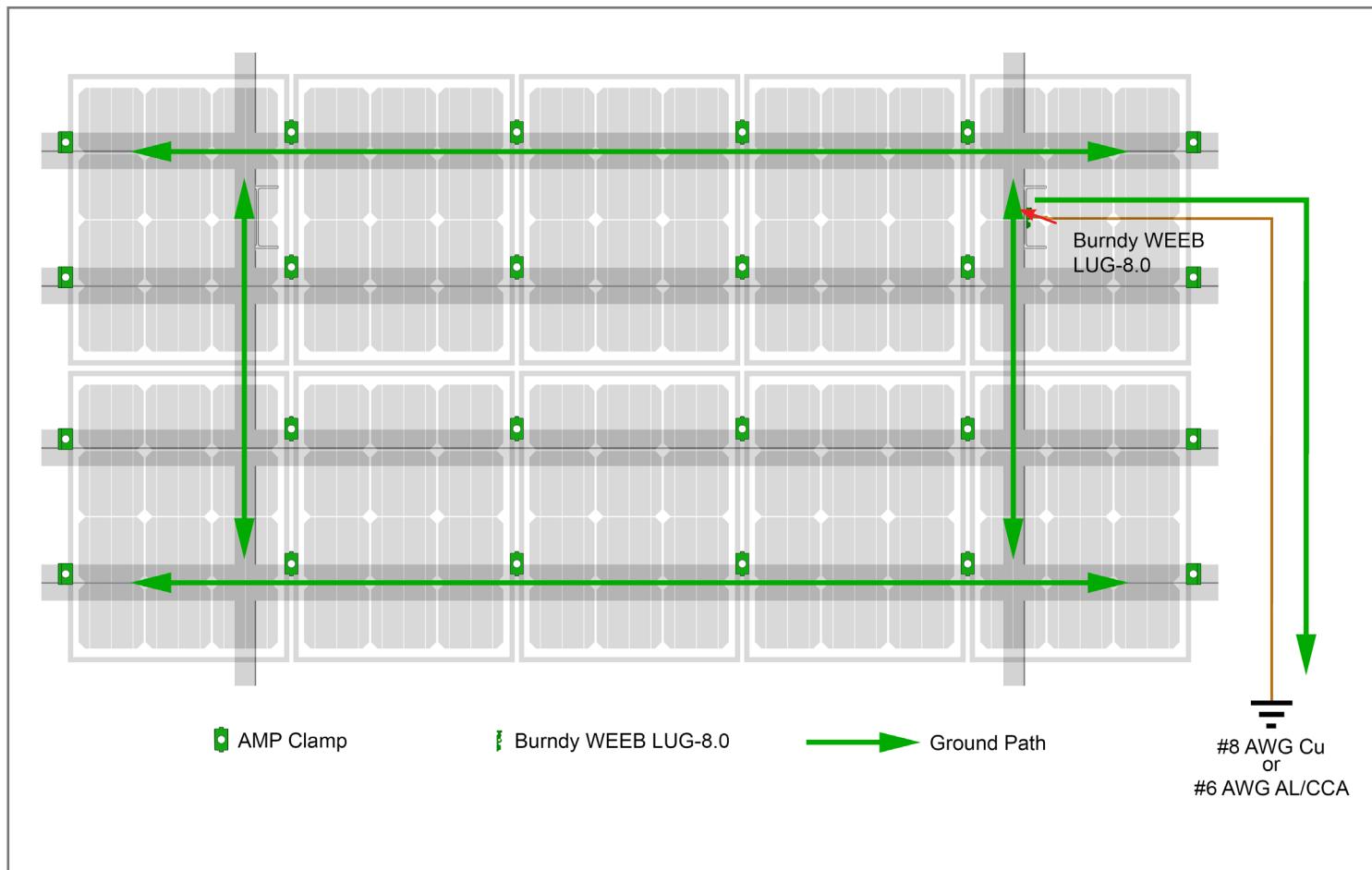
Ensure that the Modules are pushed up against the tabs and the Clamps are square to the Modules.

The Grounding Clamp has small engagement points that penetrate the finish of the Module frame(s) creating an electrical bond to the Rail.



Installing Mid Clamps. Secure Module to Rails with 5/16" Carriage Bolt, Mid Clamp, Santoprene Tube, Grounding Clamp and Flange Nut. **Torque to 15 ft.-lbs.**

Grounding/Bonding Path



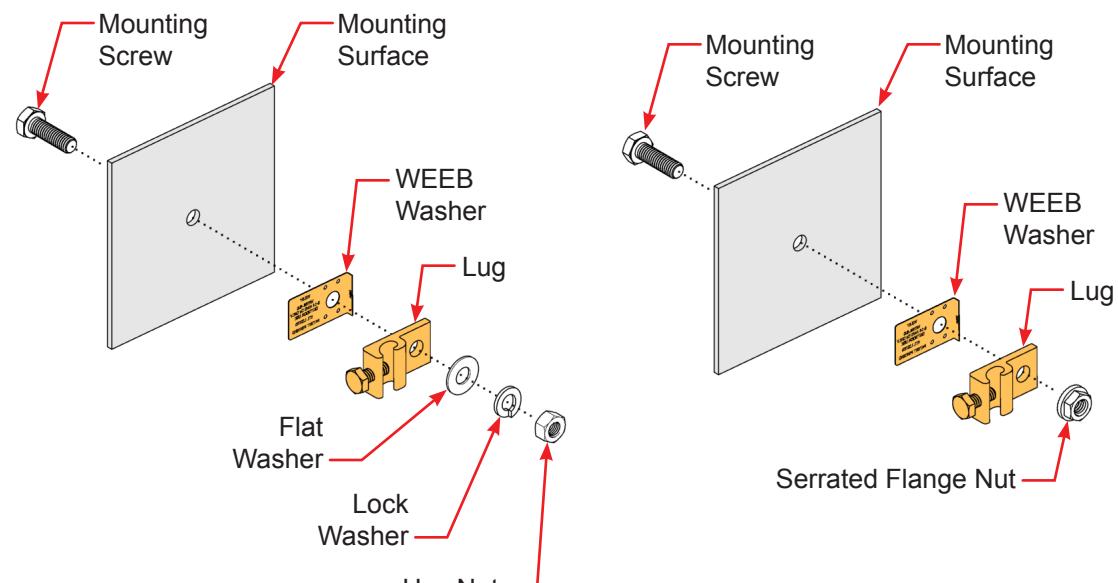
Installing a WEEB-LUG 8.0

IMPORTANT

Before installing verify with the lug manufacturer for any updates or revisions to these lug installation instructions.

One of two mounting methods may be used defined here as Methods A and B.

Lug is suitable for use with 14-6AWG solid or stranded copper conductor when tightened to 5ft-lbs.



Mounting Method A

Mounting Method B

Cat No.	Max OCPD (A)	Mounting Surface					Mounting Screw		Mounting Hole Range	
		Min Profile (w x l)	Min Thick (in)	Max Thick (in)	Mtl	Surface Prep	Size	Tightening torque (lbs.-in)	Min (mm)	Max (mm)
WEEB-LUG-8.0	200	22mm x 20mm	.06"	.25"	AL	Anodized	5/16" M8	120	7.85mm	10mm
			.06"	.25"	Steel	Galvanized				

Table 1: Mounting Surface Requirements

IMPORTANT NOTES

1. Before installing verify with the lug manufacturer for any updates or revisions to these lug installation instructions. The instructions on this page only address the WEEB-LUG-8.0 as found within the manufacturers (Burndy) document number 50016572 Rev E.
2. The NEC section 690.43 states, "Exposed non-current carrying metal parts of module frames, equipment, and conductor enclosures shall be grounded in accordance with 250.134 or 250.136 (A) regardless of voltage."
3. For Proper Equipment Grounding Conductor (EGC) and Overcurrent Protection Device (OCPD) sizing, refer to NEC sections 250.66, 250.122 and 250.166.

POWER PEAK™ Compatible Modules - these modules meet the UL2703 standard

Please reference application procedure SP3561 for POWER PEAK Compatible Modules.



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