

POWER RAIL™ P4

ASSEMBLY INSTRUCTIONS

**step-by-step
assembly and installation**

POWER RAIL™ P4

WARNING

Follow the procedures and precautions in these instructions carefully.

About the product

The POWER RAIL top-clamping PV module mounting system is engineered to reduce installation costs and provide maximum strength for parallel-to-roof or tilt up mounting applications.

Designed with the professional PV solar installer in mind, the top-clamping rails utilize a single tool with a revolutionary RAD™ Fastener for faster bolt placement. The unique shape of the RAD provides an anti-rotation feature, locking the bolt in the proper orientation when installed. The high strength rigid rails also include an integral wiring channel for securing cables and providing a professional finish. The POWER RAIL Mounting System features the industry's broadest selection of mounting supports, designed for secure and water tight attachments to any roof style.

For recommendations on a specific installation, please:

Visit preformed.com and select the POWER RAIL Configuration Design Tool.

Contact us by Phone: 800-260-3792

Send an Email request: info@plpsolar.com

About these instructions:

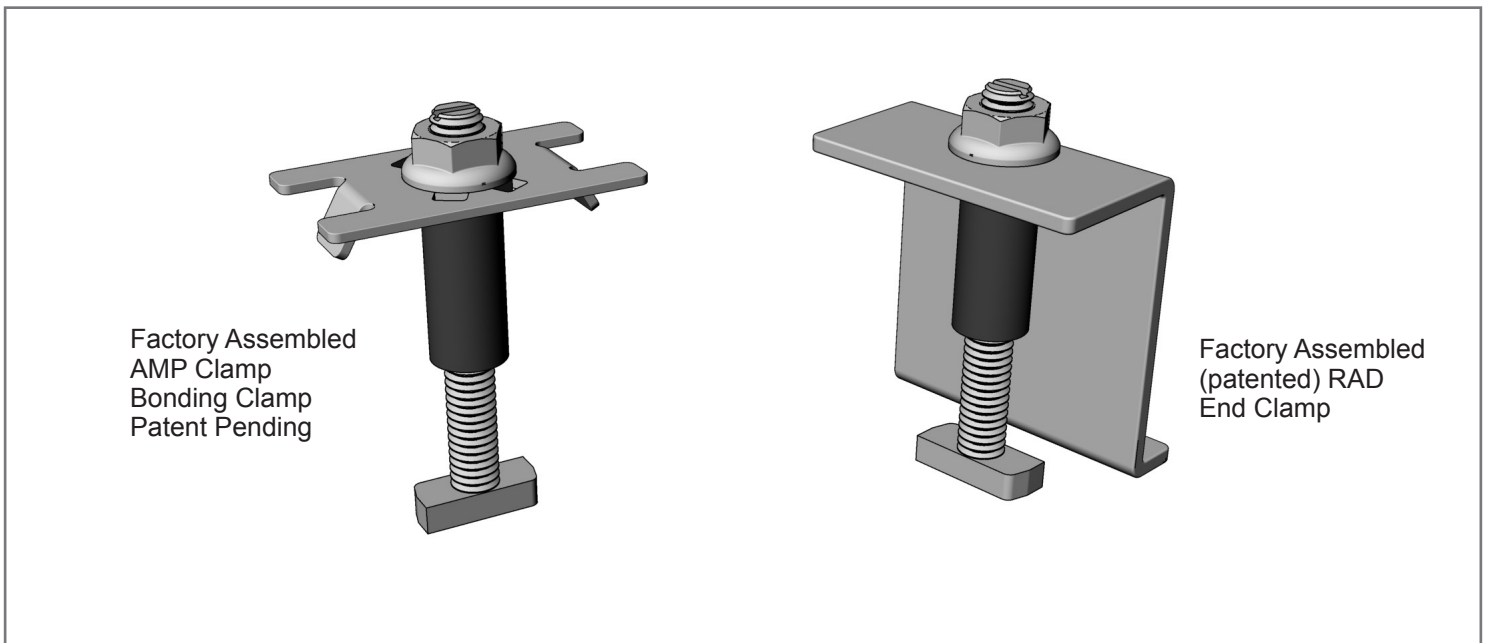
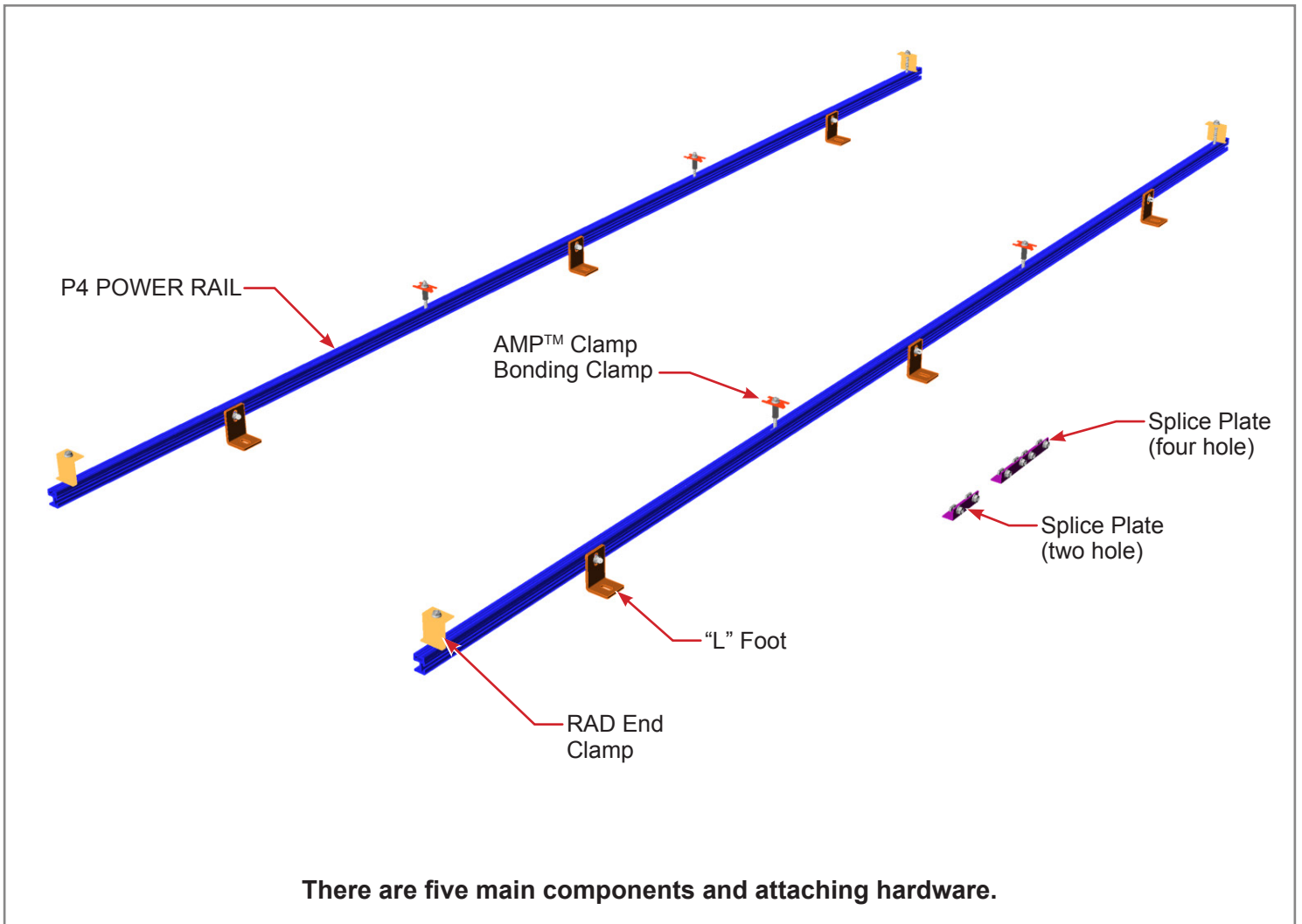
- They do not include any information on the selection or installation of attaching hardware to be mounted to the roof substrate. For information on compatible attaching hardware, see our publication titled "POWER RAIL Design Guidelines".
- They begin after all roof mounted attaching hardware has been installed and secured to the roof substrate.

- They show the POWER RAIL Mounting System being installed on the "POWER RAIL PV Flash" roof attachment system.
- These instructions 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.
- These instructions include various precautions in the forms of Notes, Cautions, and Warnings. These are to assist in the assembly process and/or to draw attention to the fact that certain assembly steps may be dangerous and could cause serious personal injury and/or damage to components. Following the step-by-step procedures and these precautions should minimize the risk of any personal injury or damage to components while making the installation not only safe but an efficient process.

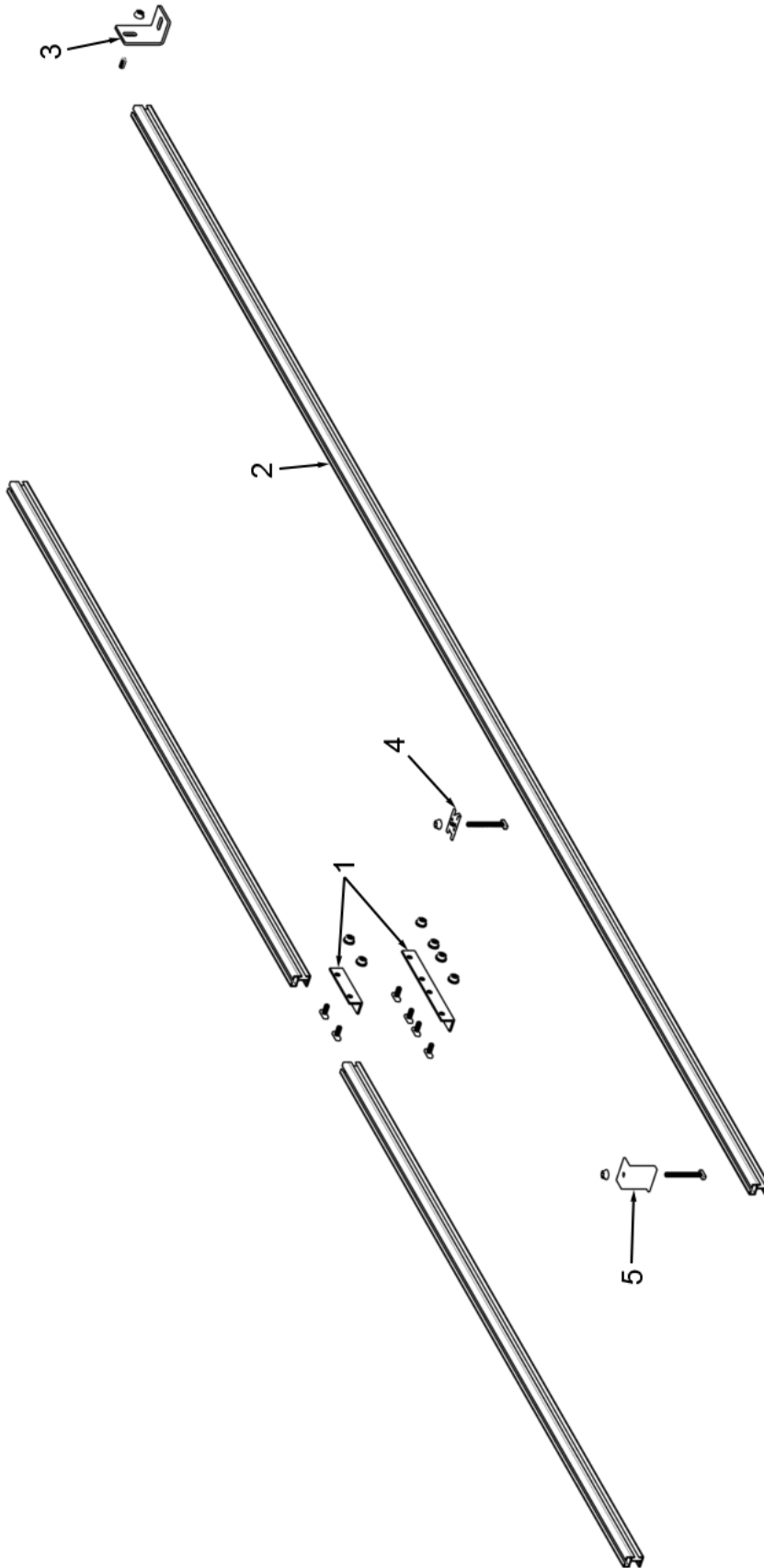
Required Tools

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

POWER RAIL P4 Main Components



POWER RAIL P4 Parts Identification



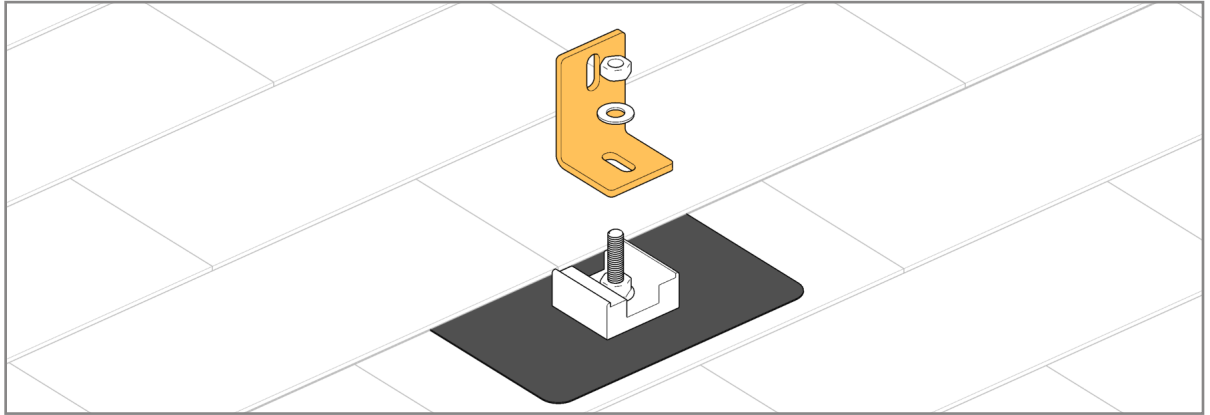
Item	Description	Qty
1	Splice Plate, two or four hole, (5/16" x 3/4") turn bolts, flange nuts	1 per Rail Joint
2	POWER RAIL P4	2 per Rail Set
3	"L" Foot, (5/16" x 3/4") turn bolt, flange nut	Refer to POWER RAIL Design Guidelines
4	AMP Clamp, (5/16" x *) RAD bolt, flange nut	2 per 3/8" gap between modules
5	RAD End Clamp, (5/16" x *) RAD bolt, flange nut	4 per Rail Set
* 2", 2-1/4", 2-1/2", or 2-3/4" bolt. Length is dependent on depth of PV Module frame		
Notes:		
1. Install Mid Clamp with AMP Clamp RAD bonding Mid Clamp.		
2. Option to install Universal End Clamp, End Clamp with carriage bolt or RAD End Clamp.		

1 Install the “L” Feet

NOTE

L Feet can be attached directly to the roof substrate with the proper hardware. See POWER RAIL Design Guidelines for more information.

Information on appropriate anchoring hardware is available on an individual product basis.



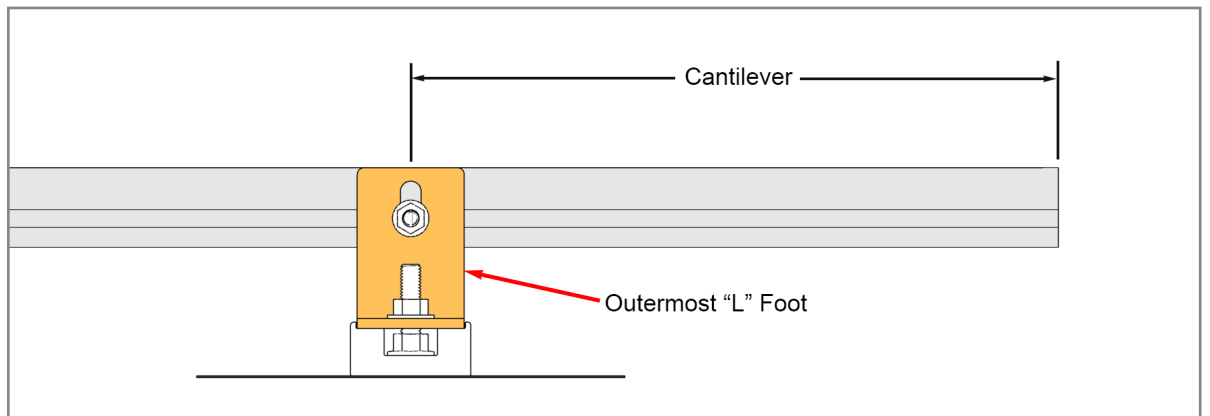
Secure “L” foot to appropriate anchoring device per the manufacturers instructions. Above is shown using the POWER RAIL PV Flash and attaching hardware.

Position “L” foot on compression block and secure with 5/16” Hex Nut and Flat Washer. **Torque to 15 ft.-lbs.**

2 Attach POWER RAIL to “L” Feet

CAUTION

Cantilever and span dimensions are a design specification. Consult the design manual to match these dimensions to site conditions. It’s important to use the unique cantilever and span dimension specific to the install. Failure to do so could lead to excessive deflection and/or premature system failure.



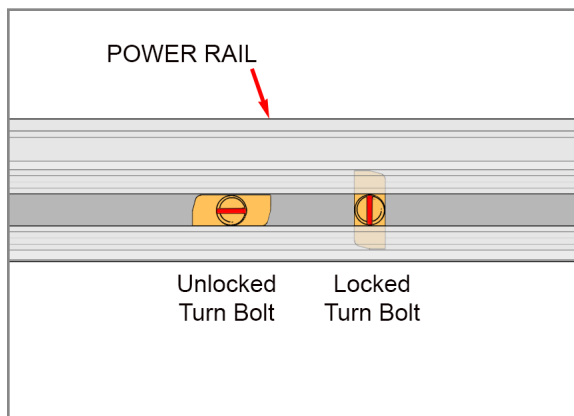
The POWER RAIL overhangs beyond the outermost “L” Foot. This overhang is referred to as “cantilever”, or abbreviated as “C’ver”. The distance between adjacent “L” Feet is referred to as “span”. The length of both the cantilever and the span are dependent on

several factors, unique to each installation and are determined by the system design.

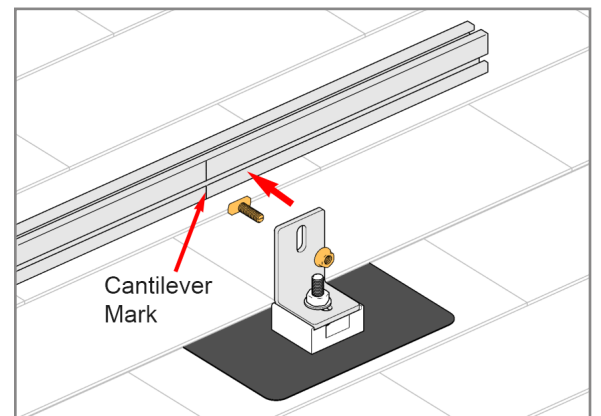
Measure and mark the cantilever dimension supplied by the design manual onto the POWER RAIL.

NOTE

Turn bolts must be locked into the channel by rotating clockwise 90-degrees. Use the indicator slot on the threaded end to identify whether or not the bolt has been locked.

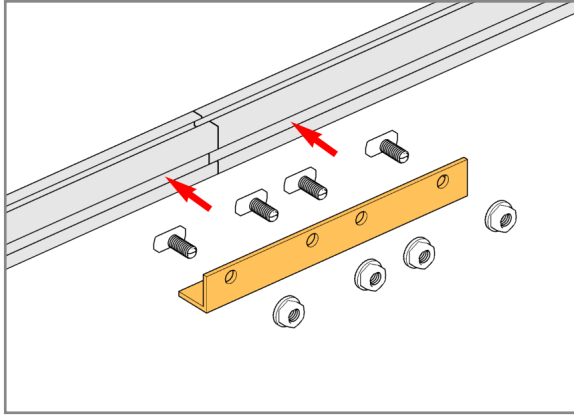


Insert the 5/16” x 3/4” Turn Bolt into the POWER RAIL and rotate 90-degrees, locking the Turn Bolt in place. On the outermost “L” Feet, align the center of the “L”

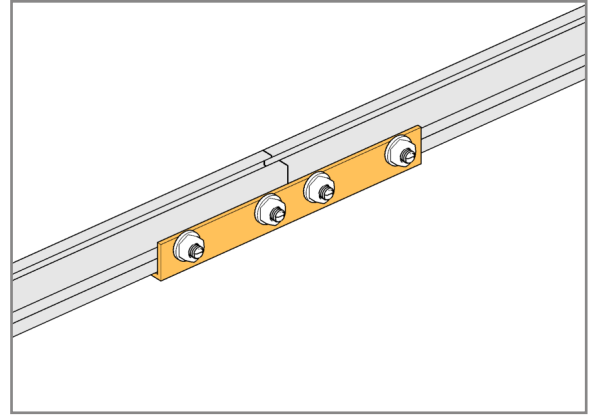


Foot with the cantilever mark on the POWER RAIL. Secure the POWER RAIL to the “L” Foot with the 5/16” Flange Nut. **Torque to 15 ft.-lbs.**

3 Splicing POWER RAIL with Splice Plates



Splice Plates come in two configurations: 2-hole or 4-hole (above is a 4-hole). Insert a 5/16" x 3/4" Turn Bolts into the POWER RAIL and rotate 90-degrees to

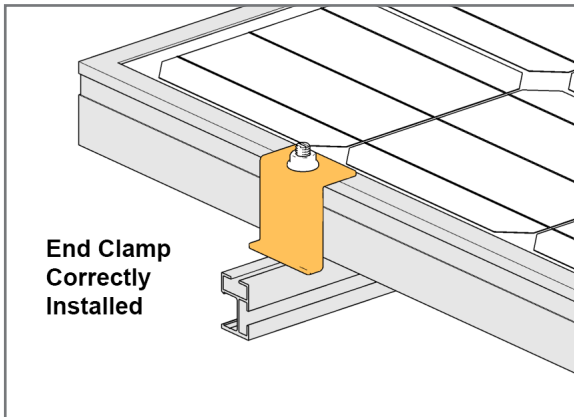


lock the Turn Bolts in place. Align the Splice Plate with the center of splice and secure to the POWER RAIL with the 5/16" Flange Nuts. **Torque to 15 ft.-lbs.**

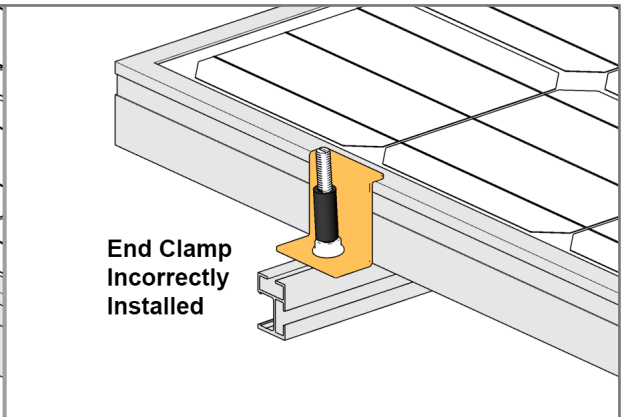
4 Install the Modules

CAUTION

This is a two person activity. In addition to the difficulties associated with working on a sloped rooftop, PV Modules are heavy. One person should hold and align the modules while a second person secures modules with clamping hardware. Failure to do so could lead to serious personal injury and/or damaged components.

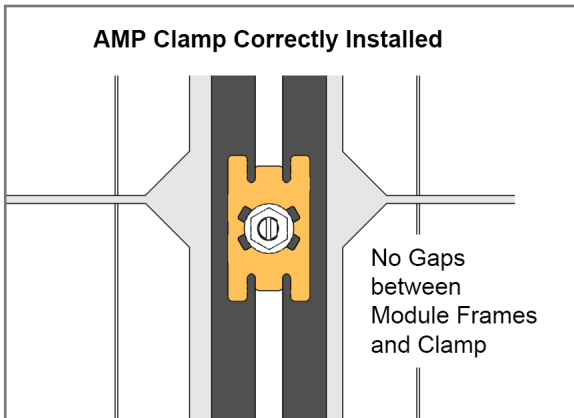


End Clamp Correctly Installed



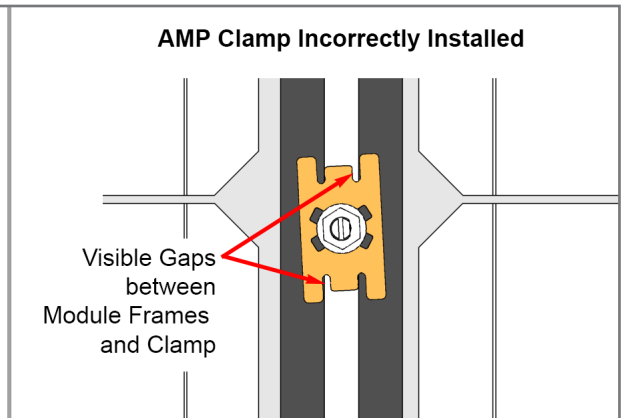
End Clamp Incorrectly Installed

End Clamps must be installed as shown above left, not upside down as shown to the right.



AMP Clamp Correctly Installed

No Gaps between Module Frames and Clamp



AMP Clamp Incorrectly Installed

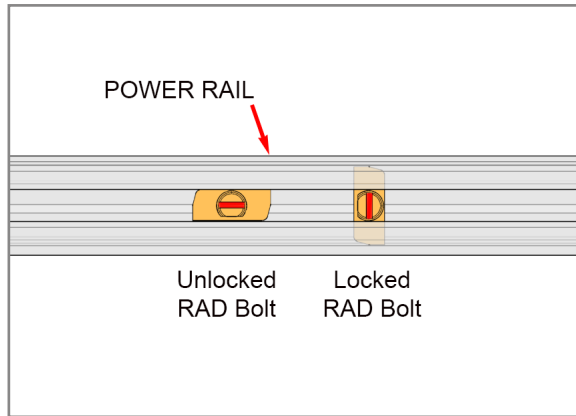
Visible Gaps between Module Frames and Clamp

AMP Clamp bonding Mid Clamps must be installed as shown at above left and not as shown to the right. There cannot be any visible gaps between the bonding Mid Clamps and module frames.

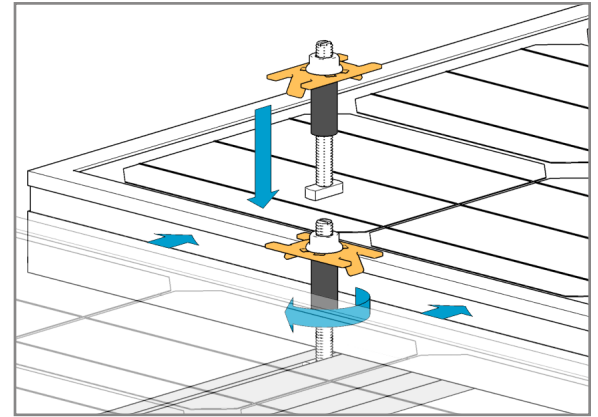
4 Install the Modules (cont.)

NOTE

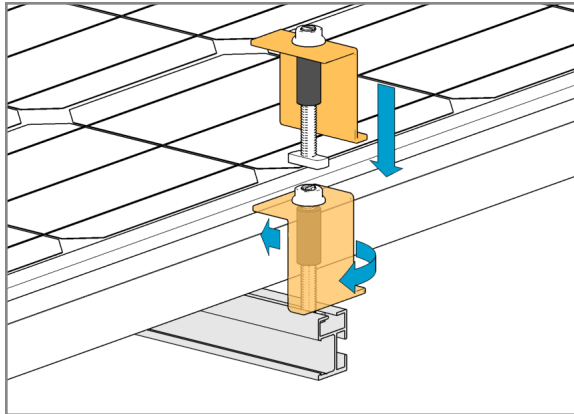
The RAD bolts used in the AMP Clamps and End Clamps must be locked into the channel by rotating clockwise 90-degrees. Use the indicator slot on the threaded end to identify whether or not the bolt has been locked.



AMP Clamp bonding Mid Clamps are inserted into the POWER RAIL and positioned between adjacent Modules. Insert the 5/16" RAD Bolt into the POWER RAIL



and rotate 90-degrees clockwise to lock the RAD Bolt within the POWER RAIL. Push the Modules against the AMP Clamp. Tighten the 5/16" Flange Nut. **Torque to 15 ft.-lbs.**



RAD End Clamps are used on the outer Modules. Insert the 5/16" RAD Bolt into the POWER RAIL and rotate 90-degrees clockwise to lock the RAD Bolt within the POWER RAIL. Secure with the 5/16" Flange Nut. **Torque to 15 ft.-lbs.**



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