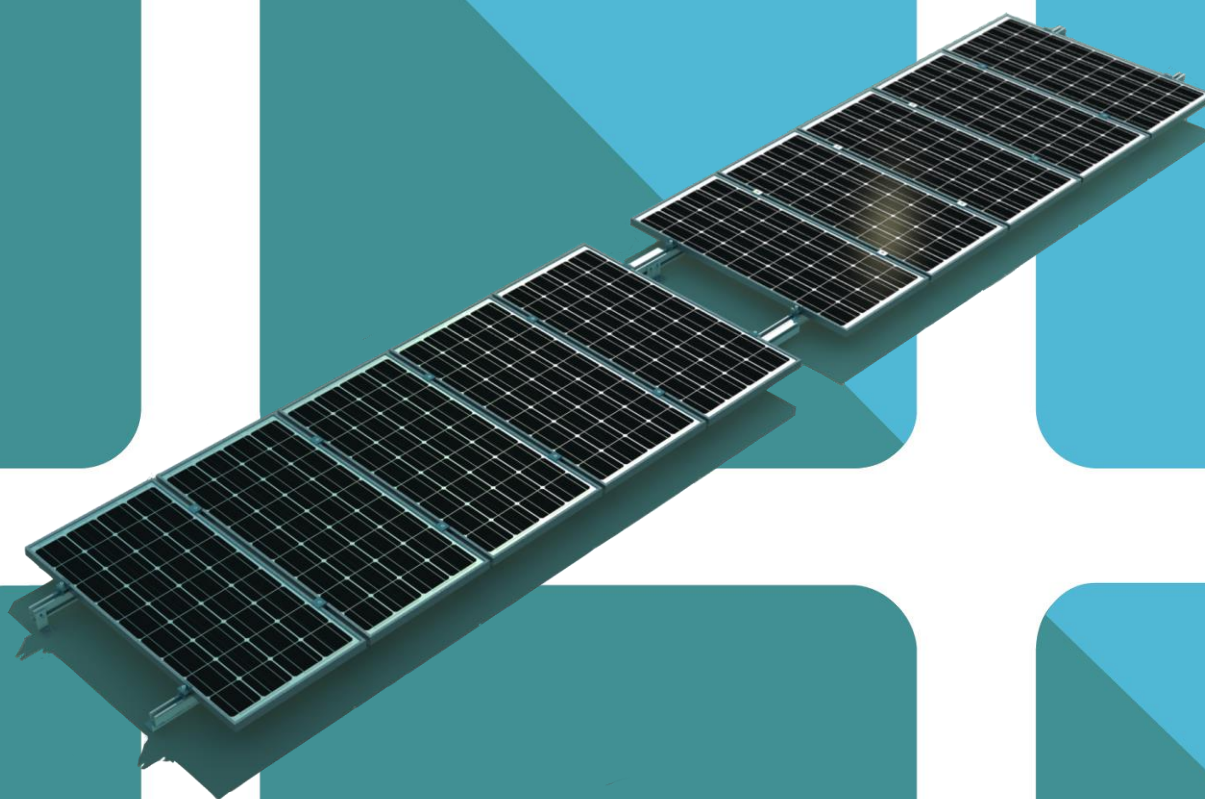


MTS-RS

RENOGY Photovoltaic Module
Rail Mount Installation Manual



RENOGY
THE FUTURE OF CLEAN ENERGY

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1-800-330-8678

Important Safety Instructions

Please save these instructions.

This manual contains important safety, installation, and operating instructions for the Renogy Rail Mount hardware system. The following symbols are used throughout the manual to indicate potentially dangerous conditions or important safety information.

 **WARNING:** Indicates a potentially dangerous condition. Use extreme caution when performing this task.

CAUTION: Indicates a critical procedure for safe and proper operation of the system.

NOTE: Indicates a procedure or function that is important to the safe and proper operation of the controller.

General Safety Information

- Read all of the instructions and cautions in the manual before beginning the installation.
- Installation should be completed by a professional solar installer. All work must comply with all requirements mandated by your locality (local, state and national requirements in force).
- Do **NOT** substitute parts from other manufacture ring sources, doing so may void the warranty and/or result in an unstable system.
- Chance to strip nuts and bolts exists; use anti-galling lubricant where appropriate.
- When mounting to roof or elevated surface, exercise caution when climbing ladder.
- When on roof or elevated surface, always use a strap or harness.

Installer Responsibilities

- Installation compliance with any applicable codes which are in force at the installation site
- Installation compliance and compatibility with all system components and the environment including but not limited to roofing, system components (solar modules, inverters, etc.), grounding hardware, etc.
- Verification that all project information is accurate

WARNING: This equipment should be installed, adjusted, and serviced by qualified electrical maintenance personnel familiar with the construction and operation of the equipment and the hazards involved. Failure to observe this precaution may result in bodily injury. Protective gloves and safety glasses should be worn during installation.

Table of Contents

General Information.....	4
Optional Components	5
Identification of Parts	6
Installation.....	8

General Information

The Renogy Rail Mount System is designed to support off-grid and grid-tied solar photovoltaic systems and is compatible with all Renogy panel sizes, 100 W and larger. The system contains multiple components which will vary depending on a particular installation's needs. A typical system will be comprised on the rail units themselves coupled with Splice Kits, L-Feet, End Clamps, and Mid Clamps as well as all required fasteners to secure all components together. This product makes the installation of long continuous rows of panels easy. This system is designed for use on flat rigid surfaces to ensure system stability.

Key Features

- Lightweight
- Supports multiple panel thicknesses
- Anodized Aluminum 6063-T5 Corrosion-Free Design
- Attractive mill finish, surface roughness B, C
- Snow loads up to 1.4 KN/m² (0.20 psi)
- Wind speeds up to 60 m/s (134 mph)
- 1-year material warranty

Optional Components

*The Renogy Rail Mount System is typically a system customized package, specific to each customer's order. If you desire or need any additional components, optional or necessary, please contact us so that we may assist you in placing an order.

Optional components:

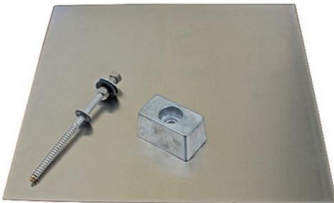


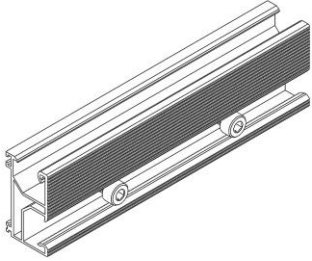
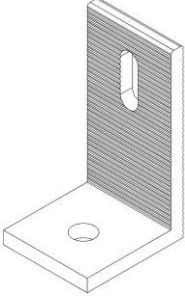
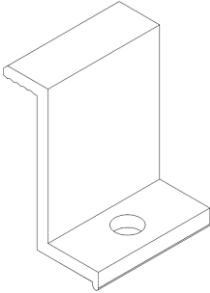
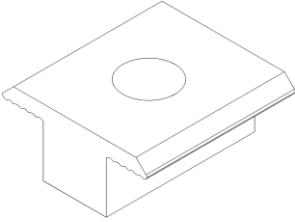
Figure 1

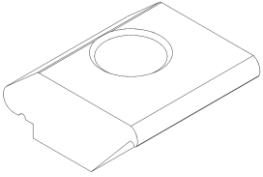
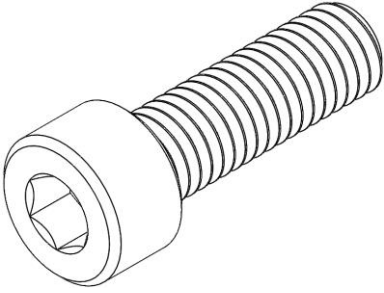
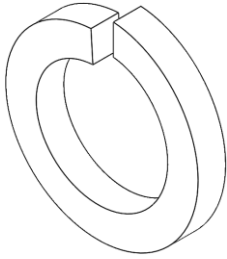
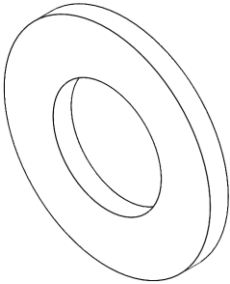
Quick Mount Classic Flashing (MTS-QMSC): All-in-one waterproof flashing and mount for anchoring solar racking systems. Is used in conjunction with the system's L-Feet. Allows for installation without requiring the cut away of any roofing and serves to seal off installation holes to prevent water leakage. (**Figure 1**)

NOTE: If using the MTS-QMSC in your installation, please refer to the guide found in its packaging for installation to the roof and fixation to the Rail Mount System. An online version of this manual can be found at:

<http://www.quickmountpv.com/downloads/datasheet/QMPV-datasheet-QMSC-ClassicComp-web.pdf>

Identification of Parts

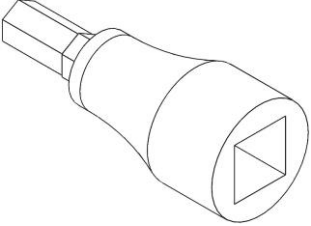
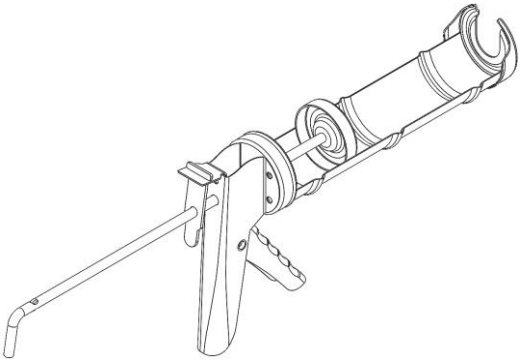
Image	Component	Description
	Rail Segment	Main component. Solar modules are secured to this directly. Unit works in tandem with other segments and may be joined with other segments via Splice Kits. Is anchored to roof.
	Splice Kit	Unit which creates a joint between two rail segments. Allows extension of railing system by joining segments together securely.
	L-Foot	Anchors Rail Segments to roof and acts as a support to the rails. Total number depends on number of solar modules spanning the rails.
	End Clamp	Holds end modules in place via compression and acts as an end stop. NOTE: May look different than pictured. Specific end clamps required based on panel thickness.
	Mid Clamp	Spaces and secures intermediate panels. NOTE: Accommodates different panel sizes using different fastener lengths.

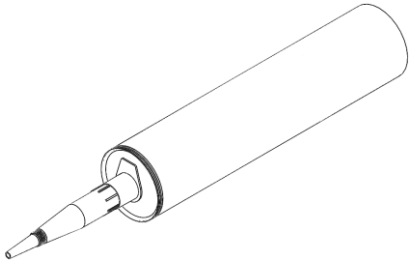
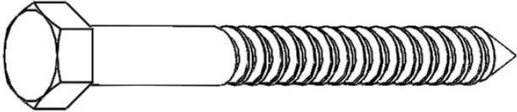
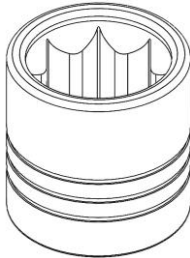
	Rail Nut	Extruded piece which fits into the uniquely designed channels of the Rail Segments for securement.
	M8 Socket Cap Screw	General fastener used throughout system. Various lengths present.
	M8-18 Split Lock Washer	Deformable washer which creates a spring force from deformation. Provides the necessary preload to cap screw.
	M8-16-2 Flat Washer	Normal flat washer used to prevent surface marring on components from the use of the Lock Washers.

Installation

Recommended tools to have before installation:

The following tools and equipment are highly recommended to have available to assist with installation but are in no way a comprehensive list of tools that can ease installation. Installers feel free to substitute comparable equipment where appropriate.

Image	Component	Description
	Torque Wrench	Allows for tightening of fasteners to a specified maximum torque. Prevents overtightening and better control of joint assembly.
	6mm Hex Bit w/ Socket Drive	Bit to be used with torque wrench to drive hex cap bolts within the system assembly. Ensure drive side is sized appropriately to your particular socket wrench key (usually 3/8").
	Tape Measure	Used to accurately mark spacing of pilot holes which locate the roof attachments for the L-Feet.
	Caulking Gun	Used to direct sealant into penetrations to avoid leaking in the roof.

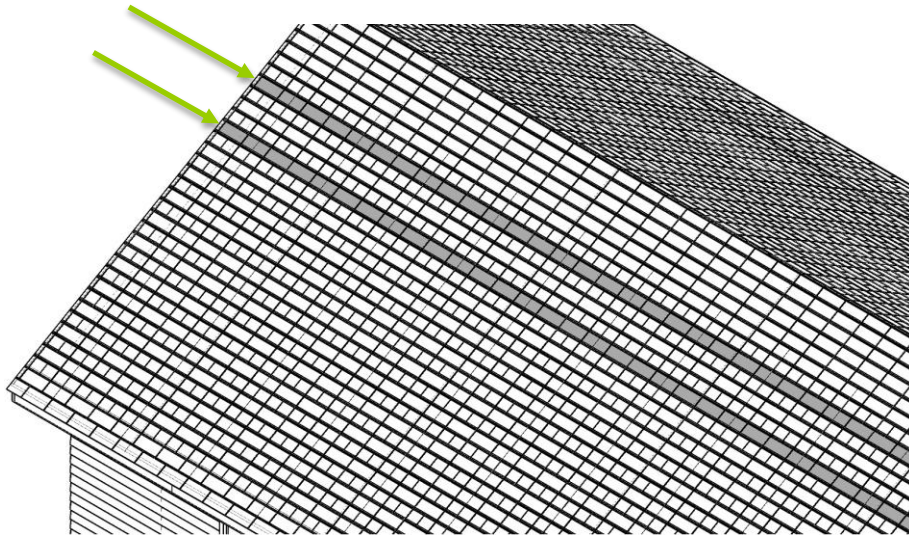
	Compatible Sealant	Sealant compatible with your specific roof installation. Consult with documentation/warranty paperwork for the roof.
	7/32" Drill Bit	Used to drill pilot holes for the roof attachment bolts. Recommended 3" in length.
	5/16" Lag Bolt	Fastener to be torqued down into roof studs. Secures L-Feet to roof. Recommended 3" in length. Needs compatible zinc-coated washer.
	1/2" Socket Drive	Used in conjunction with the torque wrench to tighten down lag bolts into the roof structure.

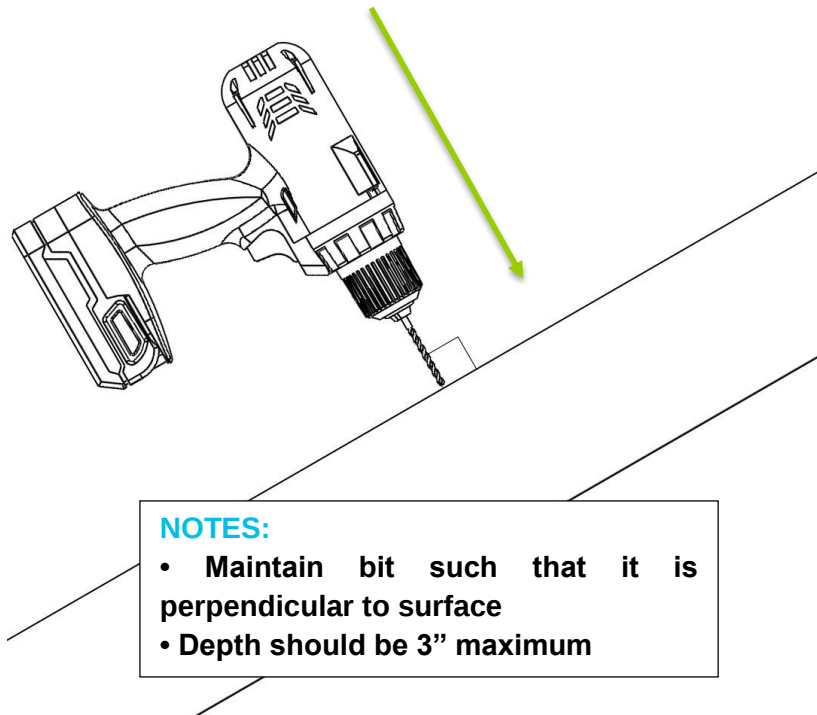
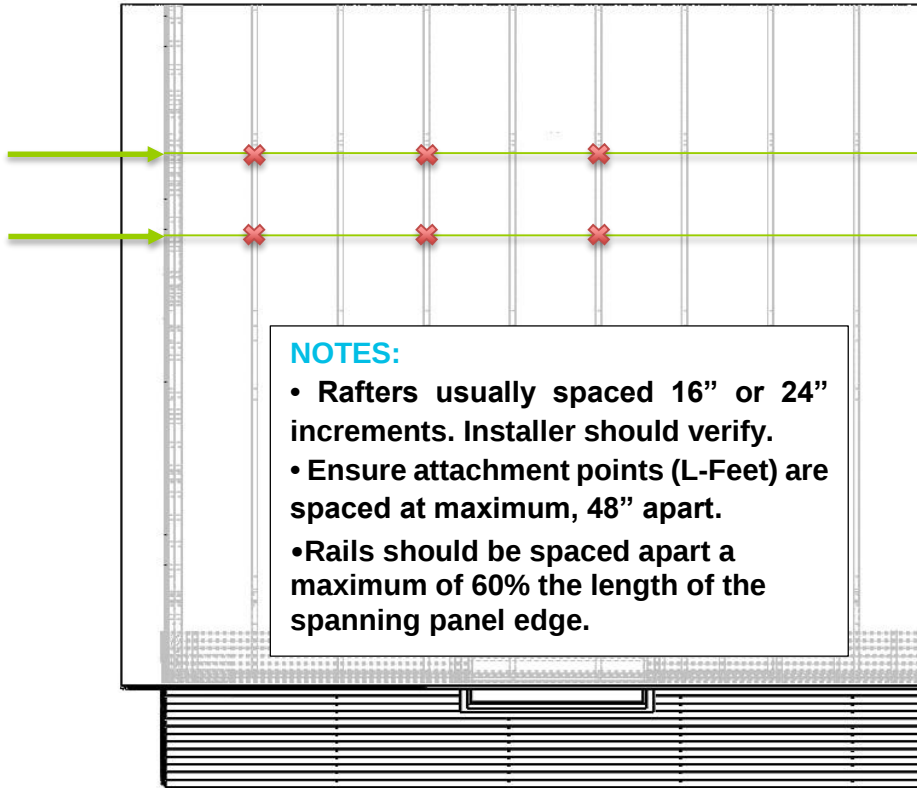
⚠ WARNING: Installation of this system poses serious injury risks due to work on roofs. **NEVER** work alone during the installation of the system and **ALWAYS** use fall protection equipment. **NEVER** use any of the equipment attachment points as a support for fall protection.

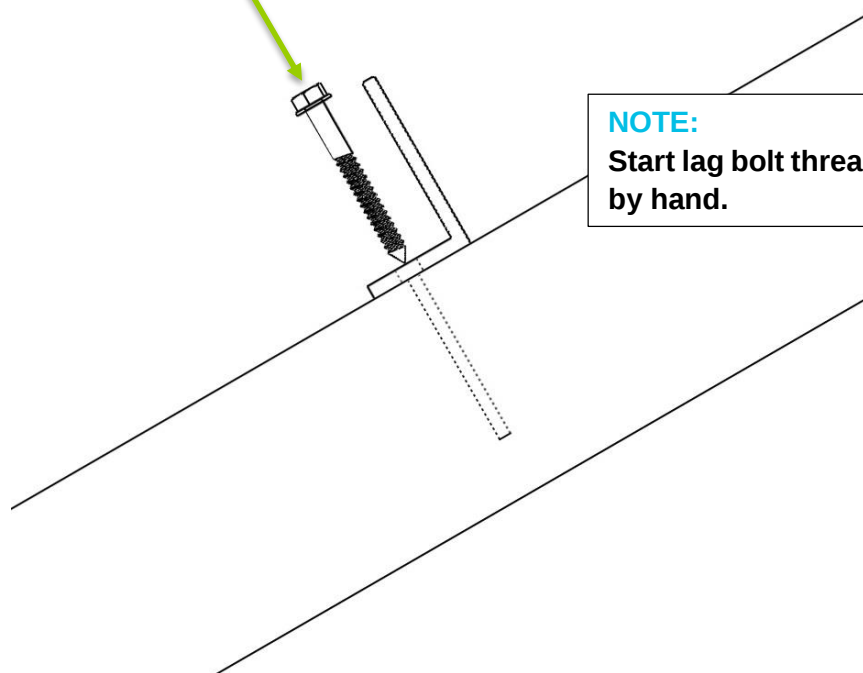
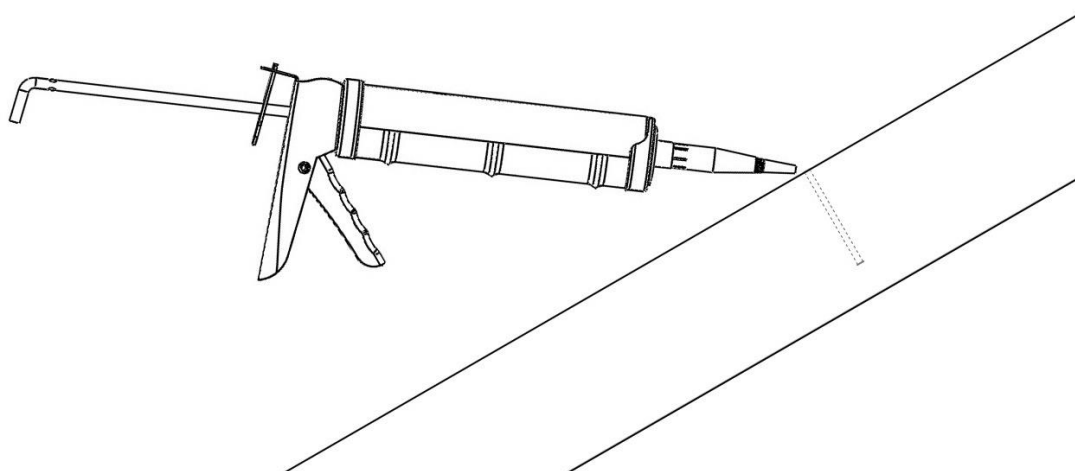
Roof Securement for Attachment Points

CAUTION: If using an alternative base for the L-Foot such as the MTS-QMSC or a third party stand-off system to clear obstructions, please consult those product manuals for additional instruction before proceeding with this section.

NOTE: Leave L-Foot fasteners attached to the unit as they come packaged. This will ease attachment to the railing components later in the installation.



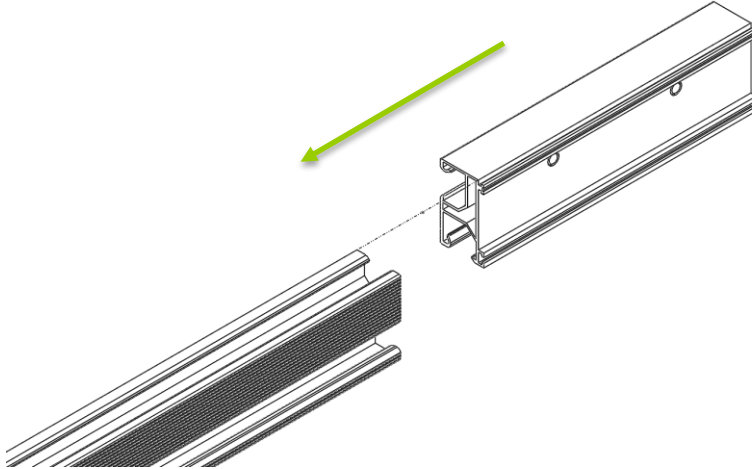




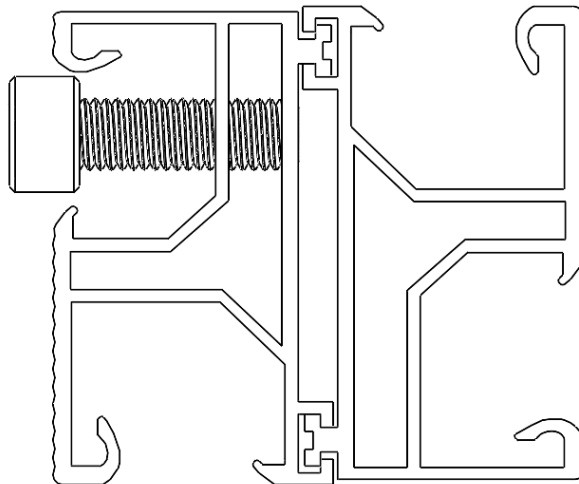
NOTE:
Start lag bolt threading
by hand.

Rail System Construction

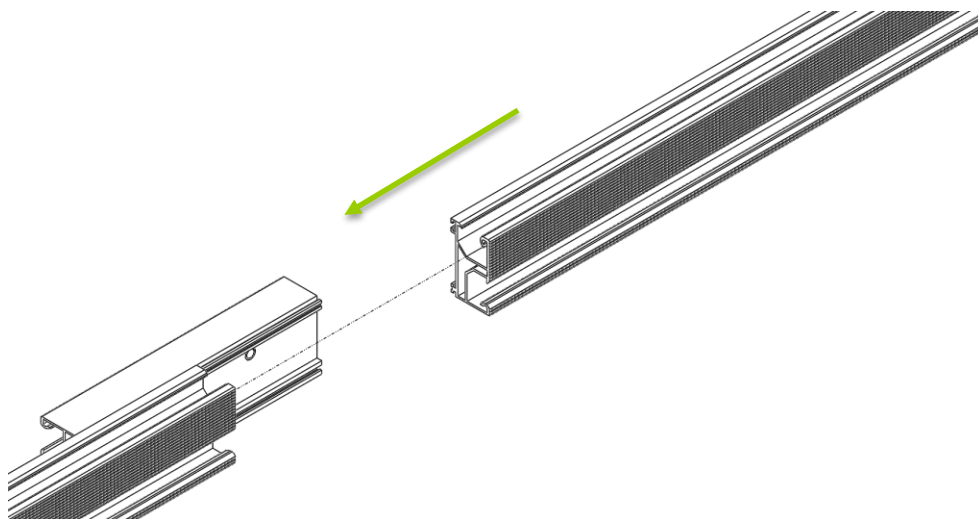
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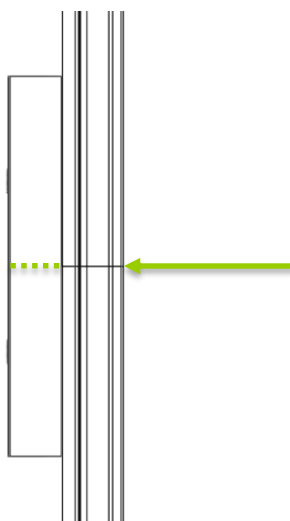
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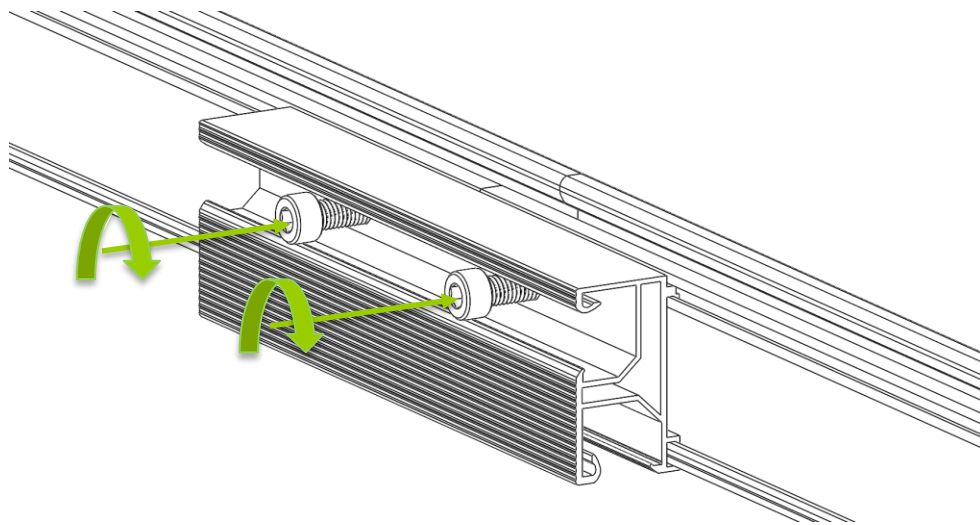
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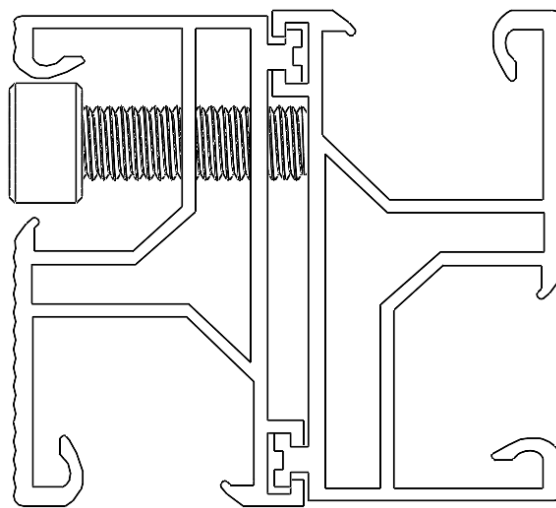
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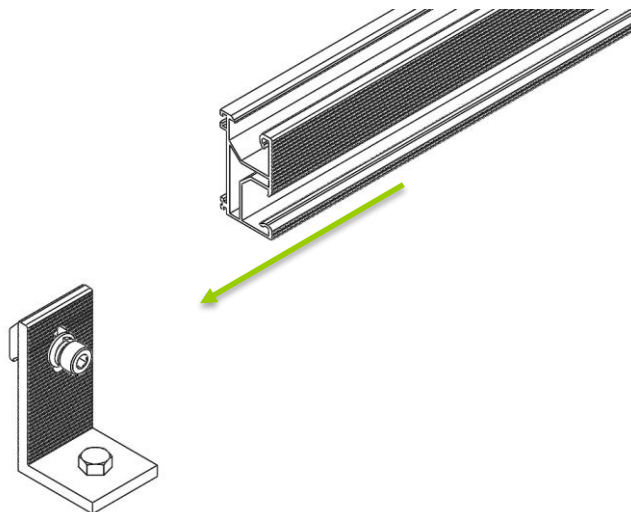
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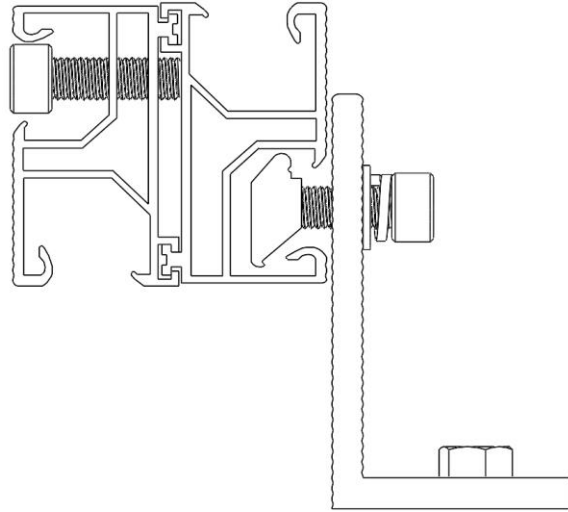
Repeat for all continuous rail sets.

Rail Seating

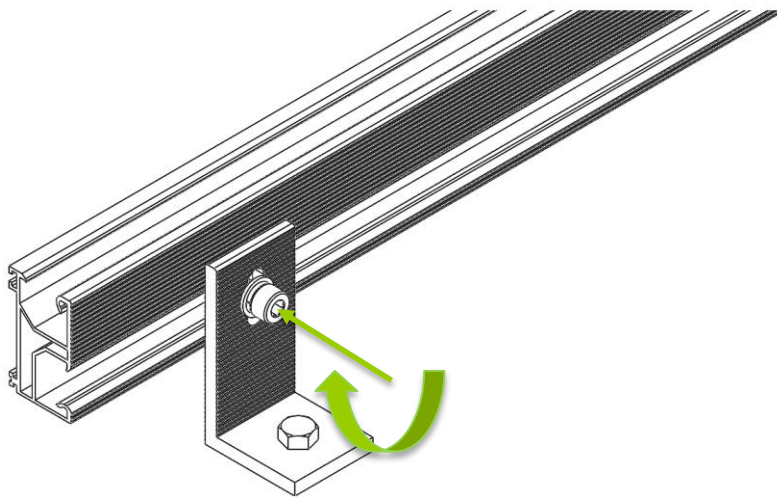
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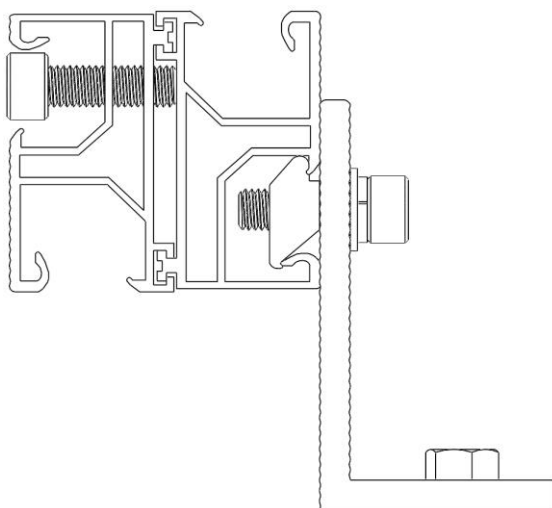
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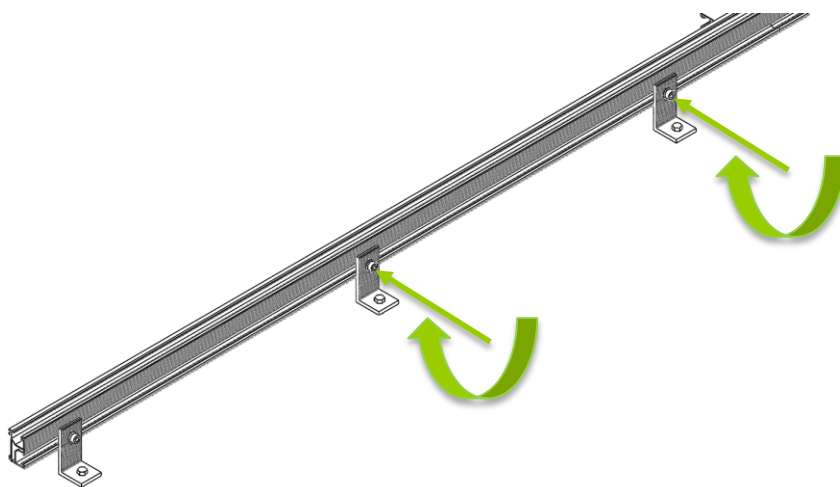
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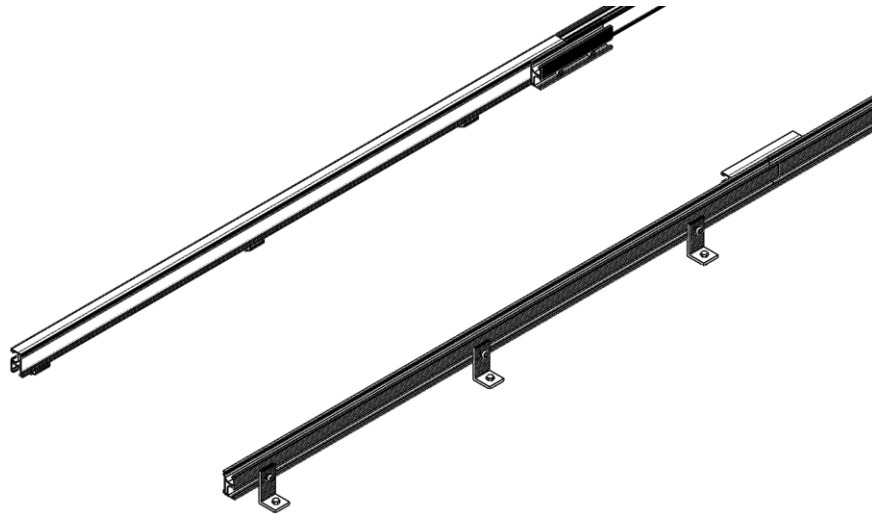
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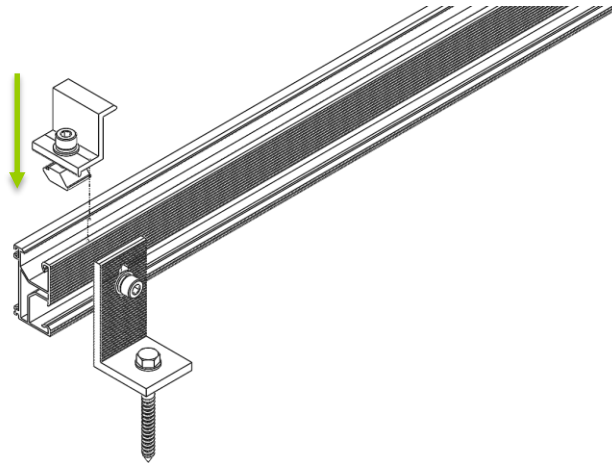


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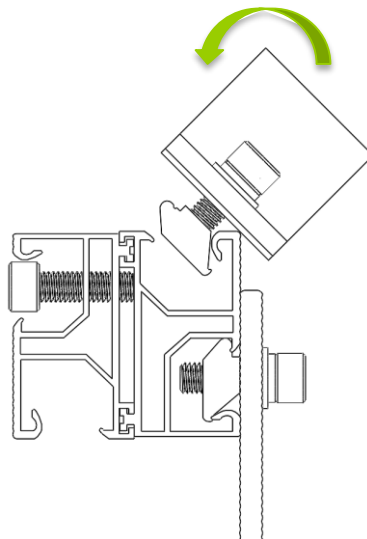
Panel Securement

1

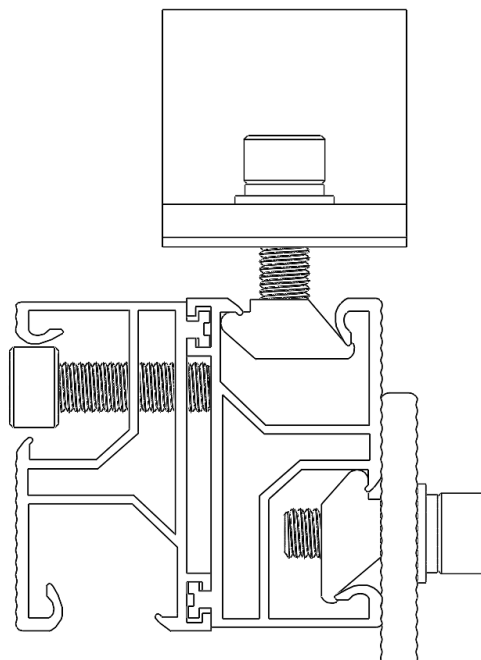


⚠ WARNING: End clamps must be installed a minimum of 1" (30 mm) from the rail edges.

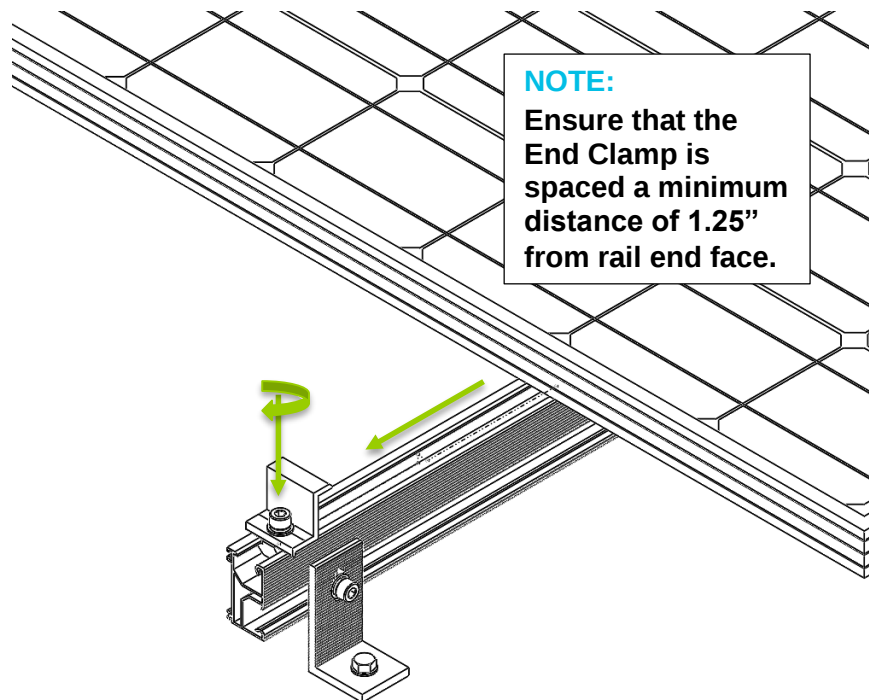
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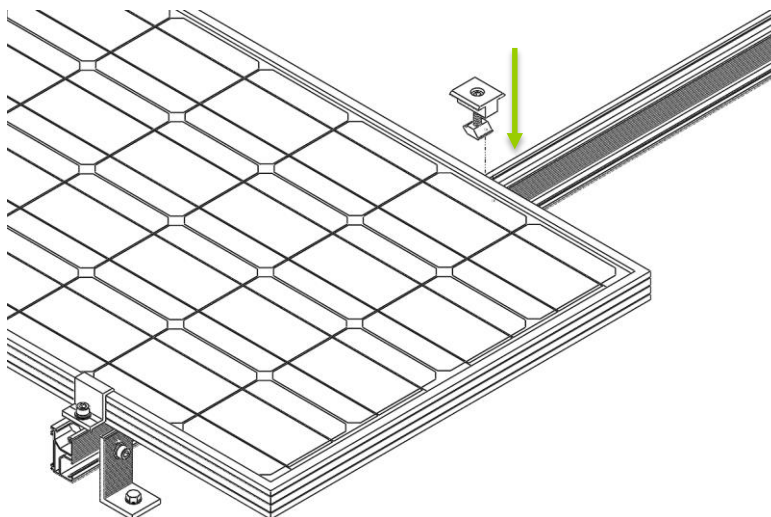
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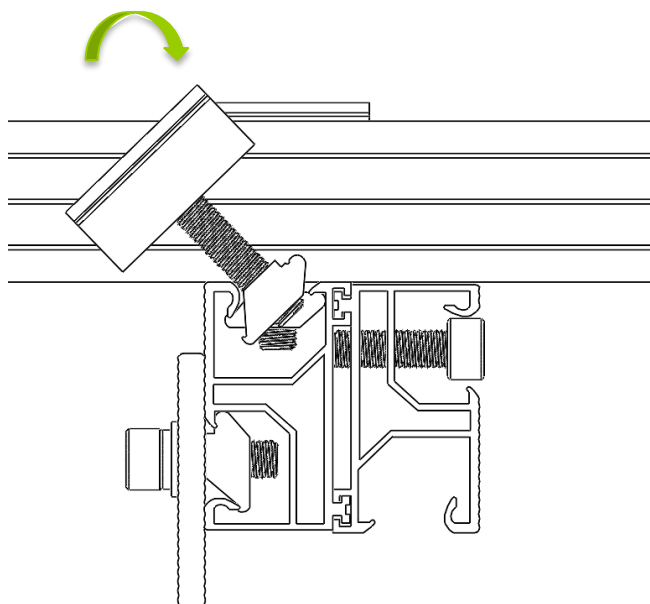
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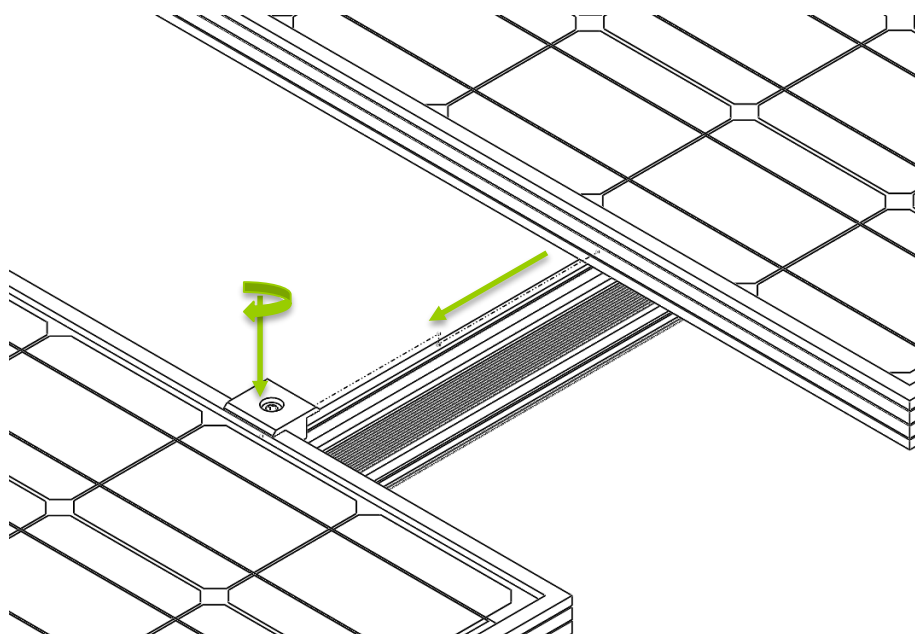
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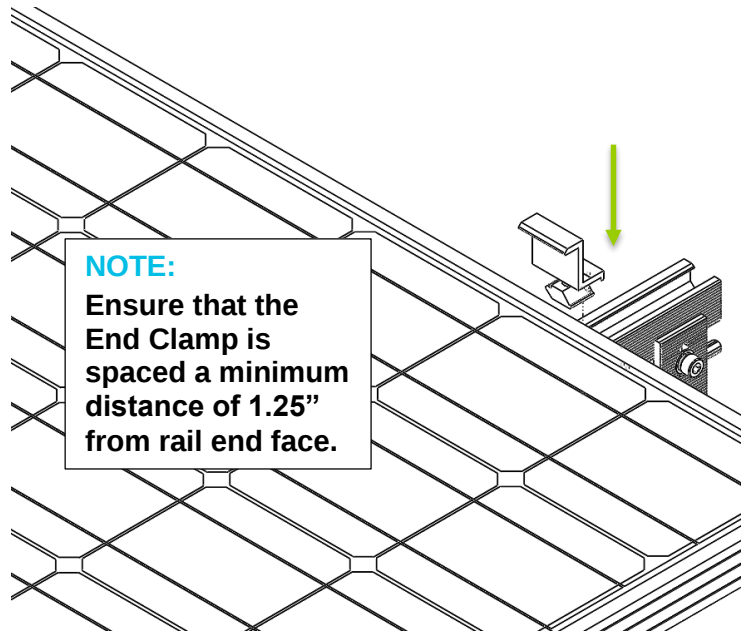


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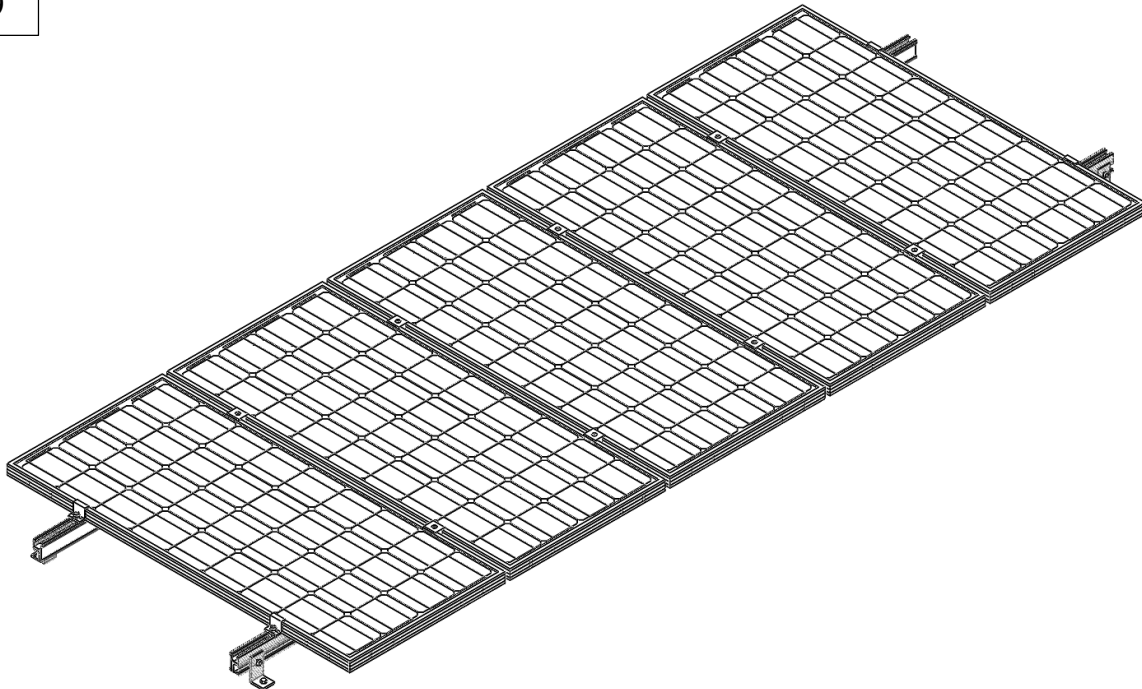
Continue mid-clamp procedure for each additional panel.

8



⚠ WARNING: End clamps must be installed a minimum of 1" (30 mm) from the rail edges.

9



Repeat procedure for each panel row.



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Follow proper safety practices. If in doubt, consult a professional RV technician.