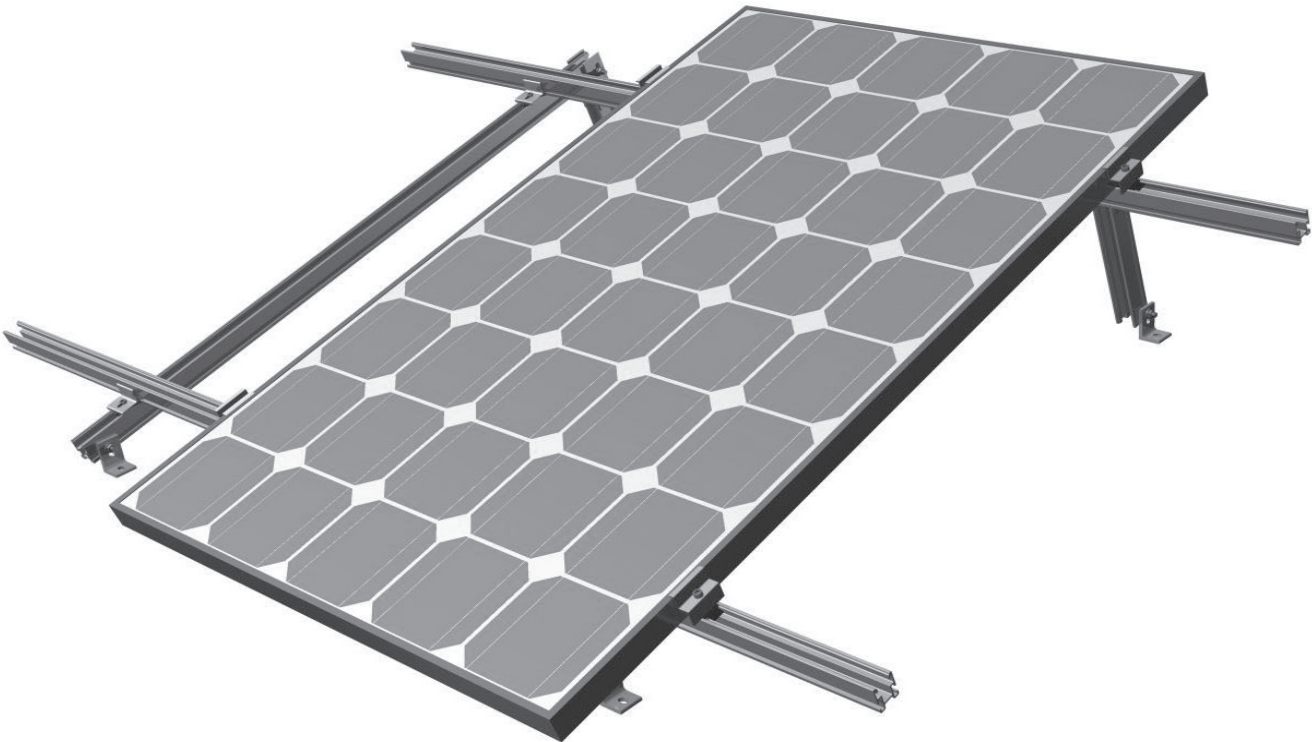


Mounting systems for solar technology



ASSEMBLY INSTRUCTIONS

CROSSRAIL TILT KIT

**7° / 10° / 15° TILT FOR LOW-SLOPE AND
STEEP-SLOPE ROOFS**

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ENGINEERING STRENGTH IS AT OUR CORE

With sophisticated product innovations and a deep customer focus, Everest Solar is the engineering leader for all your mounting system needs. We are the US division of K2 Systems, one of Europe's market leaders with more than 3.0 GW installed.

We offer proven product solutions and innovative designs. Wind tunnel testing along with advanced structural and electrical validation to facilitate permitting, design and installation. Our designs result in cost competitive racking systems with dedicated support that will position you to win more projects.

We partner with our customers and suppliers for the long-term. High quality materials and cutting edge designs provide a durable, yet functional system. Our product line is comprised of a few, coordinated components that lower the cost of materials, and simplify installation, saving you time and money. All backed by German engineering, a long track record of quality and a company that is here to stay.

Thank you for choosing Everest Solar Systems for your Solar PV Project.

GENERAL SAFETY INSTRUCTIONS

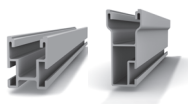
Everest Solar Systems' General Assembly Instructions must be followed to maintain the exclusive, limited product warranty. You can access these instructions at Everest Technical Info Page <http://www.everest-solarsystems.com/us/downloads/technical-information.html> or by contacting us directly.

In general, the following applies:

- Systems should be installed by experienced contractors licensed and qualified to perform the work with professional workmanship and quality.
- Before installation, Contractor must verify that the system meets all applicable laws, regulations, ordinances, and codes. Contractor shall verify that the roof or other structures to which the system is being attached are capable of carrying the system loads. For information about the dead loads of the various system components, Contractor should review the Everest Technical information page at <http://www.everest-solarsystems.com/us/downloads/technical-information.html> or contact us directly
- Contractor is solely responsible for work safety and accident prevention regulations and corresponding standards and regulations of the applicable occupational safety and health agency are followed, including:
 - Safety clothing is worn such as safety helmets, work shoes, and gloves.
 - Where required, the contractor should use fall protection, scaffolding with arrestor equipment and other approved methods for worker safety
- Contractor shall verify that it is using the most current instructions by downloading the latest version from our website or contacting our office directly.
- Module manufacturer installation guides must be followed. Please use approved electrical bonding and grounding components that are required by the local or national codes and AHJ.
- A copy of these instructions must be on site, and read and understood by all workers during installation
- In the event our general installation and assembly instructions are not followed, or that not all system components and assemblies are used according to these instructions, or that components are used which were not obtained from us, Everest Solar Systems is not liable for any resulting defects and damages, and the exclusive, limited warranty will be void.
- The exclusive, limited product warranty shall apply only if all instructions are strictly adhered to and the system is correctly installed. Everest Solar Systems disclaims any and all warranties, express or implied, including without limitation any warranties of merchantability and fitness for a particular purpose other than as set forth in the exclusive, limited warranty in the terms and conditions of sale, which can be viewed under on our website: <http://www.everest-solarsystems.com/us/downloads/technical-information.html>
- The dismantling of the system should be in reverse order of these assembly instructions.

ESSENTIAL: THE MATERIALS REQUIRED

Below is a reference for the parts required to assemble the Everest CrossRail Tilt Up Kit system. Exact quantities are based on your project requirements.



CrossRail 48 & CrossRail 80

Material: aluminum
Standard length: 164" or custom



CrossRail Tilt Up Bracket Kit

Material: aluminum



L-Foot w/ T-Bolt and Flange Nut

Material: aluminum
Hardware: stainless steel



Climber Set

Material: aluminum



Rail Connector Set CrossRail 48 & 80

Material: aluminum splice
Hardware: stainless steel



KMC WEEB Clip

Material: stainless steel
Pre-assembled with Mid Clamp



Module End Clamp Set

Material: aluminum, mil, dark
Hardware: stainless steel



WEEB Lug 8.0 + Hardware

Webb Lug 8.0 Material: tin plated copper
Hardware: stainless steel



Module Middle Clamp Set

Material: aluminum, mil, dark
Hardware: stainless steel

OPTIONAL MATERIALS



CrossRail 80

Material: aluminum
Finish: mil, dark anodized



End Cap for CrossRail 48/80

Material: glass fibre reinforced polyimide



External Omega Cable Clip

Material: polyamid, dark



HEYClip SunRunner Cable Clip SS, S6404

Material: stainless steel



Micro Inverter Mounting Kit

Material: stainless steel

BONDING AND GROUNDING:

Appropriate means of bonding and grounding are required by regulation. Everest Solar Systems has worked with Underwriter's Laboratories (UL) to have the following connections Recognized to UL 2703 for bonding:

1. L-Foot Set
2. Rail Connector Set
3. Tilt Up Connector Set
4. Climber Set

All connections have been tested and rated to 30A.

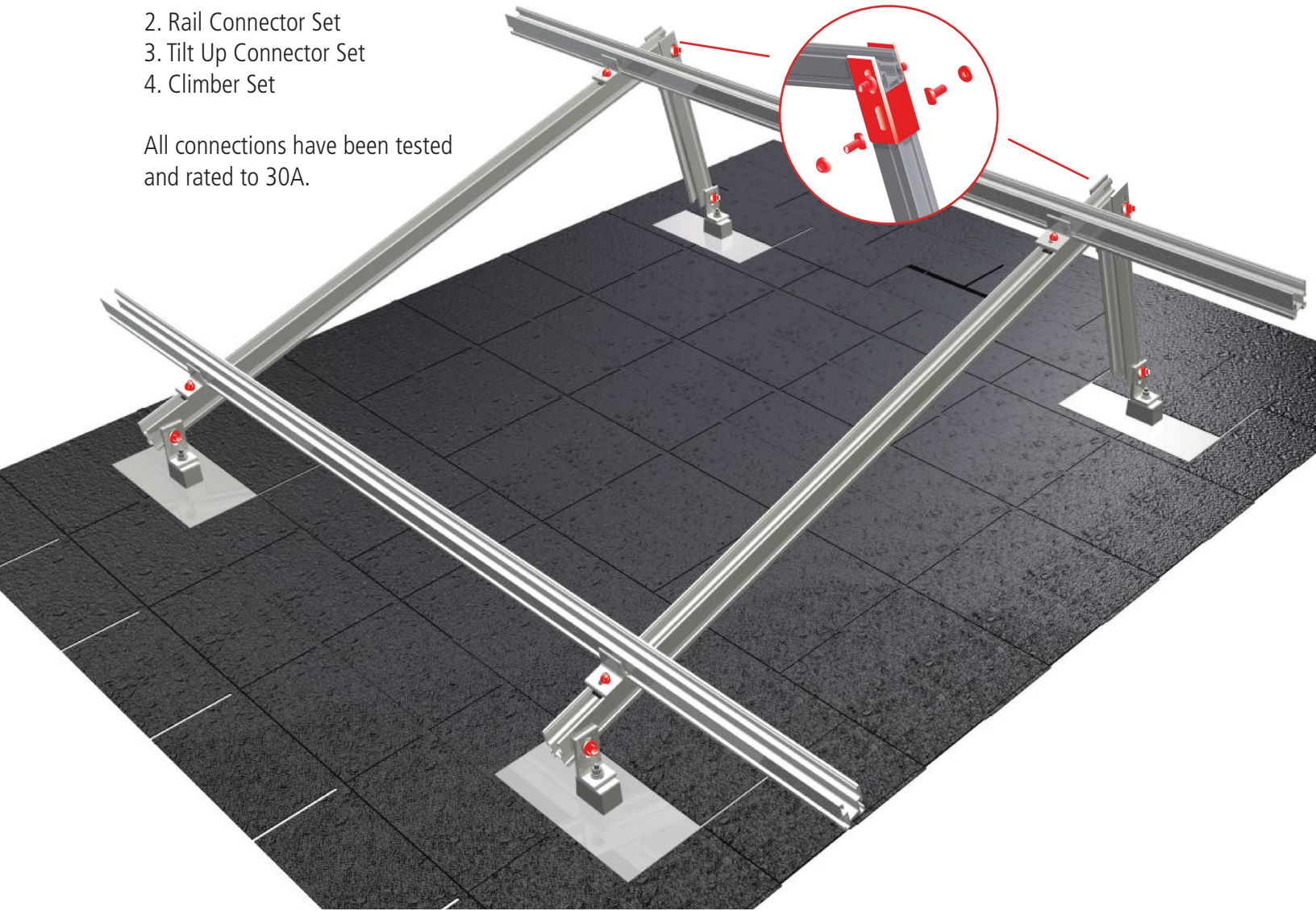


Figure 1: Bonding connections shown in red.

For all other bonding connections, the following Burndy products have been tested and approved:

- Module bonding via Burndy's WEEB-KMC
- System level grounding via Burndy's WEEB Lug 8.0

The Burndy installation manual is available on our website: <http://www.everest-solarsystems.com/us/downloads/technical-information.html>

AT A GLANCE: OVERVIEW OF THE TOOLS

Everest Solar Systems are designed to make installation easy and fast. The basic tools required to assemble the parts are listed below as a guide.



Torque wrench

(0-50 ft-lbs)

With: 13mm deep socket, 15mm deep socket, 6mm Allen Wrench

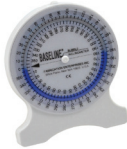


Measuring tape



Cordless screwdriver

With attachment drill for SW 13, SW 15, HW 6



Inclinometer

For setting the desired tilt angle



Cutting tool (i.e. - Sawzall)

For cutting rails

Tools and materials for the installation of third party items such as roof attachment products, roof covering and sealing products or items used for bonding and grounding are not listed here. Please refer to the instructions of those third party products.

CROSSRAIL TILT KIT BOM

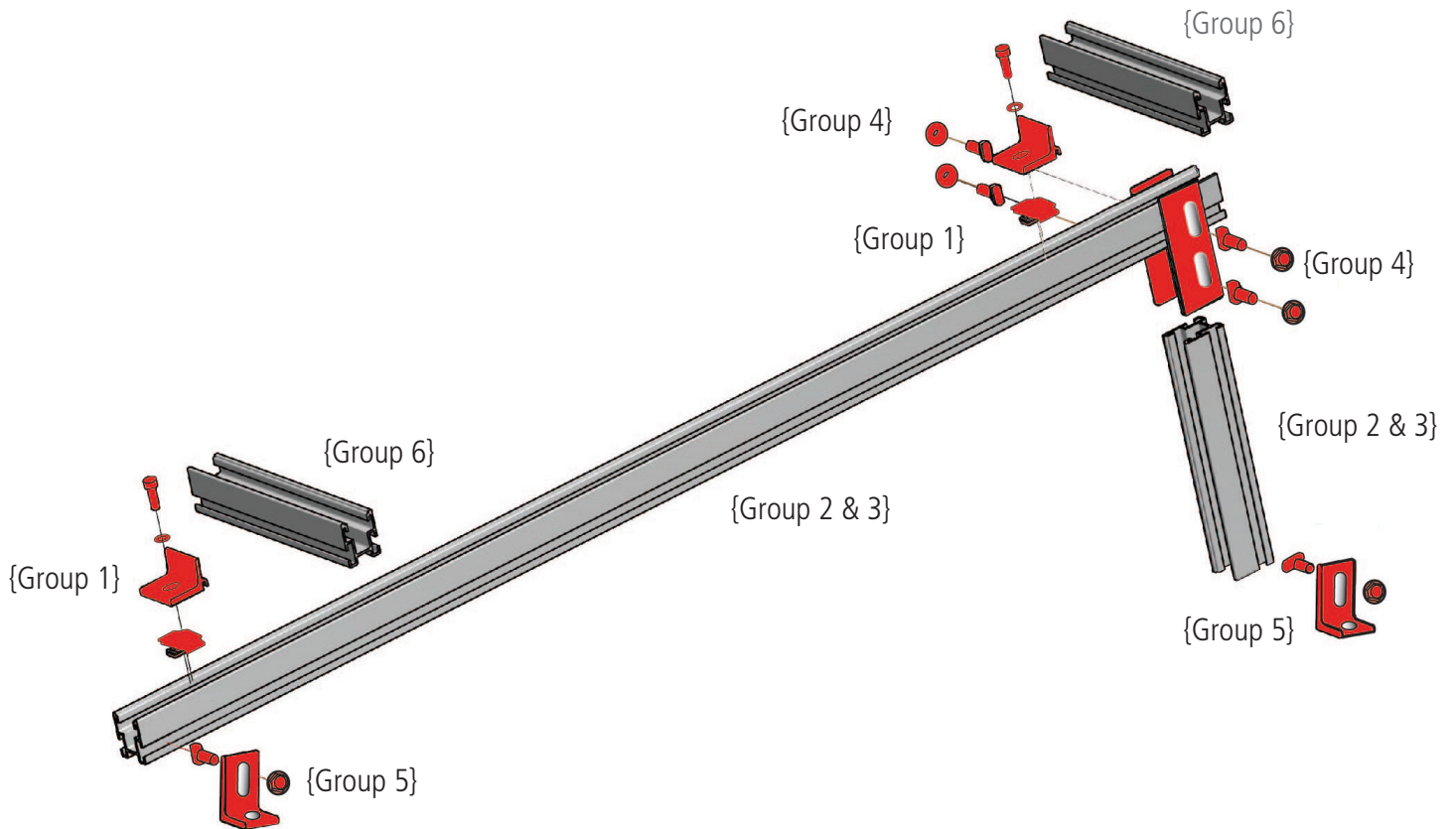


Figure 1.1: Tilt Leg Assembly

MIL TILT UP LEG SET BOM			
Group	P/N	Description	Qty
1	1006042	Climber Set CR 48/80, Hole	2
2 & 3	2000435	CrossRail 48, 164", Rail Mil	1
4	4000325	Tilt Up Connector Set, Mil	1
5	2000316	L-Foot w/T-Bolt & Nut, CR48/80 Mil	2
6	2000435	CrossRail 48, 164" Rail, Mil	-
	2001111	CrossRail 80, 164" Rail, Mil	-

Table 1.1: Mil Tilt Up Leg Set BOM

DARK TILT UP LEG SET BOM			
Group	P/N	Description	Qty
1	1006042	Climber Set CR 48/80, Hole	2
2 & 3	2000780	CrossRail 48, 164", Rail Dark	1
4	4000324	Tilt Up Connector Set, Dark	1
5	2000904	L-Foot w/T-Bolt & Nut, CR48/80 Dark	2
6	2000780	CrossRail 48, 164" Rail, Dark	-
	2000560	CrossRail 80, 164" Rail, Dark	-

Table 1.2: Dark Tilt Up Leg Set BOM

CrossRail Tilt Kit Installation Dimensions

The CrossRail Tilt Up Kit is a fully customizable solution. The table below provides recommended installation dimensions based upon a standard 60 cell PV module with 1/6 –point clamping locations. Always ensure that the dimensions are suitable for the project site.

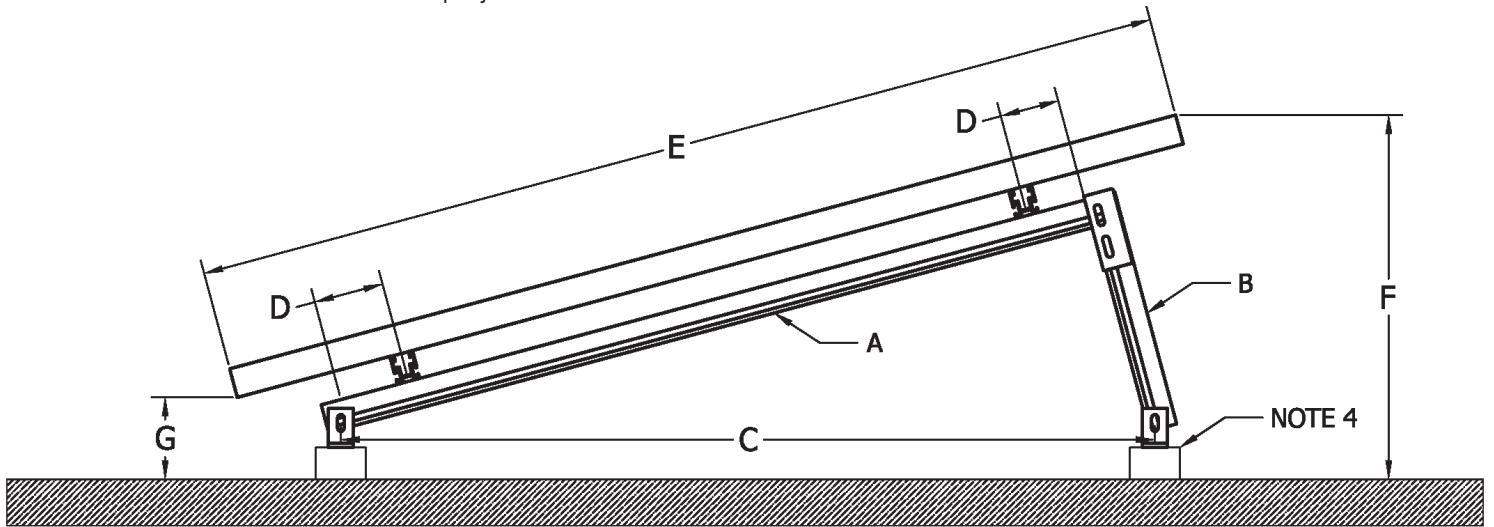


Figure 2.1: Tilt Kit Dimensions

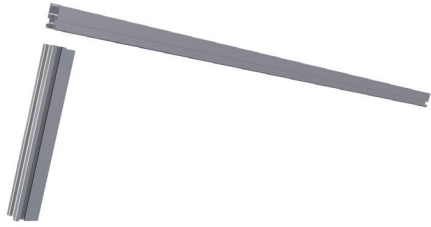
Dimension	Description	Tilt Angle		
		15	10	7
A	Front Leg	54.5	54.5	54.5
B	Rear Leg	15	9.5	6.5
C	L-Foot Spacing	54	53	52.5
D	Rail Offset ¹	5	5	5
E	Module Length	65	65	65
F	Rear Module Height ²	22	17	14
G	Front Module Height ³	3 1/3	3 7/8	4 1/8

Table 2.1: Tilt Up Kit Installation Dimensions
(Note: All dimensions in inches)

NOTES:

1. Rail Offset not to exceed 8".
2. Rear module height not to exceed 24". Note that dimension provided in Table 1 does not include roof attachment height.
3. Front module height dimension does not include roof attachment height.
4. Roof attachment to be provided by installer. Installer responsible for ensuring compatibility with CrossRail Tilt Up Kit. Refer to CrossRail Tilt Up Kit Engineering Letter(s) for reaction loads at L-Feet.
5. Always refer to chosen PV module manufacturer's installation instructions for approved clamping locations. Dimensions in Table 2.1 assume a standard 60-cell module with clamping locations at the 1/6-points on the module's long edge (~11 inches from the short edge).
6. Installer responsible for cutting rail to lengths specified "A" and "B" in Table 2.1.
7. Dimensions provided in Table 2.1 are suggested values. Installer shall verify dimensions are appropriate for the individual site conditions, selected PV module, and roof surface.
8. Adjust based on your installation needs.

ASSEMBLY: STEP-BY-STEP

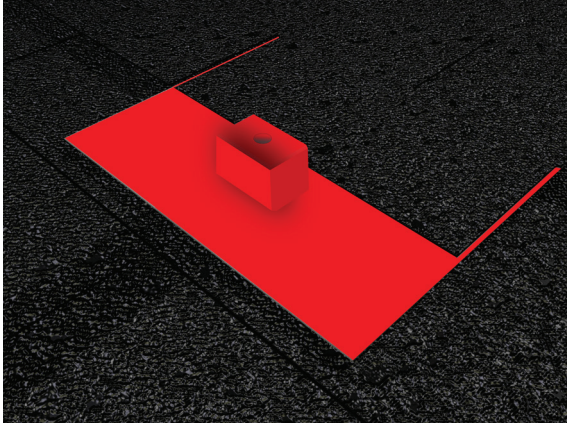


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CUT RAILS TO LENGTH

Using Table 3 as a guide, cut the CrossRail 48 profiles to the appropriate lengths according to the desired tilt angle.

Materials required: CrossRail 48, Cutting Tool (i.e. - Sawzall, etc.)

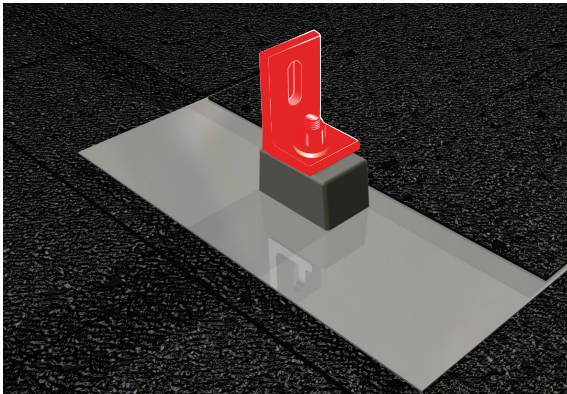


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INSTALL ROOF ATTACHMENTS

Select and install the appropriate roof attachment according to the manufacturer's instructions and the structural calculations for CrossRail Tilt Kit. Typically a connection to the roof structure (i.e. - rafters) is required. Observe all applicable laws, regulations, ordinances and codes, ensuring the integrity of the roof is maintained.

Materials required: appropriate roof attachment product

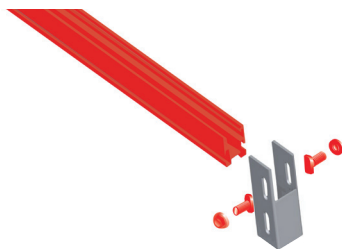


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INSTALL L-FEET

Place the L-Foot on top of the roof attachment with the long leg of the foot perpendicular to the roof ridge, and tighten the attachment fastener according to the manufacturer's instructions.

Materials required: Everest L-Foot, attachment fixtures by 3rd party roof attachment supplier

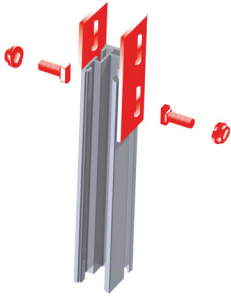


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ATTACH TILT BRACKET TO FRONT TILT LEG

Attach the Tilt Up Kit Bracket on the the Front Tilt Leg as shown. Attach the bracket using two M10 T-Bolts and two M10 serrated hex nuts. Torque to 25.8 lbf-ft (35 Nm). Ensure the indicators on the end of the T-Bolt shank are perpendicular to the channel, indicating the T-Bolt head is properly engaged.

ASSEMBLY: STEP-BY-STEP



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ATTACH REAR TILT LEG

Attach the Rear Tilt Leg to the Tilt Kit Bracket using two M10 T-Bolts and two M10 serrated hex nuts. Torque to 25.8 lbf-ft (35 Nm). Ensure the indicators on the end of the T-Bolt shank are perpendicular to the channel, indicating the T-Bolt head is properly engaged.

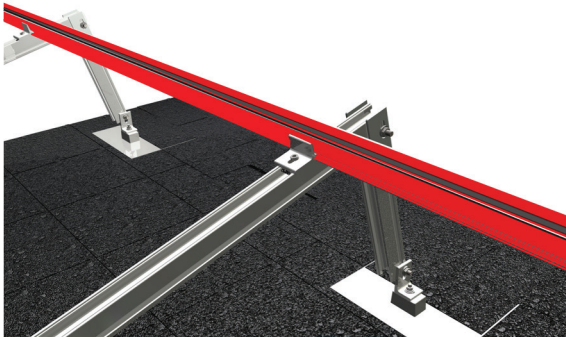


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ATTACH TILT KIT LEG SET TO L-FEET

Position the leg set assembled in Steps 4-5 above so that it is flush against the vertical wall of the L-Foot. Hand tighten the leg set to the L-Feet via two M10 T-Bolts and M10 serrated hex nuts. Using appropriate alignment techniques (i.e. - level, string line, etc.), ensure the appropriate tilt angle and roof clearances are obtained, then torque the T-Bolts to 25.8 ft-lbs (35 Nm). Ensure T-Bolts are properly engaged in the rail channel via the alignment indicator on the end of the bolt shaft.

Materials required: Tilt Kit Leg Sets, M10 T-Bolts, M10 serrated hex nuts



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ATTACH HORIZONTAL RAILS

Attach the horizontal sections of CrossRail 48/80 (depending upon your design criteria), to the tilt kit leg sets via the Climber Sets. Note the maximum distance from the horizontal rails to the support points is 8-inches (see Figure 2). Always be sure to follow the PV module installation guide to ensure the rails are positioned appropriately along the module frame. Torque the climber set to 11.8 lbf-ft (16 Nm).

Materials required: Climber Set, CrossRail 48/80

ASSEMBLY: STEP-BY-STEP



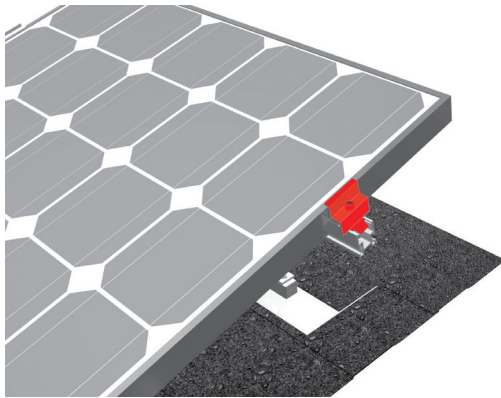
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INSTALL RAIL CONNECTORS (IF REQUIRED)

Align the two rail ends next to each other, and slide the rail connector from below. Attach the rail connector via four M10 T-Bolts and M10 serrated hex nuts. Ensure the T-Bolt alignment indicator is vertically oriented, ensuring proper engagement within the rail channel. Torque to 25.8 ft-lbs (35 Nm).

Materials required: Rail Connector Set, 4x M10 T-Bolts, 4x M10 serrated hex nuts



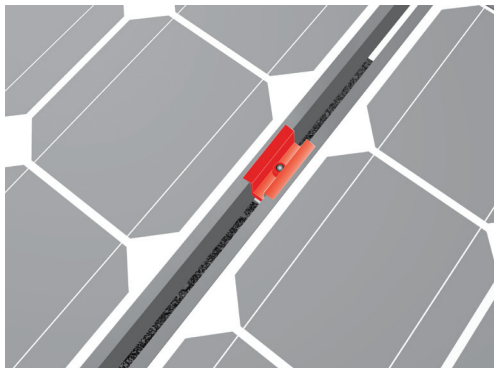
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PV MODULE INSTALLATION - END CLAMPS

Using the end clamps provided, insert the MK2 (slot nut) into the top of the rail channel and rotate clockwise 90 degrees. Slide into position, ensuring the modules are flush against the clamps. Leave a minimum gap of 1" (25mm) from the end of the rail, and torque the M8 bolts to 10.3 ft-lbs (14 Nm). Installer is responsible for ensuring these instructions comply with module manufacturer's assembly instructions!

Materials required: End Clamp Sets, PV Modules



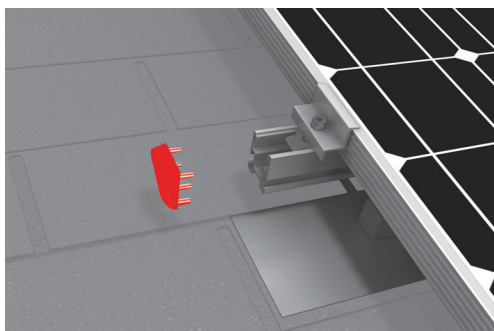
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PV MODULE INSTALLATION - MID CLAMPS

Using the mid clamps provided, insert the MK2 (slot nut) into the top of the rail channel and rotate clockwise 90 degrees. Slide into position, ensuring the modules are flush against the clamps. Torque the M8 bolts to 10.3 ft-lbs (14 Nm). Installer is responsible for ensuring these instructions comply with module manufacturer's assembly instructions!

Materials required: Mid Clamp Sets, PV Modules



OPTIONAL

OPTIONAL STEP: INSTALL RAIL END CAPS

Align rail end caps as shown, and push into rail ends. The pins on the cap should fit into the rail profile with a minimal amount of force.

Materials required: End Caps

TERMS AND CONDITIONS

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