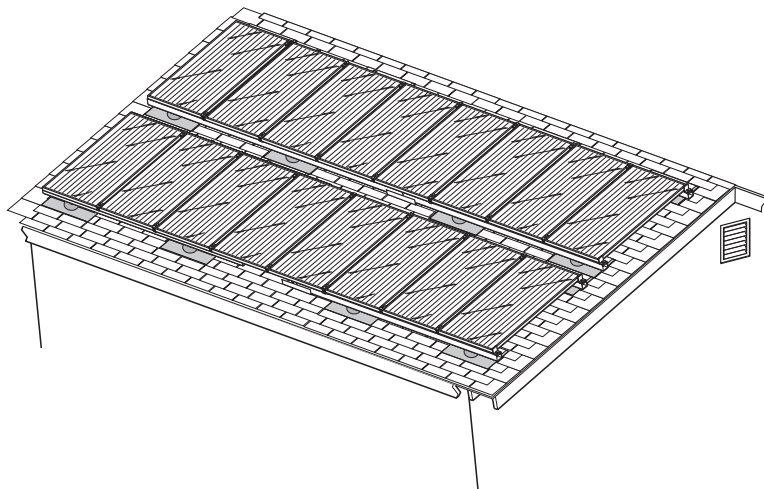




APPLICATION:

The RoofTrac® mounting system consists of support rails and top-down clamping hardware which is integrated with either a TileTrac® or FastJack® attachment device. The RoofTrac® mounting system can be utilized on virtually all standard construction residential roof tops, to install UL1703 approved framed solar modules.



WARNING:

All Professional Solar Products (ProSolar®) are engineered and tested to withstand stated specifications (as stated on published specification sheets) when installed properly. Failure to install properly may decrease the performance of installation.



SAFETY:

All regional safety requirements should be followed when installing Professional Solar Products. All tools and equipment located on the roof should be secured to avoid falling object hazards. All equipment/tools should be properly maintained and inspected prior to use. Any exposed studs should be protectively capped to avoid injury. This installation manual is intended for use by professional installers with a working knowledge of construction principles.

Symbol Legend



Explanation or Install Tip



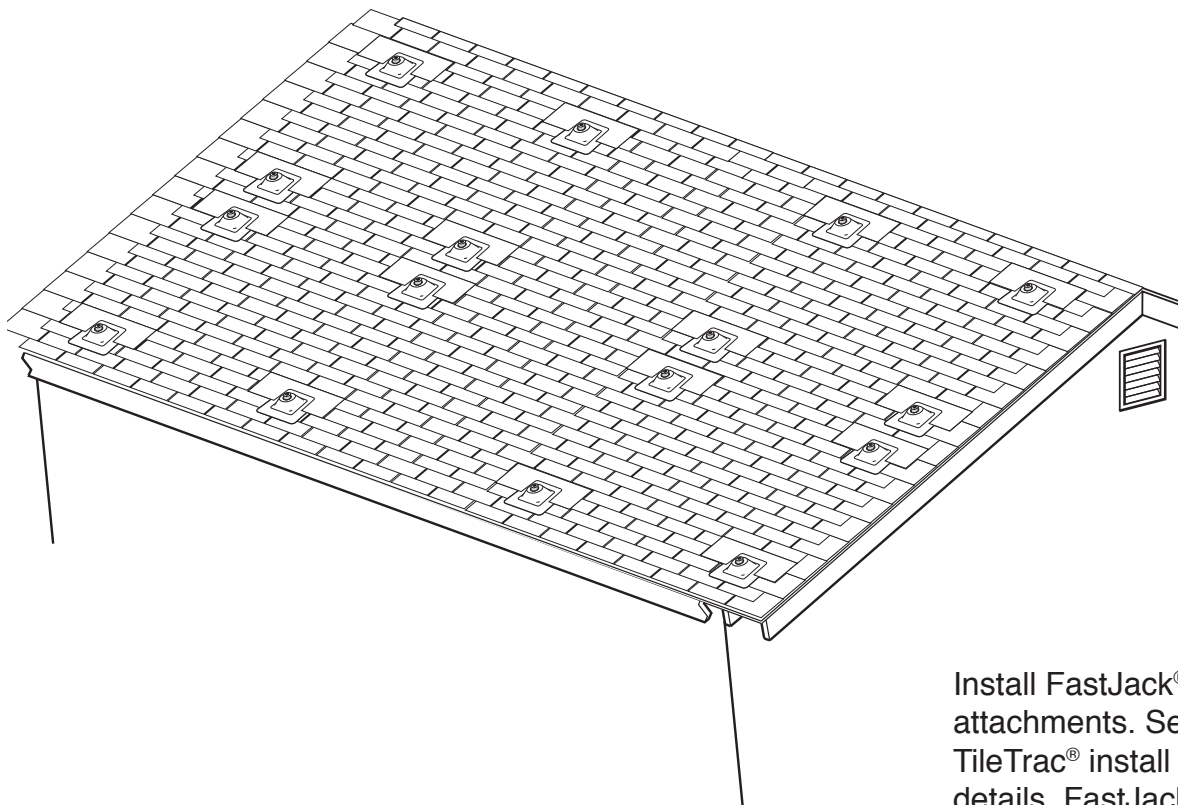
Important Product
Performance Information



Critical for Safety

Tool List

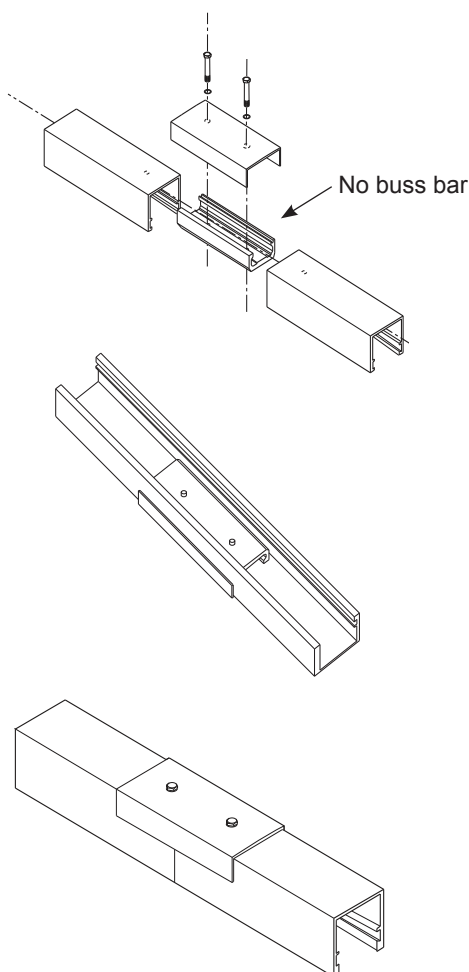
- Cordless impact wrench
- 1/2" Irwin #10 Unibit or 1/2" Milwaukee® step drill bit
- 1/2" power bit
- Torque wrench
- RoofTrac® rail spreader (optional)
- Reciprocating saw
- All-purpose metal adhesive (optional)



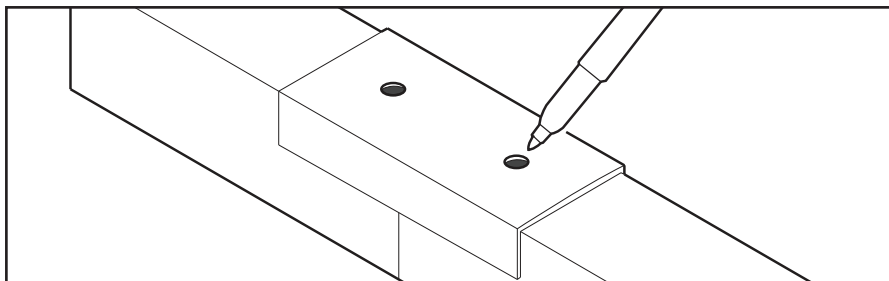
Install FastJack® or TileTrac® roof attachments. See FastJack® or TileTrac® install instructions for details. FastJack® install shown.

Maximum 4 foot on center span with 1-1/2" tall RoofTrac® rail.
Maximum 6 foot on center span with 2-1/2" tall RoofTrac® rail.

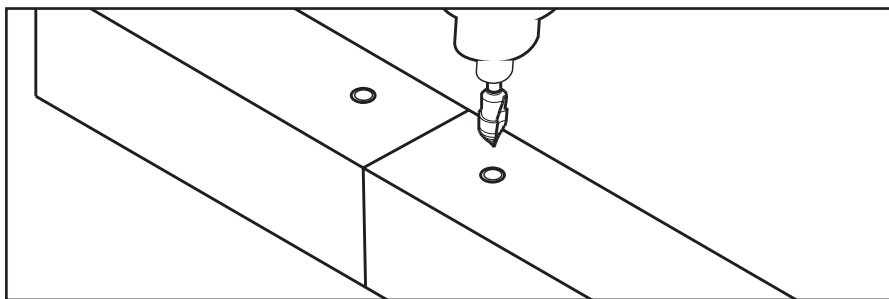
Self-bonding RoofTrac® Rail Splicing Connection



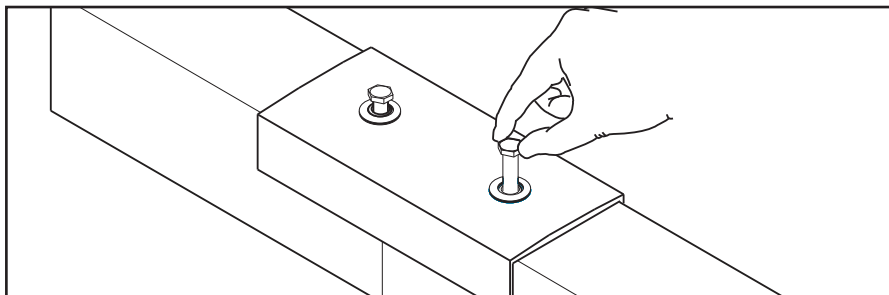
1. Mark with a Sharpie®



2. Drill



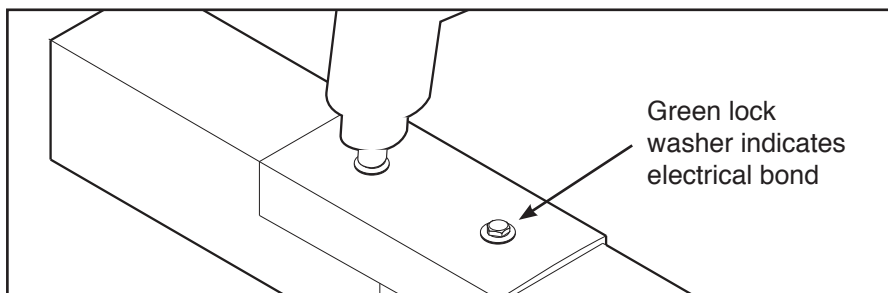
3. Hand-Tighten

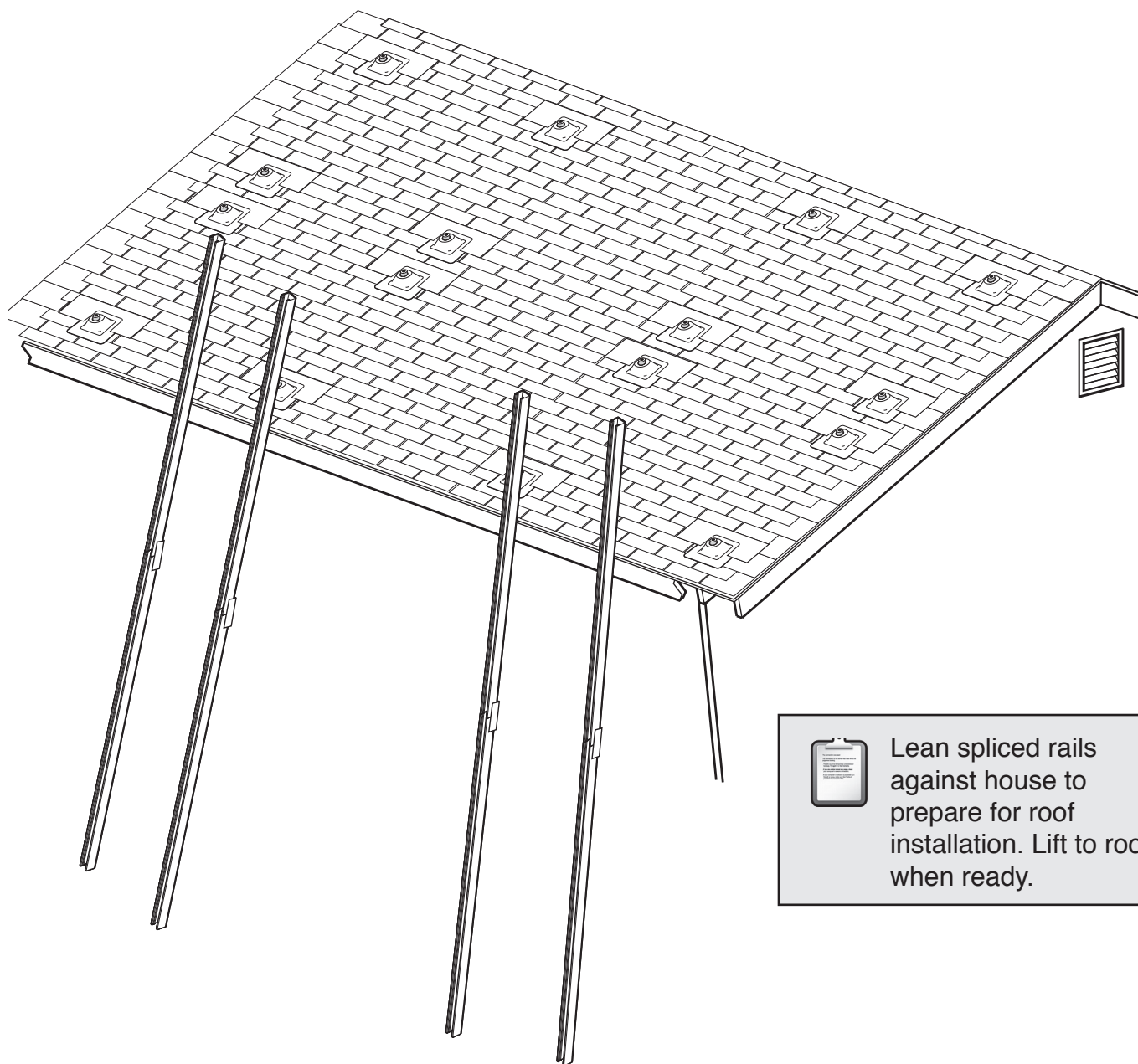


FOR RoofTrac® RAIL BONDING SPLICE

- Drill 1/2" holes at bottom of rails with 1/2" #10 Irwin Unibit® using the rail support as a hole location guide.
- Insert 5/16" bolt through support holes and hand thread into thread splice rail support insert. Fasten to 15 ft-lbs.
- If splicing more than 4 rails, use expansion splice and bonding jumper to allow for rail thermal expansion/contraction.

4. Fasten to 15 ft lb

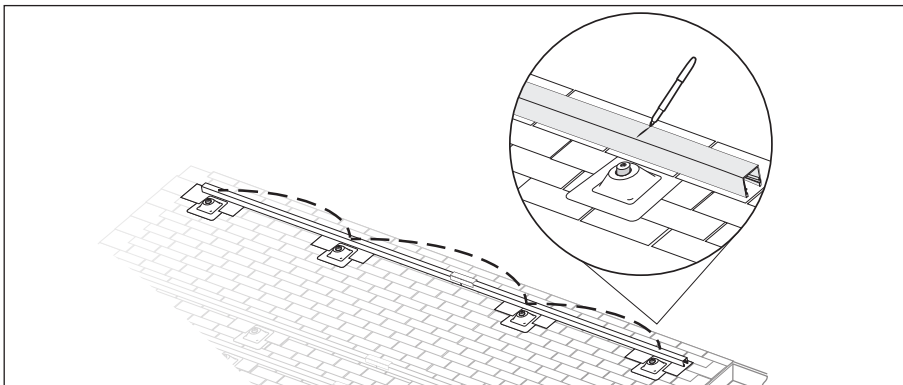




Lean spliced rails
against house to
prepare for roof
installation. Lift to roof
when ready.

Fastening Support Rails

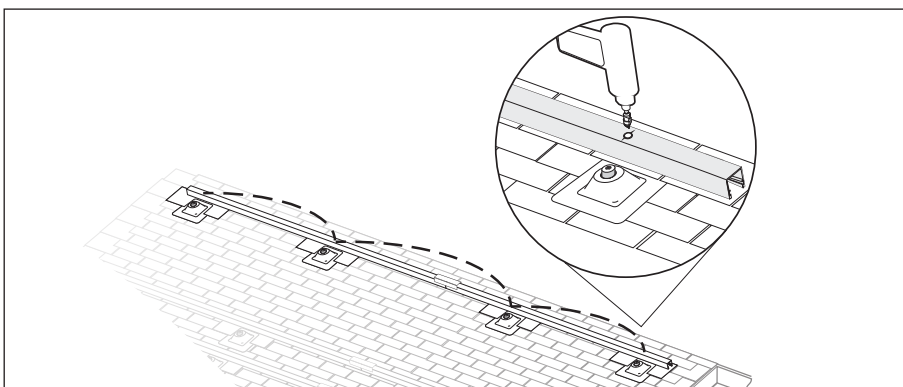
1. Mark rails with Sharpie®



Installation of the RoofTrac® support rails to the attachment (FastJack® shown)

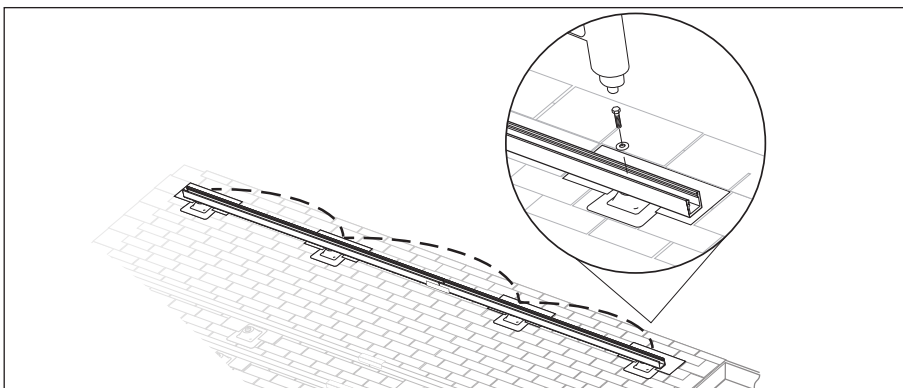
After the attachment has been installed (refer to the attached installation guide for detail), lay the support rail upside down next to the attachments. Mark the channel adjacent to the attachment devices. Align and mark the intersecting “V” groove on the rail and drill a 1/2” locking rail hole through the rail. After drilling the hole in the support rail, place the rail over the attachment feet and fasten.

2. Drill 1/2” holes with #10 Irwin Unibit®



Use of a #10 (1/2”) Unibit® will decrease drill time to approximately 3 seconds per hole.

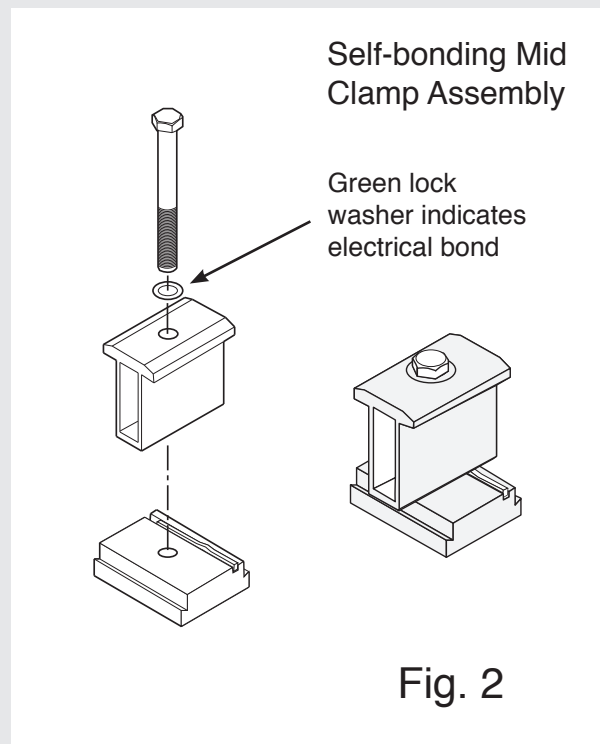
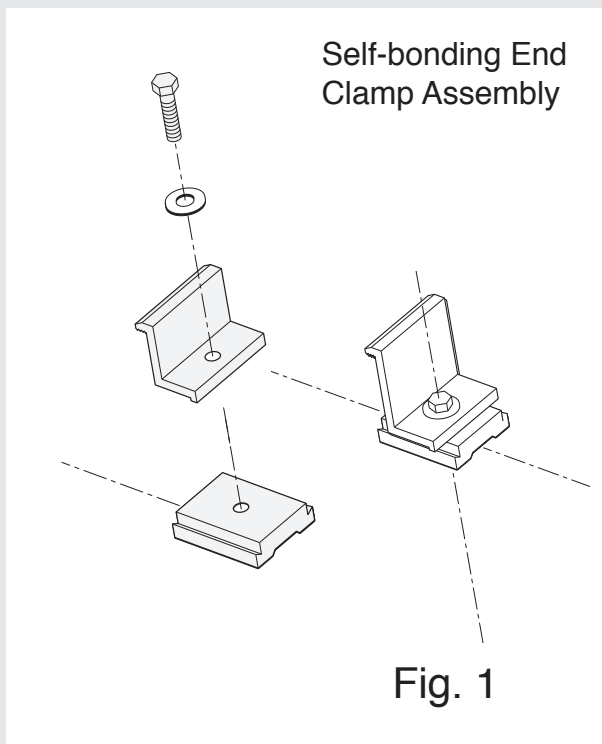
3. Fasten with cordless impact gun



Components Used for Installation



For convenience, it is advisable to **pre-assemble** the bolt, lock washer, and clamp into the sliding insert **prior** to bringing them up to the roof.

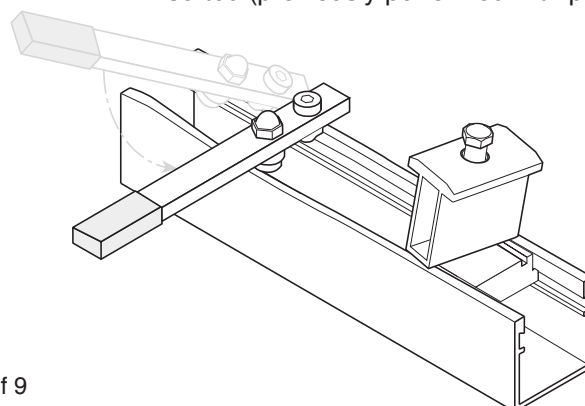


After the support rails have been fastened, you are ready to install the solar modules. There are two sets of clamps: the outside clamps (end clamp) (Fig. 1), and the inter-module clamps (mid clamp) shown (Fig. 2) that install between the modules.

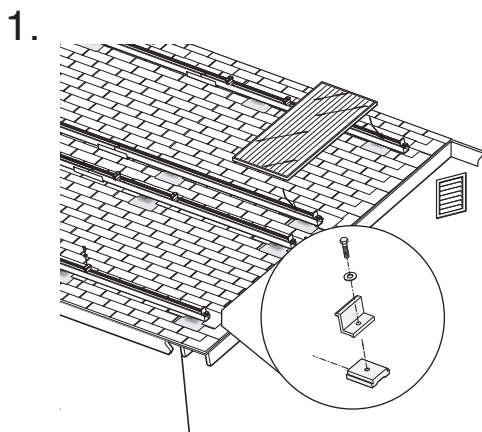
Please note that all modules and clamps are specially designed to fit a specific brand of module as specified in the ordering guide.

NOTE: Clamping hardware is not engineered or intended for use on support rail other than the ProSolar® RoofTrac® rail.

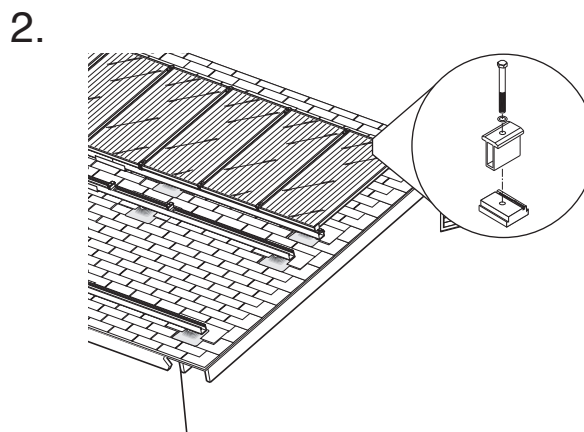
RoofTrac® Rail Spreader
Allows clamp/nut to be easily removed or inserted (previously performed with pliers)



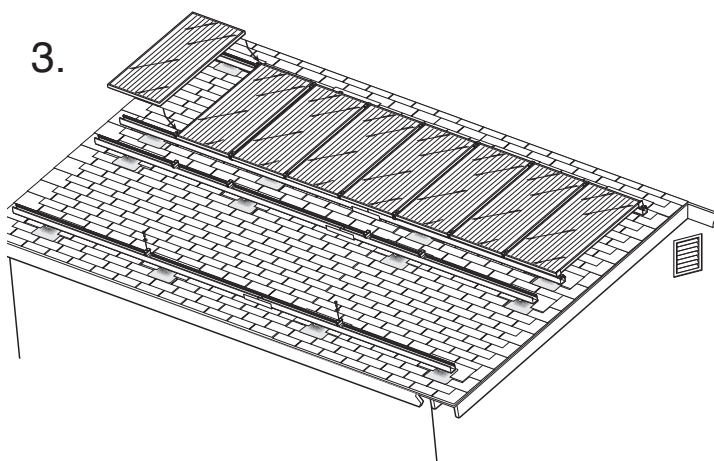
Installing Modules



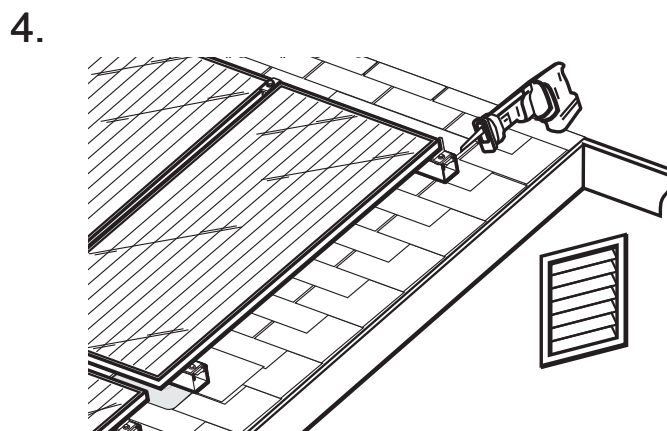
Slide the two end clamps near the end of the support rail and install your end module first. Carefully square the module to the frame and tighten the clamps using a 1/2" box wrench or drive socket. We recommend a maximum torque of 12–15 foot pounds to prevent damage to the module.



After the first module is secured, slide two mid clamp sets onto the first module side frame. They are designed to stay in place, allowing you to slide and align the next module into place. Repeat this procedure until all modules are installed onto support rail.

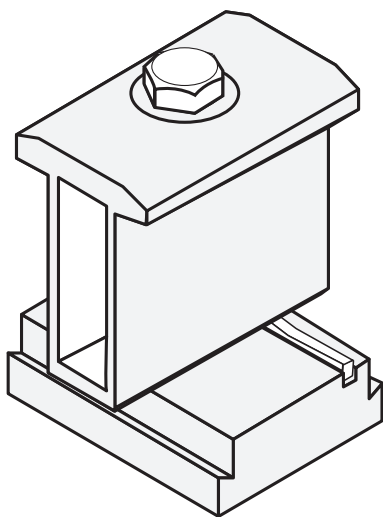


Upon installation of the last module in the panel, install the module end clamp to the end of the last module. Before fully tightening the bolts, make any adjustments needed to create a square and even array.



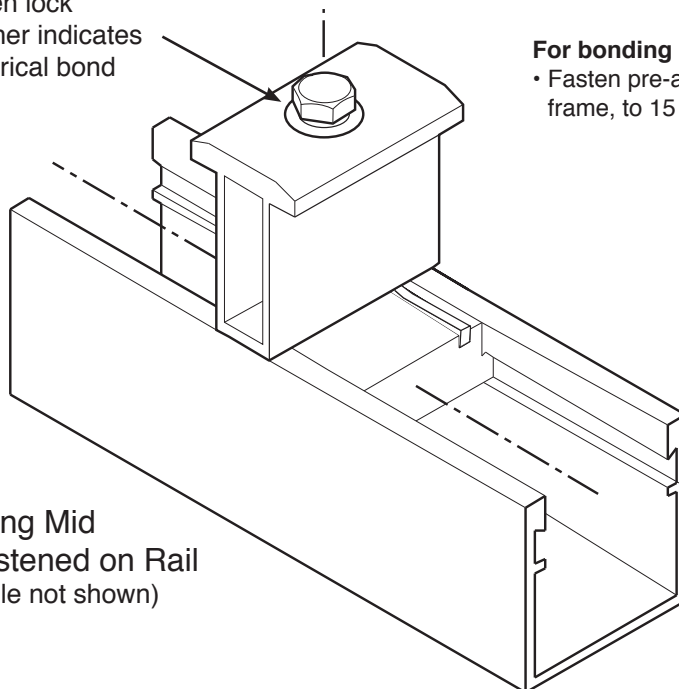
To complete the installation, cut off any excess support rail not being used with a reciprocating saw. Attach optional rail end caps.

Bonding and Grounding (Patent Pending)



Assembled Self-bonding
Mid Clamp With SS Bus Bar

Green lock
washer indicates
electrical bond



Self-bonding Mid
Clamp Fastened on Rail
(Solar Module not shown)

Module Frame Design: double wall, aluminum,
1.2"–2.0" tall, 0.059"–0.250"
thickness, UL1703 or equivalent
tested module.

UL467 standard tested bonding equipment for use with
Professional Solar Products (ProSolar®) support rail.

Bonding of module to RoofTrac® rail via ProSolar® rail
channel nut using buss bar.

Bonding of RoofTrac® rail to RoofTrac® rail via ProSolar®
UL467 tested universal splice kit (splice insert and splice
support).

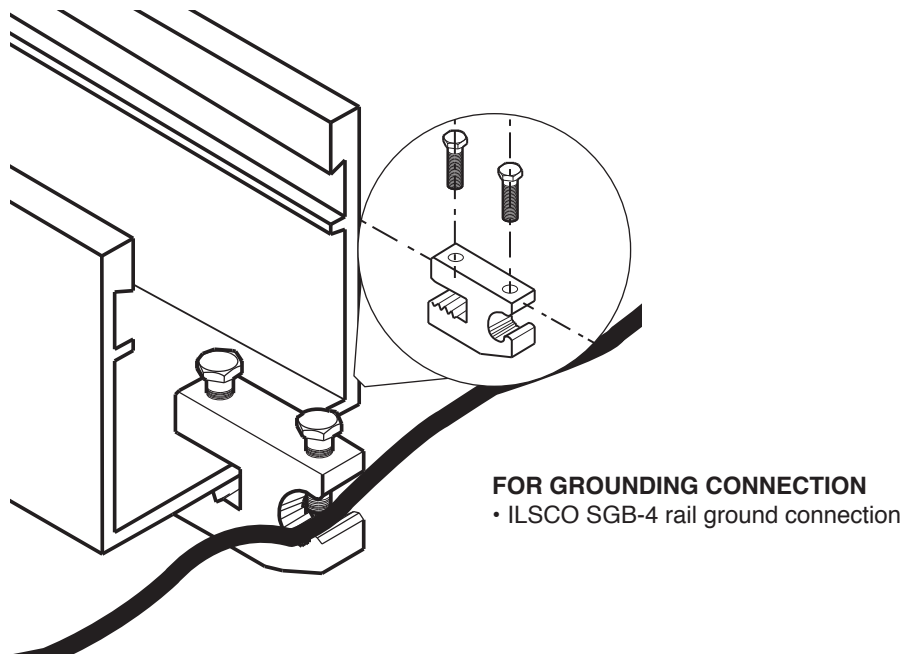
Grounding of RoofTrac® rail via IlSCO SGB-4 rail lug.

System to be grounded per National Electrical Code (NEC).
See NEC and/or Authority Having Jurisdiction (AHJ) for
grounding requirements prior to installation. See final
run (racking to ground electrode) grounding equipment
installation instructions for specific installation information.

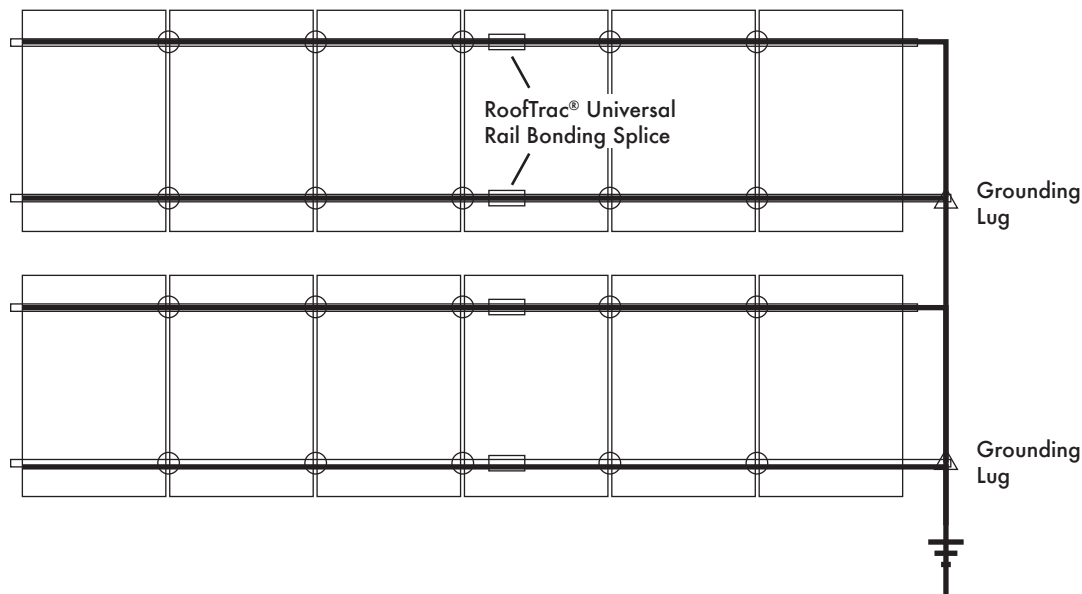
For bonding module frame and clamps to support rail

- Fasten pre-assembled mid-clamp assembly to module
frame, to 15 ft-lbs.

Grounding Wire Installation



BASIC WIRING DIAGRAM





Listing Constructional Data Report (CDR)

1.0 Reference and Address			
Report Number	100779407LAX-003	Original Issued: 14-Sep-2012	Revised: 28-Apr-2015
Standard(s)	UL Subject 2703 - Outline of Investigation Rack Mounting Systems and Clamping Devices for Flat-Plate Photovoltaic Modules and Panels. Issue #2: 2012/11/13		
Applicant	Professional Solar Products, Inc.	Manufacturer	Professional Solar Products, Inc.
Address	1551 S. Rose Avenue Oxnard, CA 93033	Address	1551 S. Rose Avenue Oxnard, CA 93033
Country	USA	Country	USA
Contact	Stan Ullman	Contact	Stan Ullman
Phone	(805) 486-4700	Phone	(805) 486-4700
FAX	(805) 486-4799	FAX	(805) 486-4799
Email	s@prosolar.com	Email	s@prosolar.com

2.0 Product Description	
Product	Photovoltaic Racking System
Brand name	ProSolar
Description	The product covered by this listing report is a rack mounting system. It is designed to be installed on a roof. It will be secured by means of Fast Jack or Tile Trac attachments, depending on the type of roof it is intended to be installed upon. The Rooftrac mounting system is comprised of support rails and top-down clamping hardware. This device can be used on most standard construction residential roof-tops. This system is in compliance with the mounting, bonding and grounding portions of UL Subject 2703. This system has the following fire class resistance ratings: Class A for Steep Slope Applications when using Type 1 or Type 2, Listed Photovoltaic Modules. Class A for Steep Slope Applications when using Type 2, Listed Photovoltaic Modules with or without the wind skirt. Class A for Low Slope Applications when using Type 1, Listed Photovoltaic Modules when a minimum of 12" gap between the roof surface and the bottom of the module is maintained. Class A for Low Slope Applications when using Type 2, Listed Photovoltaic Modules when a minimum of 14" gap between the roof surface and the bottom of the module is maintained. RoofTrac has different types of bonding and grounding, below is a list of them: Bonding of module-to-Roof Trac rail via Weeb PMC Bonding of module-to-RoofTrac rail via ProSolar rail channel nut using buss bar Bonding of module-to-Roof Trac rail via Ilsco SGB-4 lugs Bonding of Roof Trac rail-to-Roof Trac rail via Weeb Bonding Jumper-6.7 Bonding of Roof Trac rail-to-Roof Trac rail via Ilsco SGB-4 Lugs Bonding of RoofTrac rail-to-RoofTrac rail via ProSolar UL 467 tested universal splice kit (Splice Insert and Splice Support) Issuance of this report is based on testing to PV module frames with a height of 1 1/4 inch to 2 inches The grounding of the entire system is intended to be in accordance with the latest edition of the National Electrical Code, including NEC 250: Grounding and Bonding, and NEC 690: Solar Photovoltaic Systems. Any local electrical codes must be adhered in addition to the national electrical codes. This product investigation was performed only with respect to specific properties, a limited range of hazards, or suitability for use under limited or special conditions. The following risks and other properties of this product have not been evaluated: electric shock, Ultraviolet light exposure.
Models	RoofTrac
Model Similarity	N/A
Ratings	Fuse rating: 20 A Mechanical Load: 30 PSF Fire Class Resistance Rating: Class A for Steep Slope Applications when using Type 1 and Type 2, Listed Photovoltaic Modules. Class A for Low Slope Applications when using Type 1 and Type 2, Listed Photovoltaic Modules
Other Ratings	Mechanical load was tested using 60 Cell Canadian Solar Modules model CS6P with 40mm frame height and maximum span of 48 inches using 4 inch and 6 inch TileTrac or FastJack posts with 1-1/2 inch tall RoofTrac rail. And maximum span of 72 inches using 4 inch and 6 inch TileTrac or FastJack with 2-1/2 inch tall RoofTrac rail.