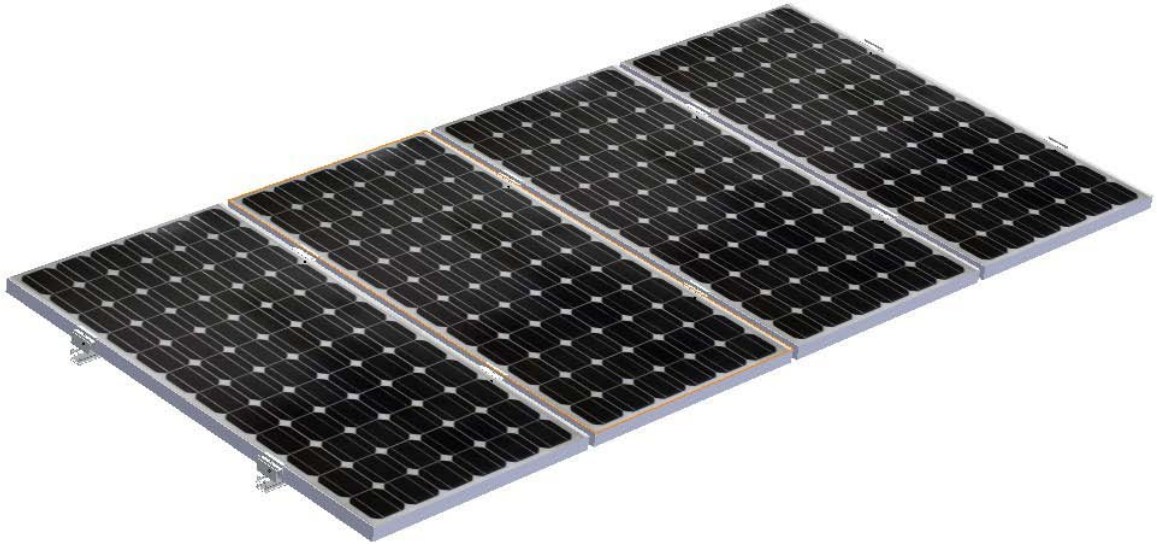


Radiant PV-RooftopRac™ System Planning and Installation



The PV-RooftopRac™ System has been developed as a universal system for roof-mounting on pitched roofs. The use of patented (pending) aluminium base rails, Click-In Clamp and Base Rail Pre-Clamp technology eliminates custom cutting and enables particularly fast installation.

Please review this manual thoroughly before installing your PV-RooftopRac™ system. This manual provides (1) supporting documentation for building permit applications relating to PV-RooftopRac™ Universal PV Module Mounting system, and (2) planning and installation instructions for RMS™.

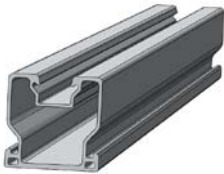


The installer is solely responsible for:

1. Complying with all applicable local or national building codes, including any that may supersede this manual;
2. Ensuring that Rack and other products are appropriate for the particular installation and the installation environment;
3. Ensuring that the roof, its rafters, connections, and other structural support members can support the array under building live load conditions (this total assembly is hereafter referred to as the roof rafter assembly);
4. Using only rack parts and installer-supplied parts as specified by Rack (substitution of parts may void the warranty and invalidate the letter of certification on page 2);
5. Ensuring that lag screws have adequate pullout strength and shear capacities as installed;
6. Maintaining the waterproof integrity of the roof, including selection of appropriate flashing; and
7. Ensuring safe installation of all electrical aspects of the PV array.

Installation tools

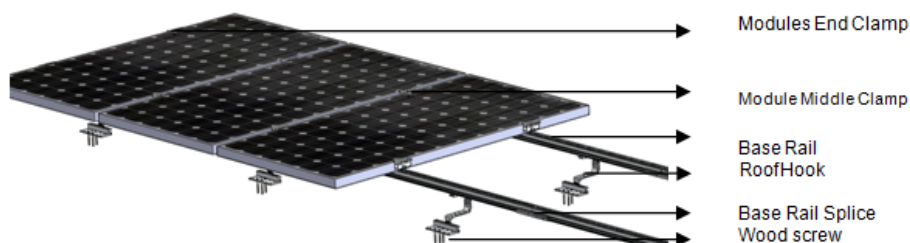
1. 6 mm Allen key;
2. Cordless drill;
3. Open-end spanner set 9, 10, 17, 19 mm (required only for mounting with hanger bolts);
4. Torx-30 (AW 30) bit;
5. Angle grinder with stone disk;
6. Power Cord;
7. If necessary, timber to shim the roof hooks.

1. PV-RooftopRac™ Components for Roof Installation

Overview of system components			
			
Base Rail40	Base Rail 60	Modules middle Clamp	Modules End Clamp
			
RoofHook45/136-166	Hanger bolt M10/200	Base Rail40/60 Splice	galvanised Corrugated Screw 8x80mm with Gaske

2. Installation preparation

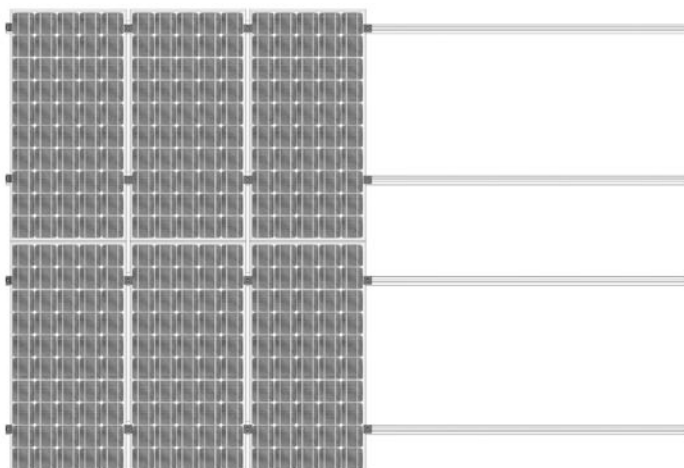
Overview of system components



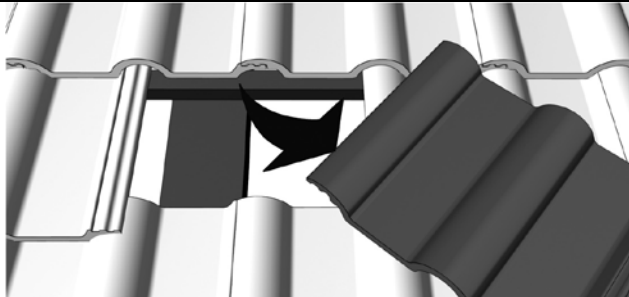
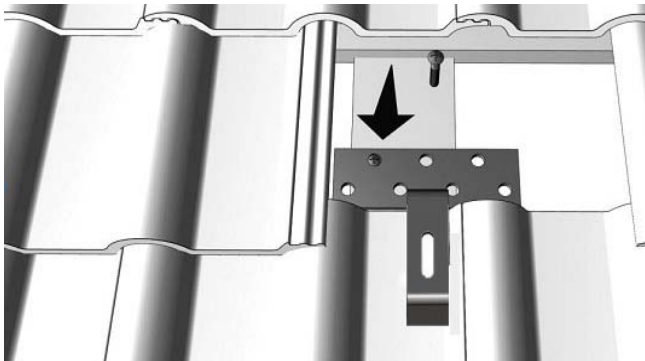
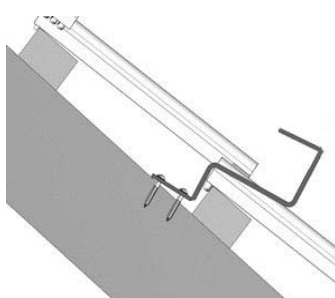
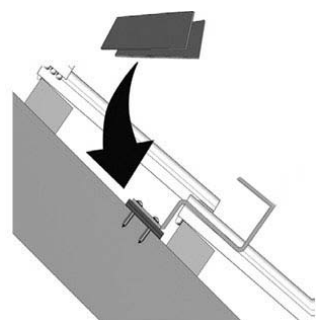

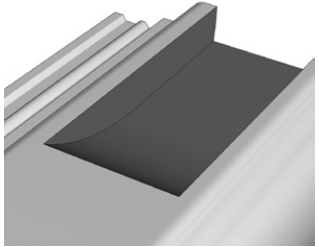

Planning the module area

1. Number of modules in the vertical direction x module height (please check also the installation manual of the manufacturer of the solar module)
2. Number of modules in horizontal direction x (module width + 24 mm) + 30 mm
3. Horizontal spacing of the roof hooks up to 2.0 m*
4. Vertical spacing of the roof hooks = approx. 1/2 to 3/4 of module height
5. Distance between the modules: 24 mm

* Caution: Installations that are exposed to the wind or are located on the edge or corners of the roof may make it necessary to leave smaller spaces between modules.

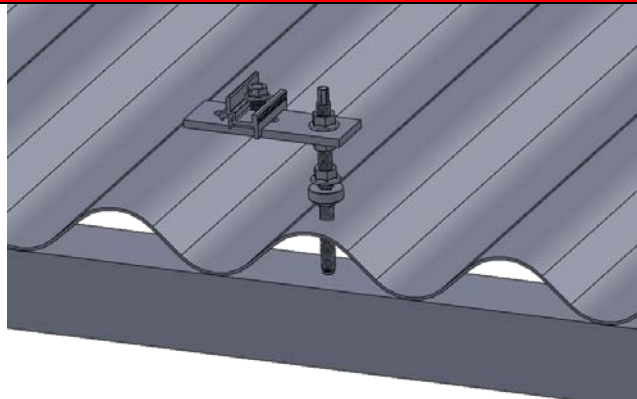


3. Installation Instruction

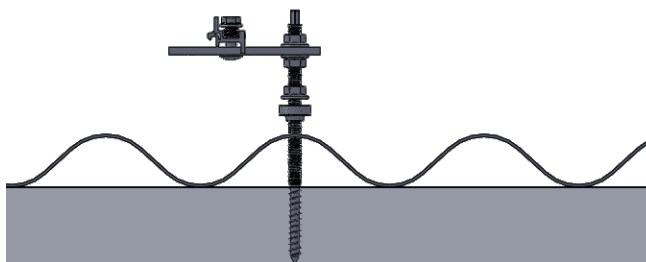
Roof Hook Installation	
1. Determine the positions of the roof hooks according to your plans. Remove the roof tiles at the marked positions or, if possible, simply lift them up slightly.	
2. Fix the roof hooks to the rafter using three 8 x 80 mm wood screws.	
3. The roof hook must not press against the roof tile. If necessary, shim the roof hook with wood.	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Incorrect</p>  </div> <div style="text-align: center;"> <p>Correct</p>  </div> </div>
4. If necessary, use an angle grinder or hammer to cut a recess in the tile that covers the roof hook at the point where the roof hook comes through so that the tile lies flat on the surface. If grooved tiles are used, it will also be necessary to cut a recess in the lower tile.	 
5. Caution! Do not use fitted roof hooks as a ladder, as this extreme point load could damage the tile below.	

Hanger bolt Installation

6. Variation for installation on corrugated metal
In the case of corrugated roof cladding, hanger bolts are used instead of roof hooks. Drill through the roof cladding at the planned location and screw the hanger bolts into the purlins. Then mount the brackets.

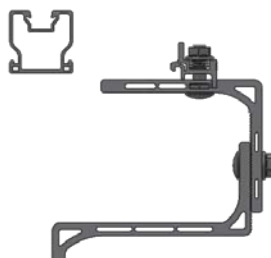


7. Cross-section of a hanger bolt installation. Take special care that the nut tightly fastens the sealing washer without damaging the roof cladding. When performing the installation, take care that the thread of the hanger bolt does not cover the long hole in the bracket.

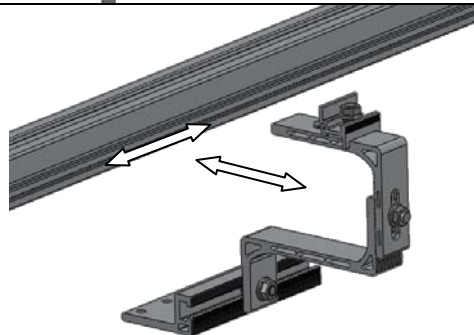


Base Rail Installation

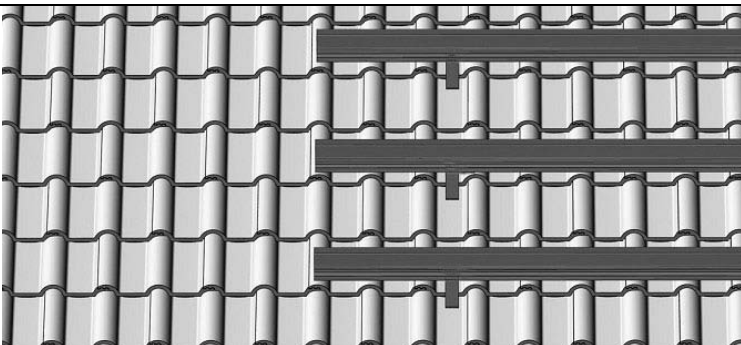
8. Installation of the rails on roof hooks, If your set of rails consists of rails of different lengths, always begin with the shortest piece. Install the framing for each row of modules loosely on the roof hooks, put the base rail slide into clicktop of roofhook, and fasten tightly using the nut. (recommended torque is 18 Nm).



10. An optimum adjustment of the vertical and horizontal position can be made by taking advantage of the long hole in the roof hooks and fasten tightly using the nut. (recommended torque is 18 Nm).



11. Position the first frame rails for each row and fasten them temporarily to the roof cladding using a cord. Tighten the Allen bolts or the nuts on the Klicktop nut that are used to fasten the roof hooks/hanger bolts (recommended torque is 18 Nm). Please also pay attention to Figure 10.

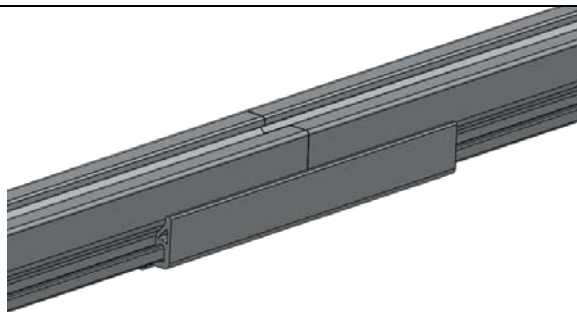


Splice Installation

12. Installation of the splice with base rails to connect multiple rails together, put the splices under the rails halfway, put other rail on the halfway. Fasten the first M10*12 Allen bolt firmly using the Allen key. Fasten the other side M10*12 Allen bolt firmly using the Allen key.



13. Tighten the second M10*12 Allen bolt using the Allen key. Fasten the other side M10*12 Allen bolt firmly using the Allen key. The connection is finished.

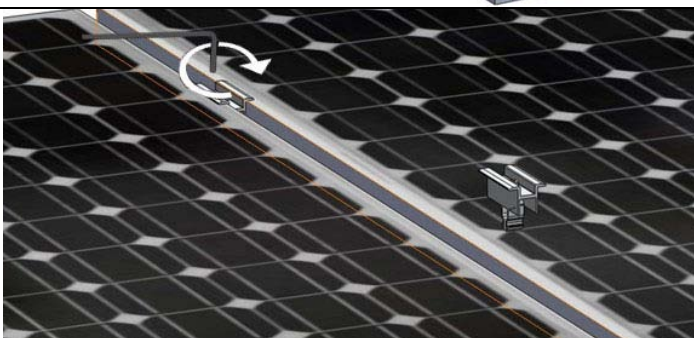


PV Module Installation

14. Put the module end clamp inset the base rail, tightly against the module and fasten tightly using the Allen bolt (recommended torque is 15 Nm).



15. Put module middle clamp inset the rails from above, place it firmly against the module and fasten loosely (approx. 2 - 3 turns). Now inset the next module against the previously installed module and tighten the inter-module clamp using the Allen key (recommended torque is 15 Nm).



16. Now slide in the first module of the next row from above onto the corresponding module of the row beneath. A separation from the lower module can be maintained for optical reasons. A module middle clamp can be used as a separator, so that the vertical and horizontal separation of the modules is identical. Continue mounting the modules as described in steps 14 to 16 until all modules are installed. The installation is finished.





15 Years Standard Warranty Terms and Conditions

RADIANT International ("RADIANT") warrants to the original purchaser ("Purchaser") of product(s) that it manufactures ("Product") at the original installation site that the Product shall be free from defects in material and workmanship for a period of ten (15) years, except for the anodized finish which shall be free from visible peeling, or cracking or chalking under normal atmospheric conditions, from the earlier of:

- 1). the date the installation of the Product is completed, or;
- 2). 30 days after the purchase of the Product by the original Purchaser.

The Warranty does not apply to any foreign residue deposited on the finish. All installations in corrosive atmospheric conditions are excluded. The Warranty is VOID if the practices specified by AAMA 609 & 610-02 – "Cleaning and Maintenance for Architecturally Finished Aluminium" (www.aamanet.org) are not followed by Purchaser. This Warranty does not cover damage to the Product that occurs during its shipment, storage, or installation. This Warranty shall be VOID if installation of the Product is not performed in accordance with RADIANT's written installation instructions, or if the Product has been modified, repaired, or reworked in a manner not previously authorized by RADIANT IN WRITING, or if the Product is installed in an environment for which it was not designed.

RADIANT shall not be liable for consequential, contingent or incidental damages arising out of the use of the Product by Purchaser under any circumstances. If within the specified Warranty periods the Product shall be reasonably proven to be defective, then RADIANT shall repair or replace the defective Product, or any part thereof, in RADIANT's sole discretion. Such repair or replacement shall completely satisfy and discharge all of RADIANT's liability with respect to this Limited Warranty. Under no circumstances shall RADIANT be liable for special, indirect or consequential damages arising out of or related to use by Purchaser of the Product. Manufacturers of related items, such as PV modules and flashings, may provide written warranties of their own. RADIANT's Limited Warranty covers only its Product, and not any related items.