



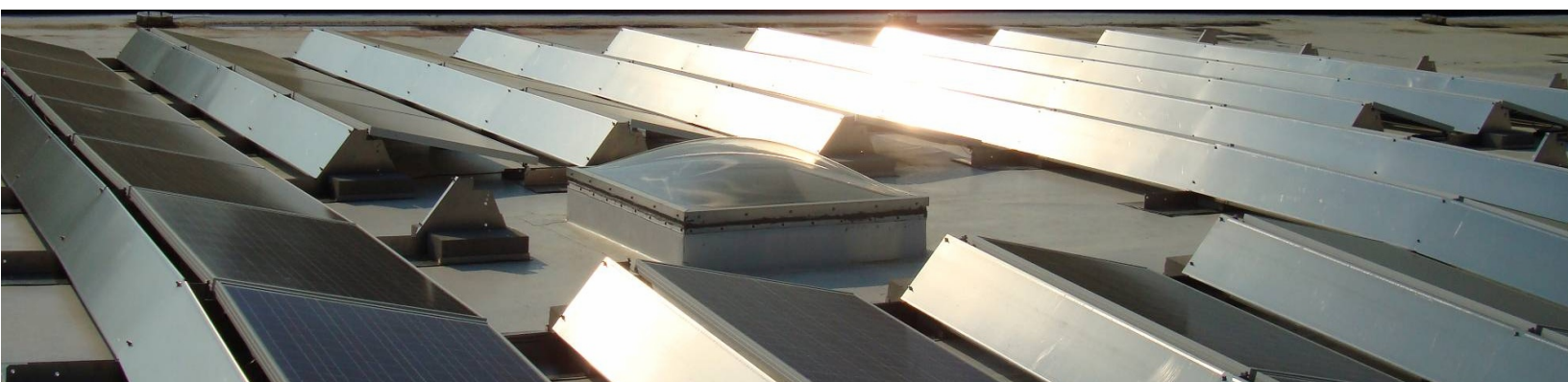
*Advancing solar mounting systems  
one solution at a time.*

## **Polar Bear Installation Manual**

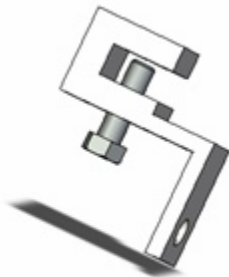
**More Product Information**

**[info@panelclaw.com](mailto:info@panelclaw.com)**

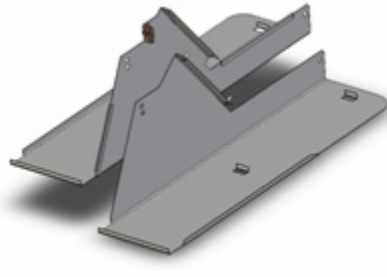
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This is a parts list for a basic Polar Bear installation not requiring mechanical attachment. A separate installation manual for the Polar Bear Connector (mechanical attachment) is available.



**Claw (1)**



**Support (2)**



**Deflector (3)**

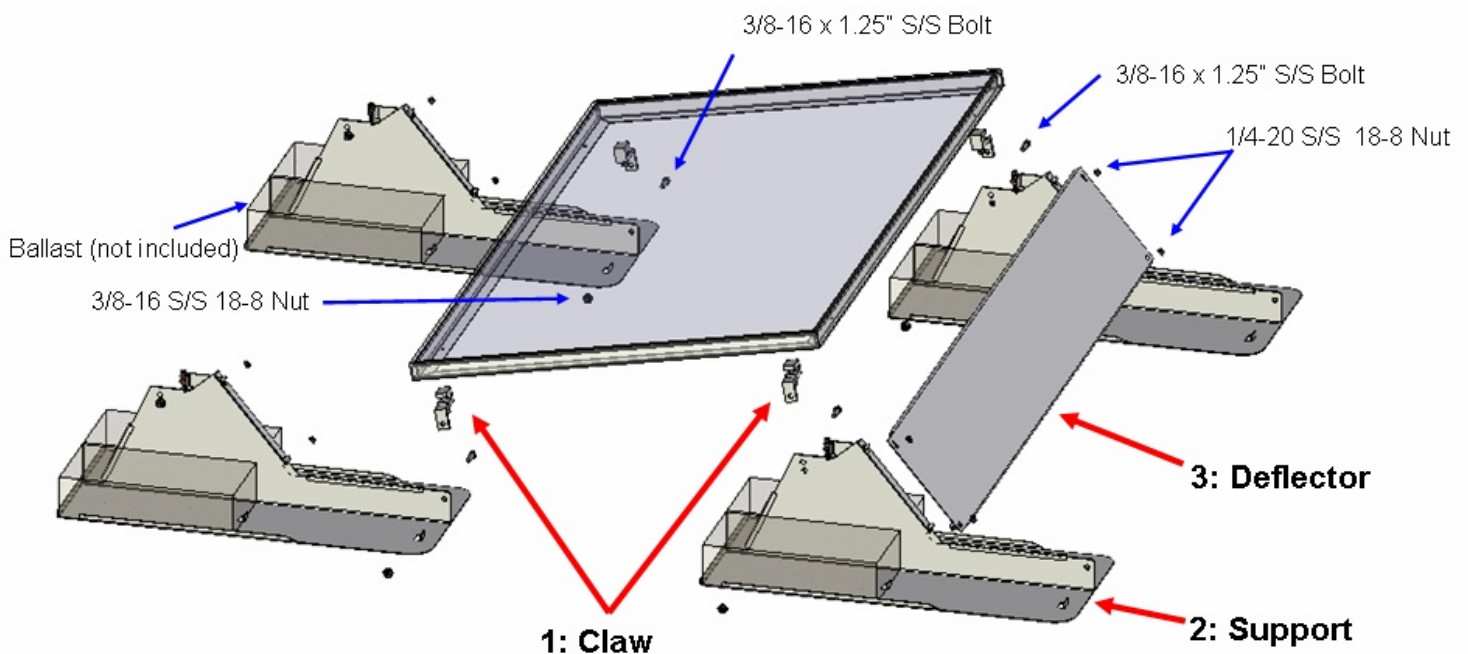
### 1. Claw

- (1) pre-installed hex head cap screw 3/8-16 x 1.25" S/S 18-8

### 2. Support

- (2) Hex head cap bolts 3/8-16 x 1.25" S/S 18-8
- (2) Serrated flange nuts 3/8-16 S/S 18-8
- (2) Serrated flange nuts 1/4-20 S/S 18-8
- (1) Studded flange support unit with pre-installed roof protection pad
- (1) Slotted flange support unit with pre-installed WEEBLug 6.7 electrical ground lug and hem lock mechanism and roof protection pad

### 3. Deflector



## Introduction:

The Polar Bear flat roof photovoltaic module mounting system has been extensively tested, undergoing individual component finite element analysis, computational fluid dynamics modeling, static load modeling and wind tunnel testing. All testing has been conducted by third parties and reported to PanelClaw, Inc.

Electrical grounding of the Polar Bear system is done through the use of the WEEB-Lug 6.7 manufactured by Willey Electronics LLC. The WEEB-Lug 6.7 is a UL467 listed, outdoor rated product that is pre-installed on each Polar Bear Support according to Willey Electronics' WEEBLug-6.7 installation specifications.

Additionally, every Polar Bear Support includes factory installed roof protection pads that also serve to increase the system's coefficient of static friction.

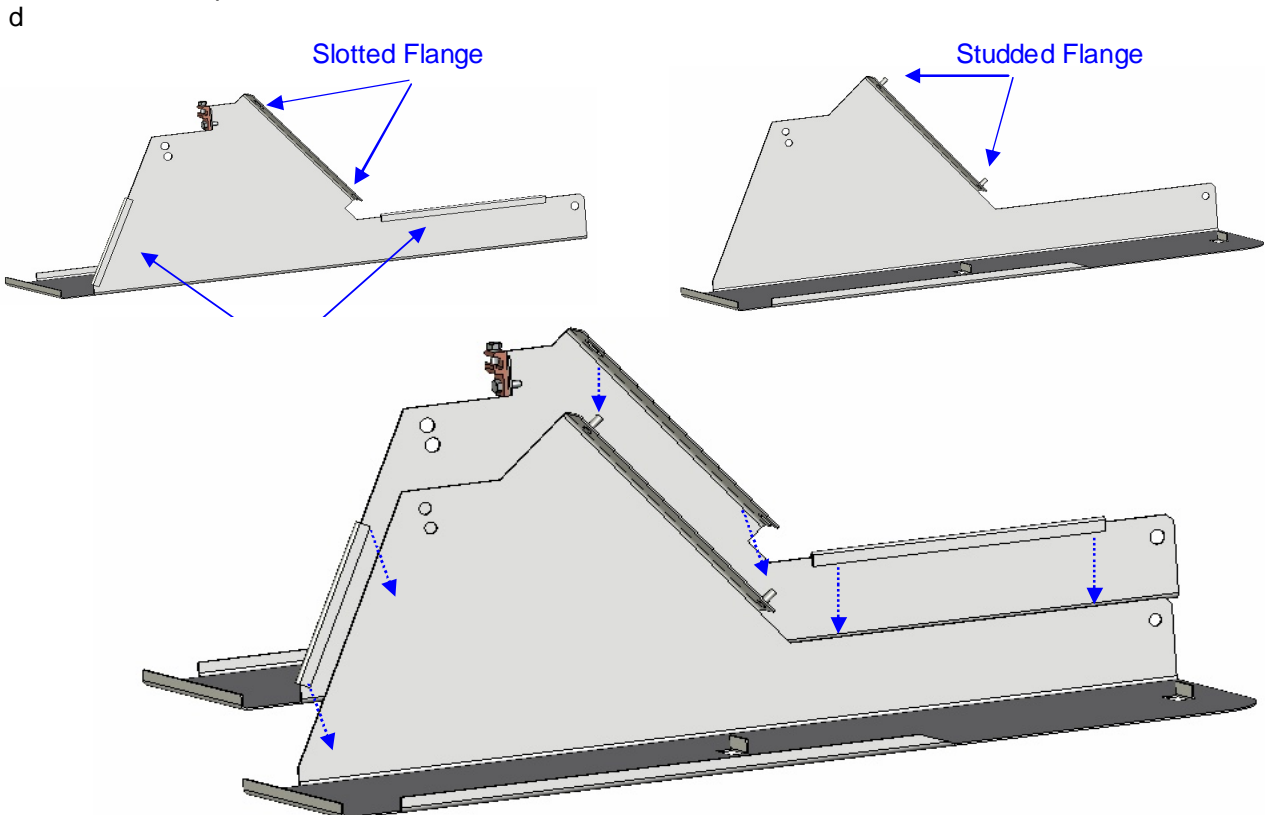
At PanelClaw, Inc. we aim to do everything in the factory to save you installation time on the roof. We are product to offer the easy to install, easy to maintain, feature loaded Polar Bear flat roof photovoltaic mounting system to you. Please follow the 7 easy steps below for system installation.

## Step 1. Array Perimeter

Mark array perimeter using a chalk line or similar method.

## Step 2. Support Assembly

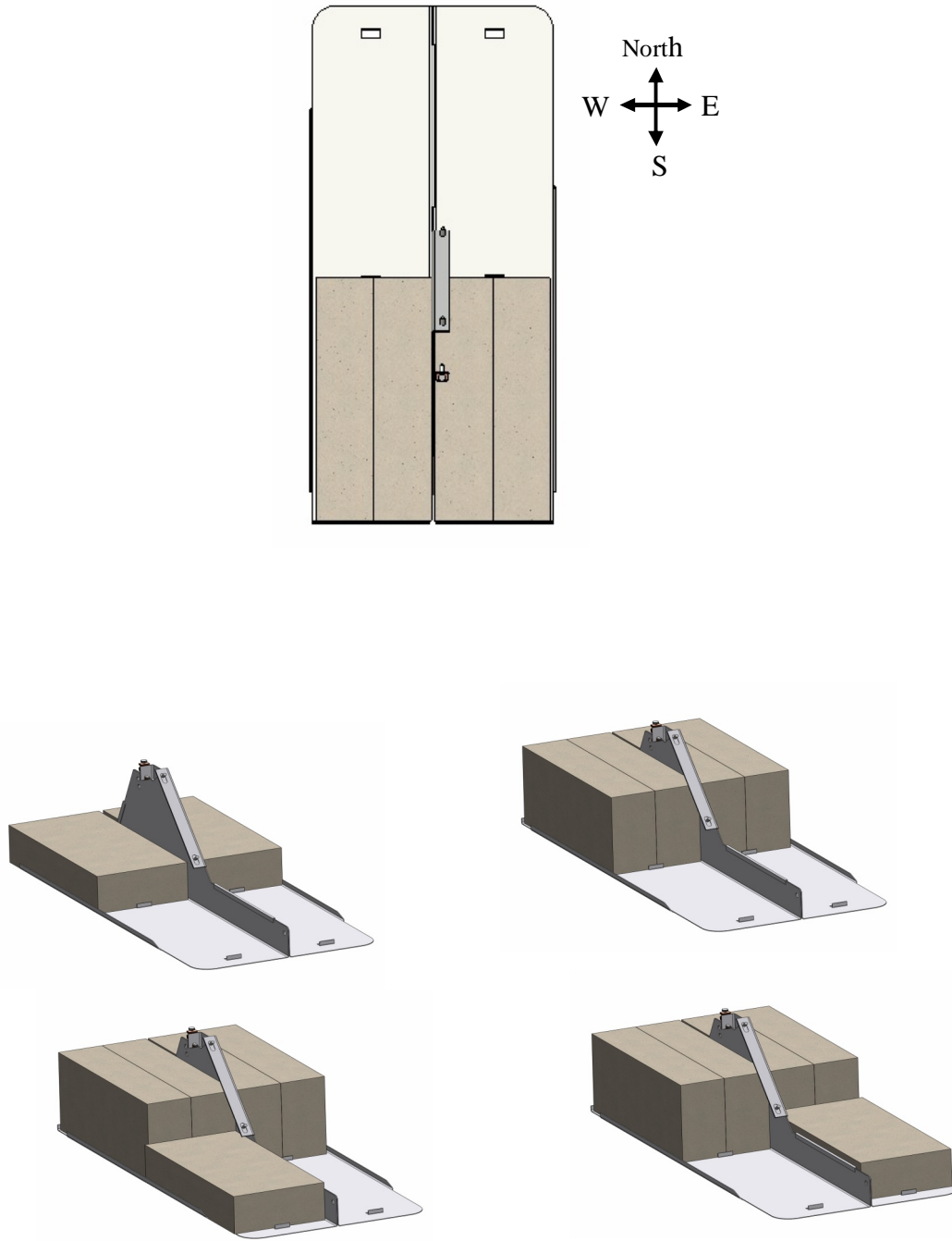
Assemble the slotted flange and slotted flange units to form the Support. No tools are required for Support assembly. The slotted flange unit will fit over the flange of the slotted unit. Hemlocks on the back and front of the slotted unit will slip over the slotted unit.



### Step 3. Support Layout

Layout the Supports and add the specified quantity of ballast blocks per PanelClaw specifications and array “bill of materials.”

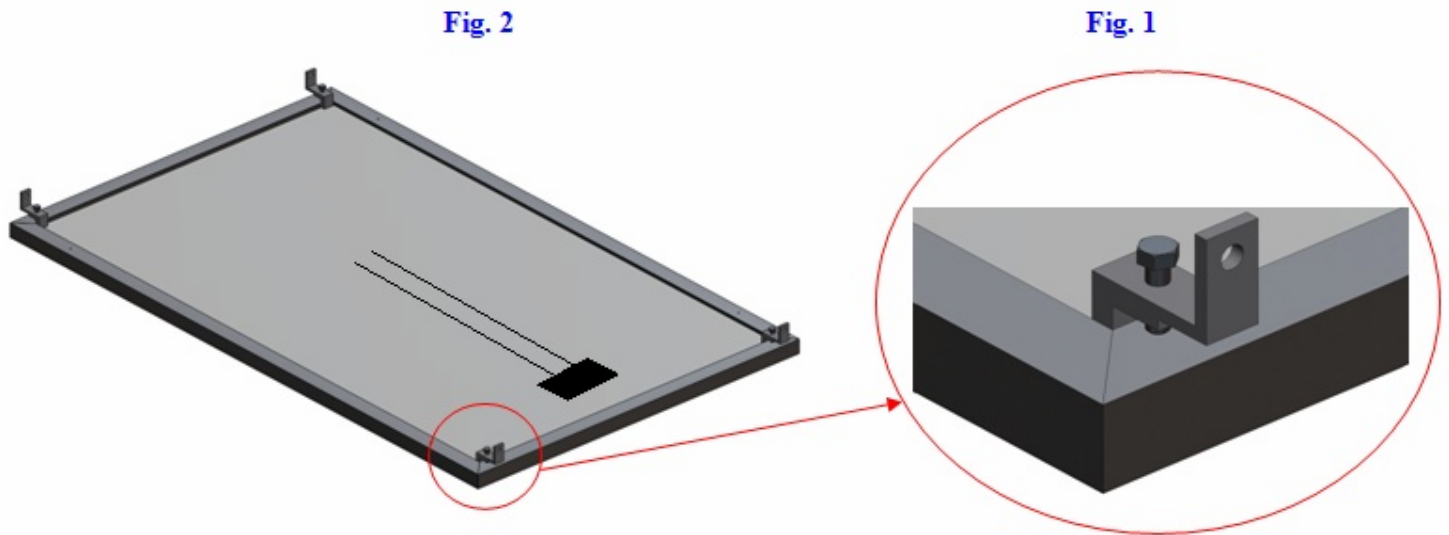
Each Support should be laid out such that the high end faces South and the low end faces North. Each Support will accommodate up to five Solid Cap Concrete blocks (not provided) with nominal dimensions of 4” x 8” x 16” and nominal weight of 26 lbs. each. Various possible ballast configurations are shown below. Other usable Solid Cap block sizes include: 8” x 8” x 16” and 2” x 8” x 16”.



## Step 4. Claw Attachment to Module

Place Claw clamps over the module frame flange on the end of the module and tighten the 3/8-16 x 1.25" 18-8 S/S hex head cap screw securely. Ensure that the Claw is flush with both the long and short lengths of the module flange as shown in Fig 1 below. Each module must be fitted with 4 Claws as shown in Fig 2 below. The module is now ready to be attached to the Supports.

At this point, it is also recommended that the module grounding mechanism (not included) be installed per the module manufacturer's specifications. We also recommend that you prepare the module cables for connection.



## Step 5 Mounting Modules to Supports

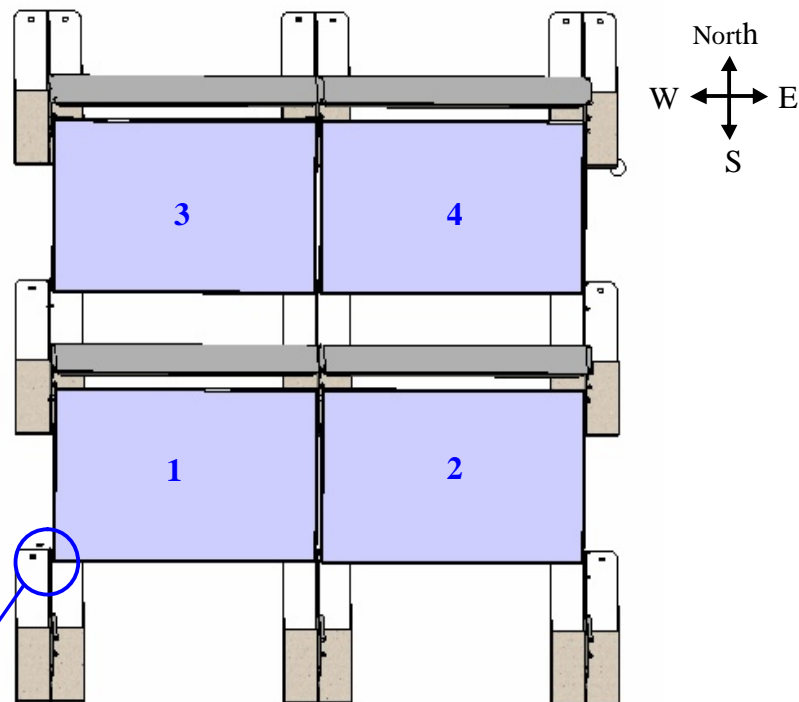
Most integrators choose to begin attaching modules to Supports moving from West to East starting at the Southwestern most corner of the array and moving North as each row is completed (Fig 3).

For the steps below, we will assume this Southwestern most corner starting point.

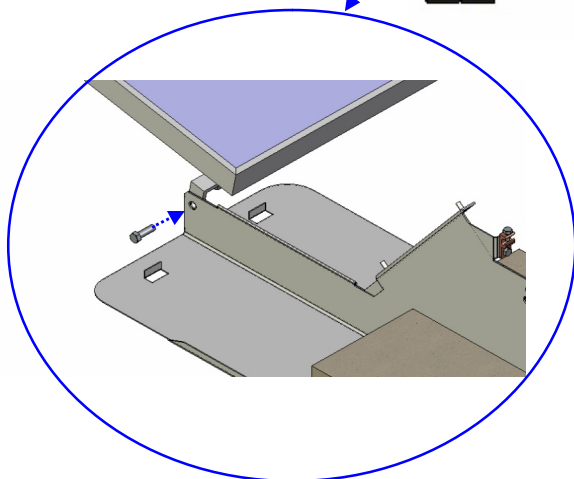
1. Attach the module to the inside of first two North facing (low end) Supports, by inserting a 3/8-16 x 1.25" S/S 18-8 hex head cap bolt through the hole in the Claw and the Support. Ensure that the hex cap bolts are inserted into the Support mounting holes so that the threaded end of each hex cap bolt faces the next Support to the East (Fig. 4).
2. Tilt down the module and attach the South facing (high end) of the module to the Supports by inserting a 3/8-16 x 1.25" S/S 18-8 hex head cap bolt through the hole in the Claw and the Support (Fig 5).
  - a. Note that the South facing high end of each Support is equipped with two Claw mounting holes that can be used to alleviate module misalignment in wavy roof situations. The bottom mounting hole should always be used as a default mounting hole (Fig 5).
3. Secure Westernmost Claws to Supports using the 3/8-16 serrated flange nuts.
4. Continue building the array from West to East by bringing the next module into place.
  - a. Now the bolts on the Northwest and Southwest sides of the array are already in place from the prior module mounting.
  - b. Add bolts to the Northeast and Southeast sides
  - c. Go back and secure the Westernmost Claws to Supports using the 3/8-16 serrated flange nuts.

Continue this process until all modules are mounted.

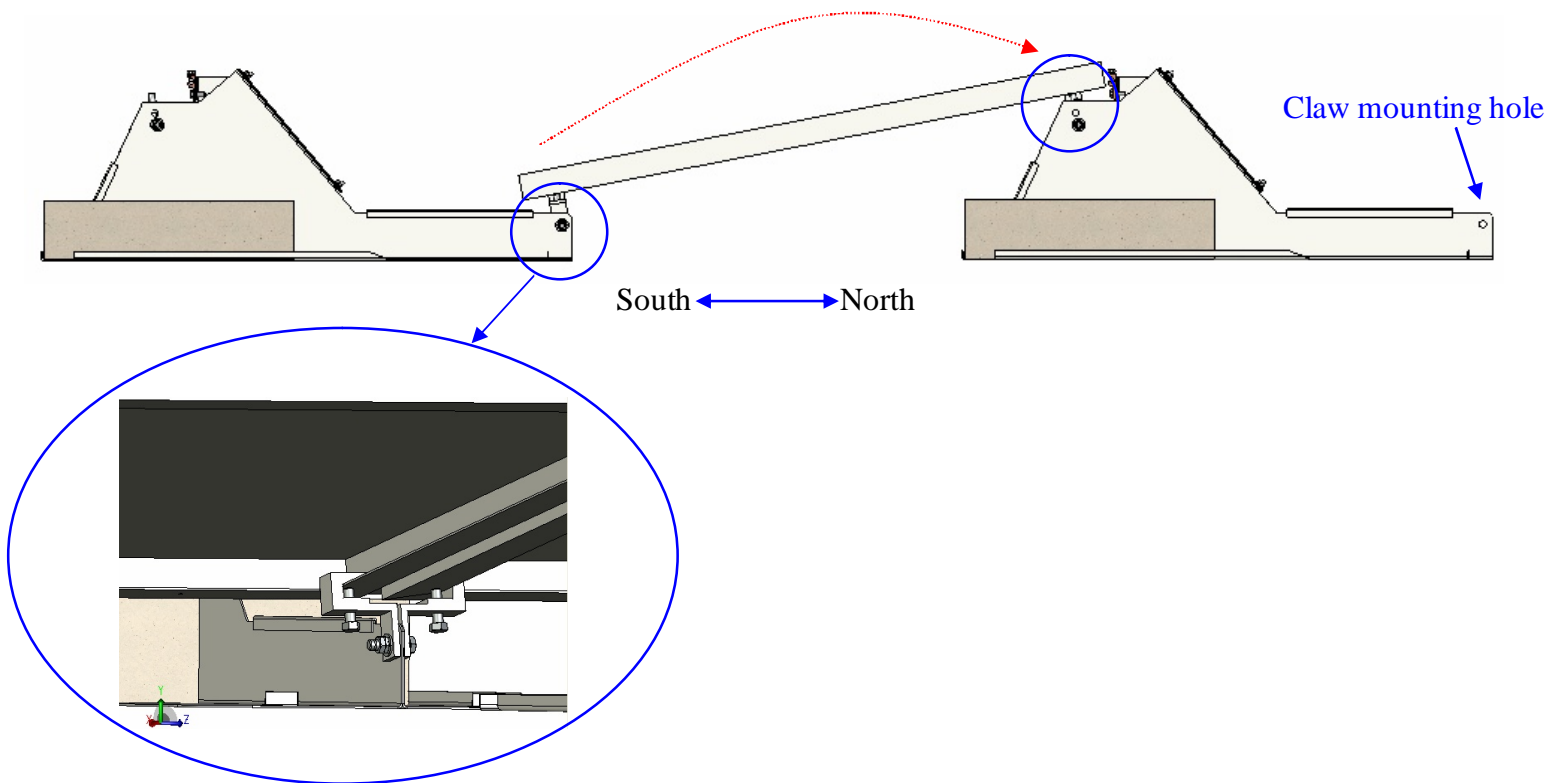
**Fig. 3 - Module Mounting**



**Fig. 4**



**Fig. 5**

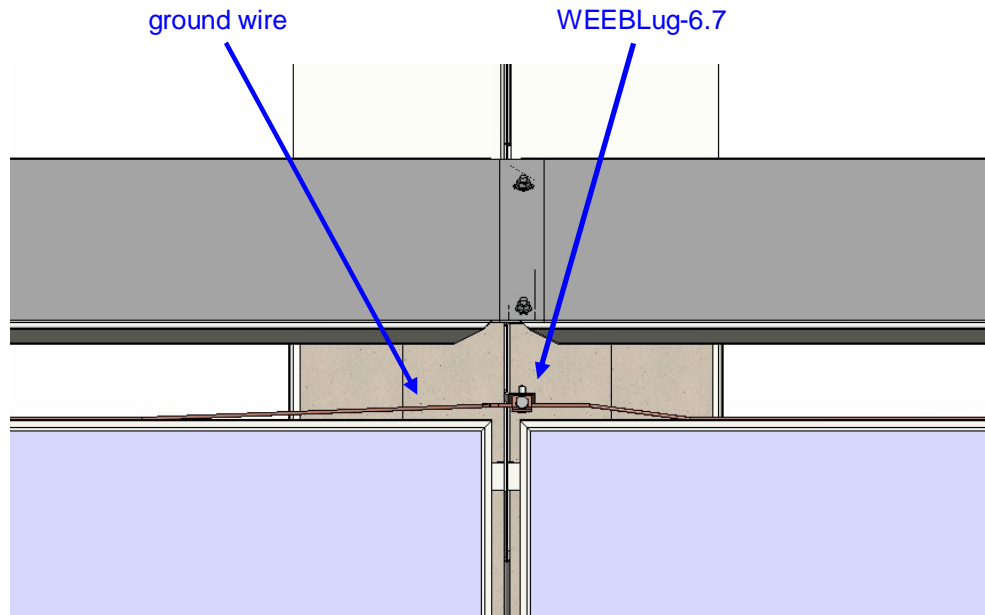


## Step 6. Install Deflectors

Deflectors are mounted to the pre-installed PEM studs using 2 Serrated flange nuts 1/4 – 20 S/S 18-8 per Support. A Deflector must be installed with every module. At the end of each work day, every module must have an installed Deflector.

## Step 7. Electrical Grounding

A WEEBLug-6.7 electrical grounding element manufactured by Willey Electronics LLC has been pre-installed on each Support. As you run the copper wire necessary to ground each module, ensure that the same copper wire is run through every WEEBLug-6.7 and secured per Willey Electronics LLC specifications ([www.we-llc.com](http://www.we-llc.com)).

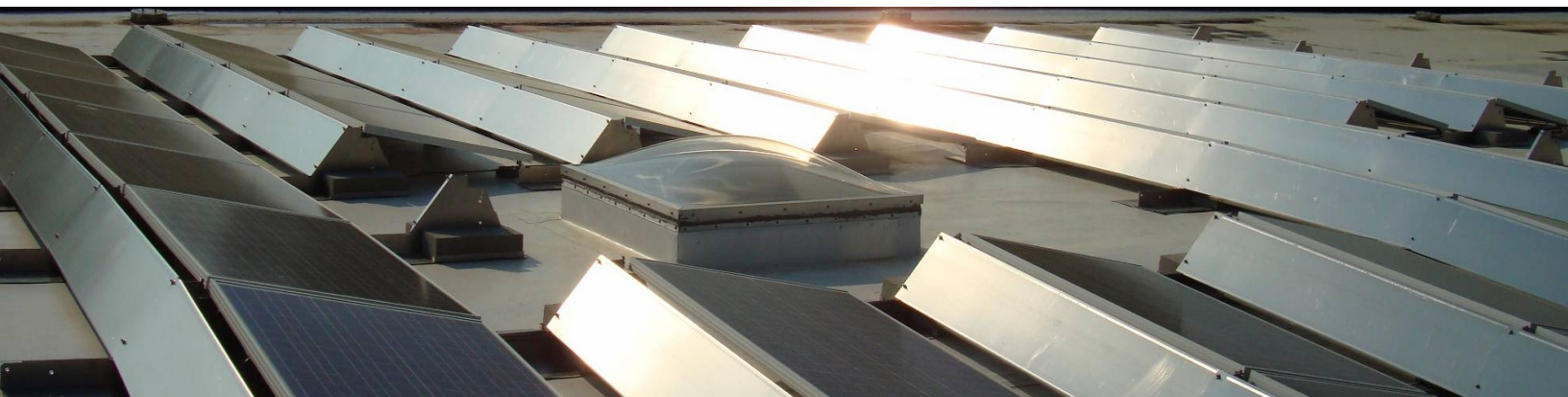




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## Questions, Comments or Suggestions

Contact PanelClaw at [info@panelclaw.com](mailto:info@panelclaw.com).







# Bill of Material