

Installation Manual TerraFarm: Scalable Ground Mount



SIMPLIFIED RACKING BUILT TO LAST

Introduction

The TerraFarm Scalable Ground Mount is a flexible and easy-to install mounting solution that scales to the largest PV installations. The TerraFarm Ground Mount is specifically designed to universally accept most PV panels.

Installer Responsibility

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 TerraFarm and other products are appropriate for the particular installation, environment, and load conditions.
3. Ensuring the installation meets all state and local code requirements, and that component design parameters are not exceeded.
4. Using only TerraSmart parts and installer-supplied parts as specified by TerraSmart. Substitution parts may void the warranty.
5. Ensuring that analysis has been done supporting the adequacy of pier installation, and that installation adheres to local regulations.
6. Ensuring safe installation of all electrical aspects of the PV array.
7. Ensuring correct and appropriate design parameters are used in determining the design loading used for the specific installation. Parameters, such as snow loading, wind speed, exposure and topographic factor should be confirmed with the local building official or a licensed professional engineer.

Customer Support

TerraSmart makes every effort to ensure your mounting kit is easy to install. If you need assistance at any point with your installation or have suggestions on how we can improve your experience, please call your local distributor.

Tools Required For Assembly

The following tools are required to assemble the TerraFarm Scalable Ground Mount.

Note: Your installation may require incidental material, such as wood, to construct temporary supports or gravel to promote drainage.

- Medium duty machine mounted and powered auger motor
- Transit
- Torque wrench
- Tape measure
- Level
- Equipment for cutting pipe
- Open-end wrench set, Box-end wrenchset, and/or socket drive with sockets
- 2 lb. Sledgehammer

Torque Values

Use the following torque values for **Galvanized Bolts**.

Galvanized Bolt Size Required Torque Value (dry)

- 1/4"-20 7 ft. lbs.
- 3/8"-16 15 ft. lbs.
- 1/2"-13 U-Bolt 40 ft. lbs.
- 1/2"-13 Bolts 40 ft. lbs.

Use the following torque values for **Stainless Steel Bolts**.

Stainless Steel Bolt Size Required Torque Value (lubricated)

- 1/4"-20 70 in. lbs.
- 1/2"-13 30 ft. lbs.

Caution:

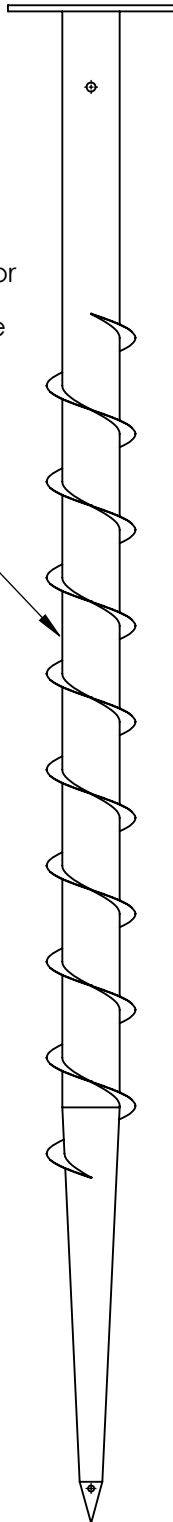
Beware of galling. Apply a very small drop of anti-sieze lubricant to the threads of all Stainless Steel Bolts before installation.

Component List

Below is a list of components with diagrams of each component and its purpose in the structure.

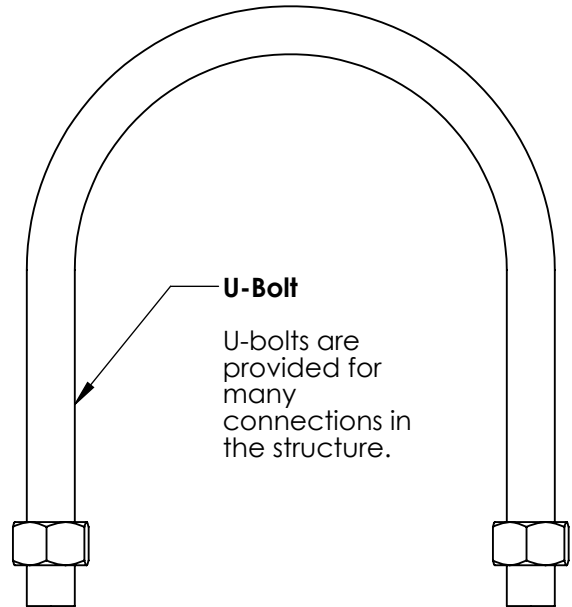
TerraScrew

This is a helical anchor that is "screwed" into the ground. These are set with a typical machine mounted auger hydraulic motor.



U-Bolt

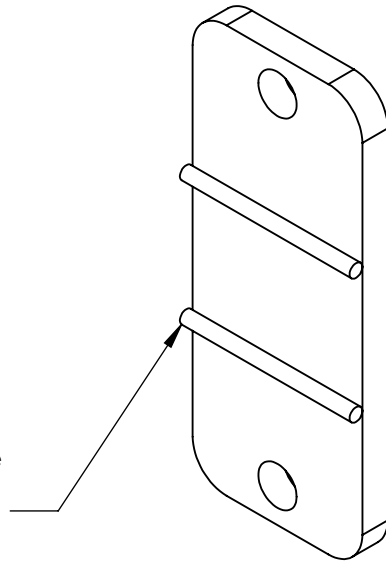
U-bolts are provided for many connections in the structure.



Component List - cont'd

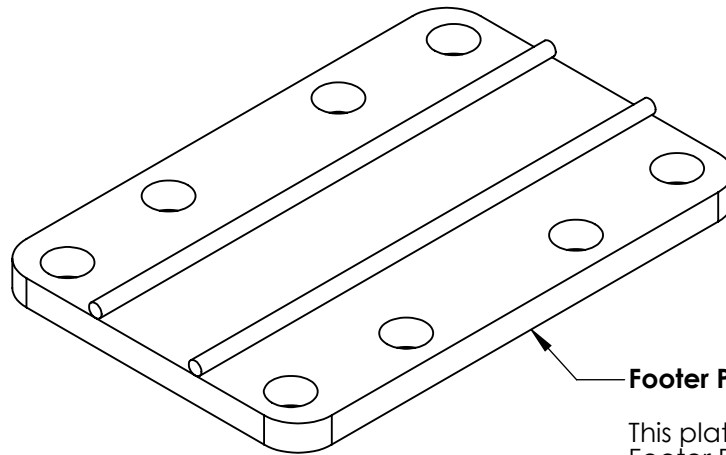
Important Note

Always mount plates with these raised "bunks" resting on the cylindrical pipe surface.



Panel Rail Plate

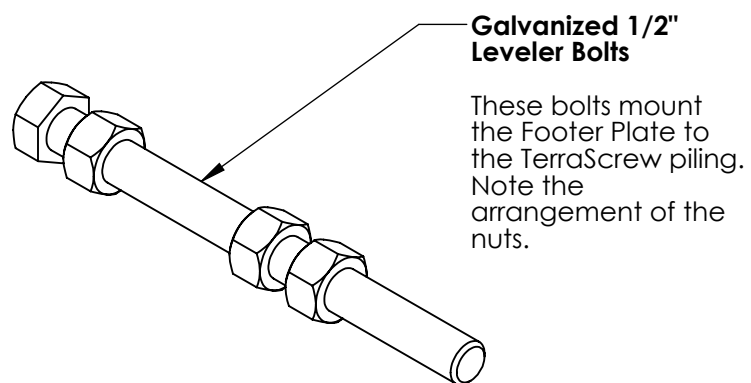
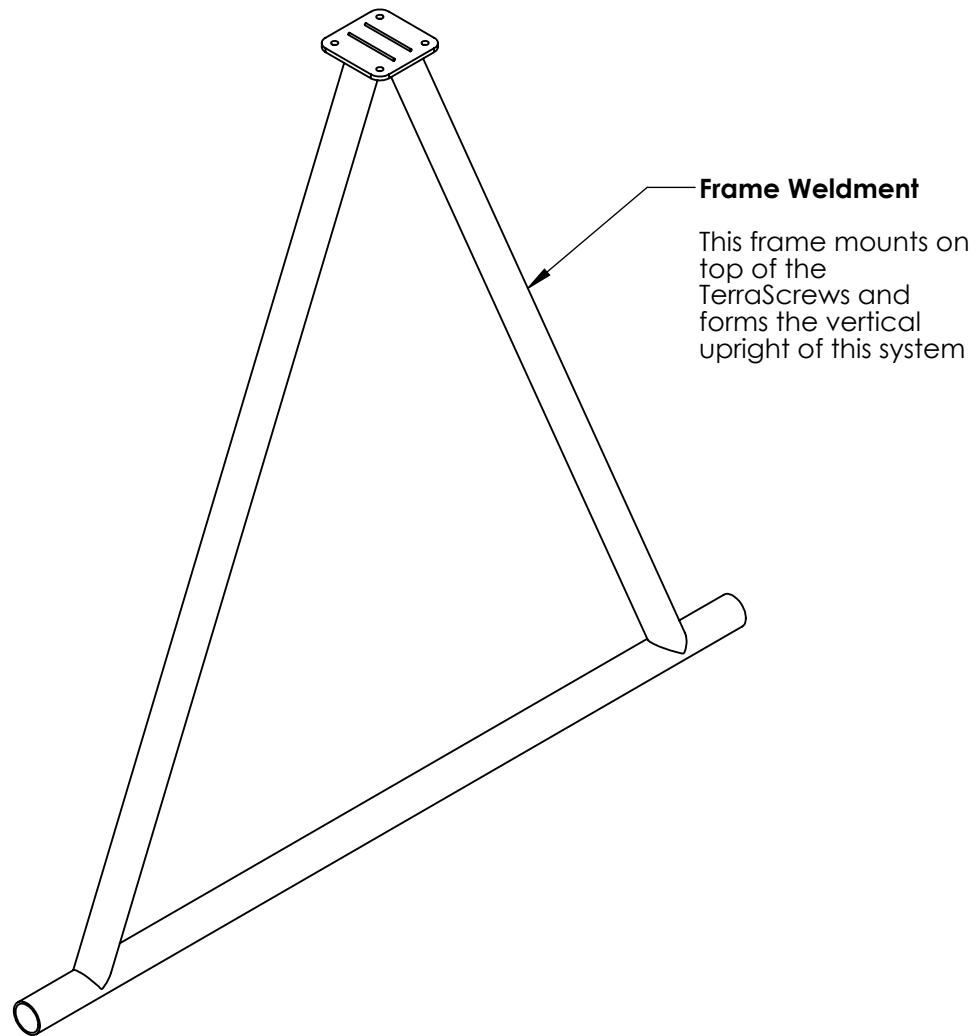
This plate mounts the Panel Rail to the Cross Beam



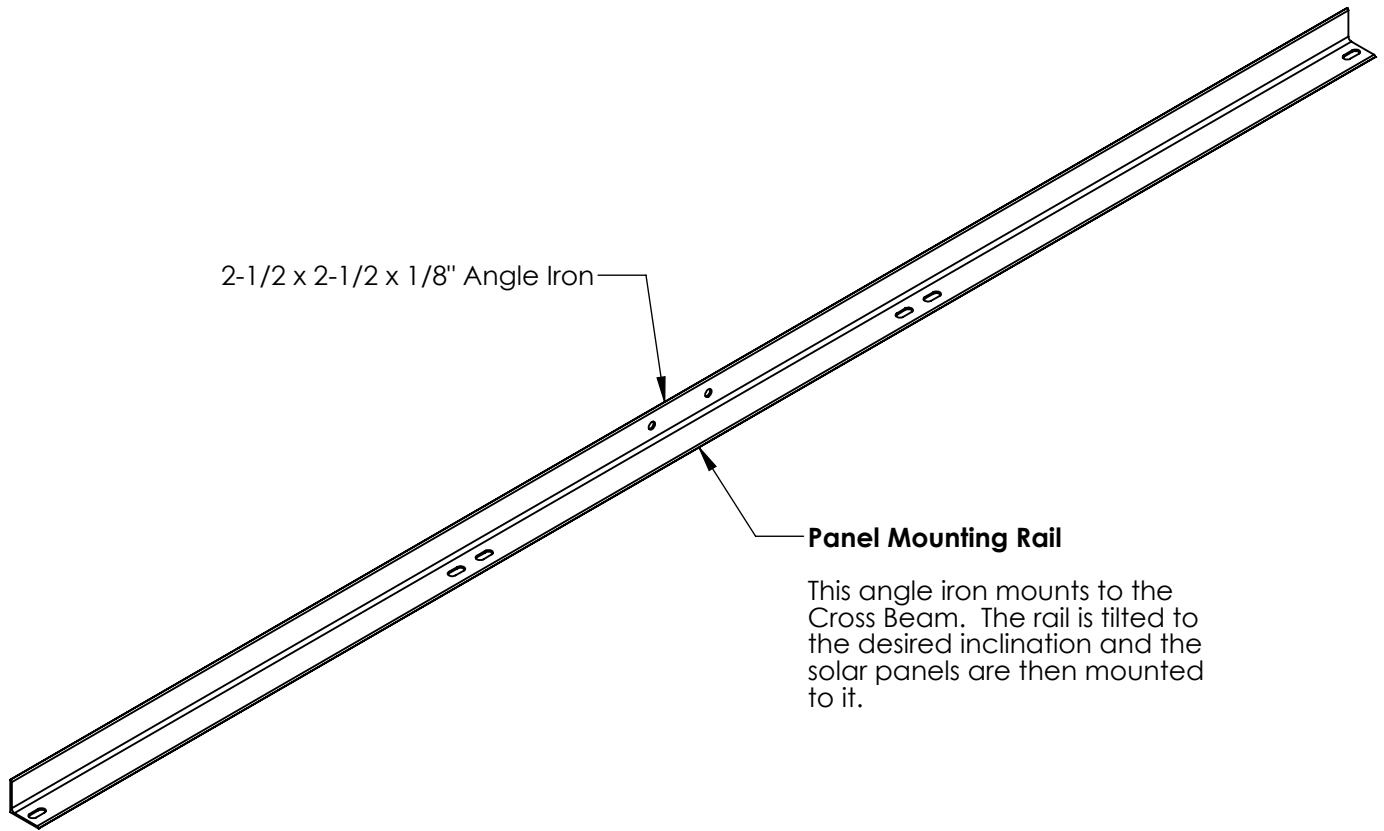
Footer Pipe Plate

This plate mounts the Footer Pipe to the TerraScrew piling.

Component List - cont'd

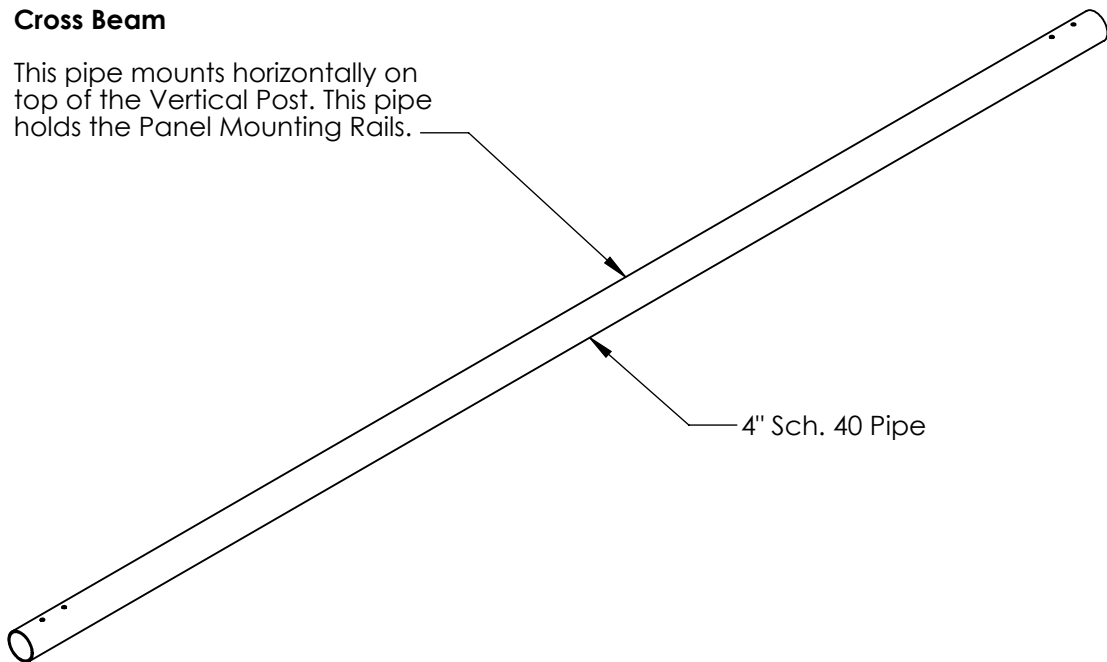


Component List - cont'd



Cross Beam

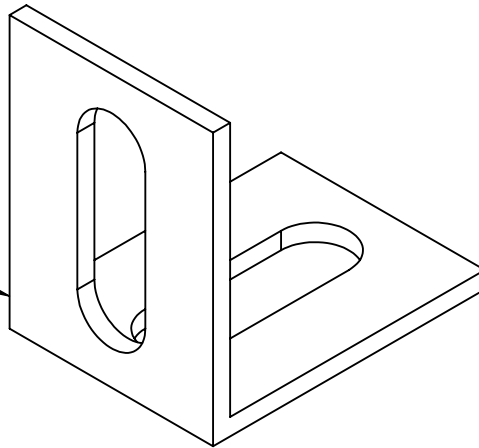
This pipe mounts horizontally on top of the Vertical Post. This pipe holds the Panel Mounting Rails.



Component List - cont'd

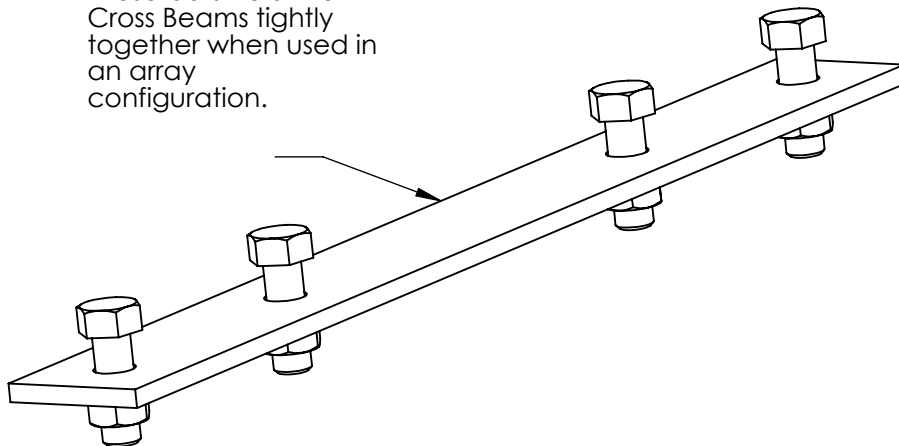
Panel Mounting Clip

This angle mounts to the Panel Mounting Rail and allows you a place to mount your solar cell.



Cross Beam Splice Bar

These bars hold the Cross Beams tightly together when used in an array configuration.



Assembly

Step 1 - Laying out TerraScrew pier positions

Step 1:

Lay out the locations of each TerraScrew (TS) using a surveyors transit and tape measure. Accuracy is of utmost importance. Pound a stake at each location.

Step 2:

With a Terrascrew mounted on the shaft of the auger motor, precisely place the tip of the TS where the stake was driven into the soil.

Step 3:

Make sure that the TS is lined up plumb with the transit. Slowly screw the TS into the soil while maintaining an even downward pressure. Avoid "digging" with the TS. Always keep the TS plumb throughout the screw-in process. When screwed in to your desired depth, line up the to TS Flange so your bolt holes are in an optimum position.

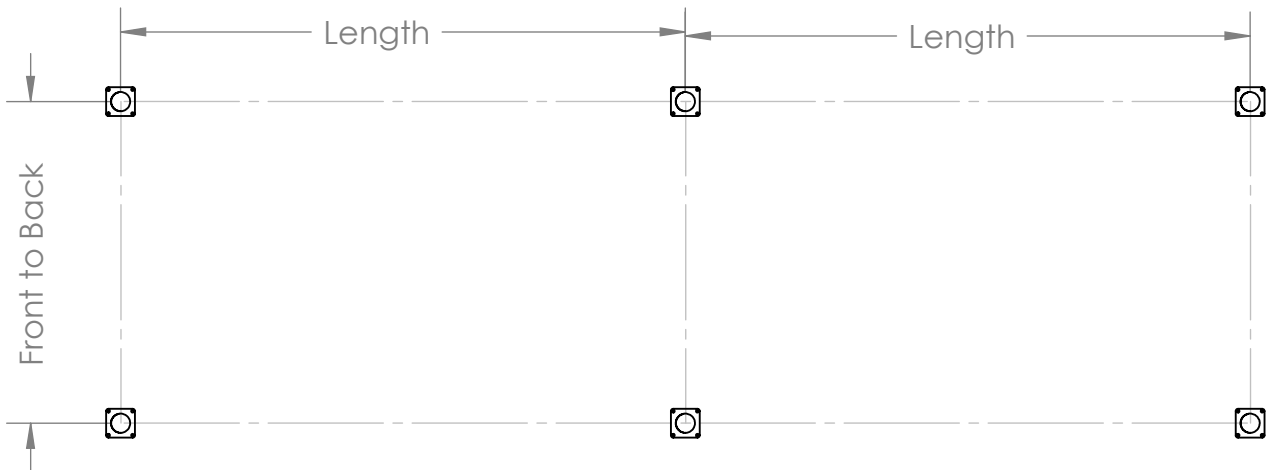


Figure 1

5. Component General Arrangement

Note:
The TerraFarm Scalable Ground Mount kit is configured generally as indicated in Figure 1. The illustration contained within are for reference only. The actual component quantities will vary on the specific configuration ordered. Always check the packing list that ships with every order and reconcile them between the actual component quantities and types received.

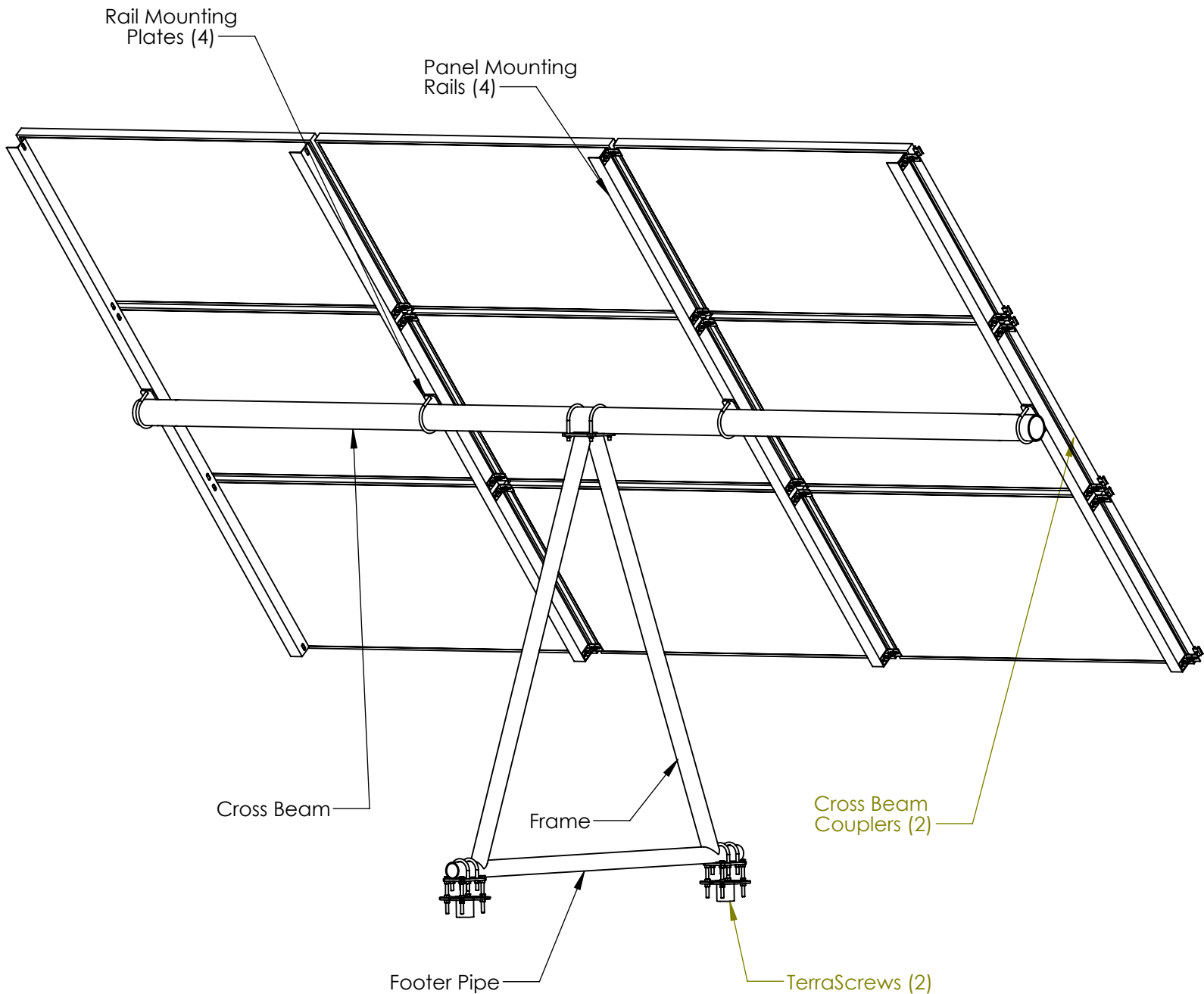


Figure 3

Step 3 - Assembling the Frame

1. Assemble Footer Pipe Mounting Plates onto TerraScrew Piers with the 1/2" Leveling Bolts (Fig.4)
2. Mount and level the Vertical Frame onto the Plates with the 1/2" U-Bolts (Fig.4).
3. Install Cross Beam onto the Vertical Post (Fig.3)
4. Install 4 Panel Mounting Rails as indicated in (Fig.5)
5. Space Panel Mounting Rails appropriately and set at the inclination desired.

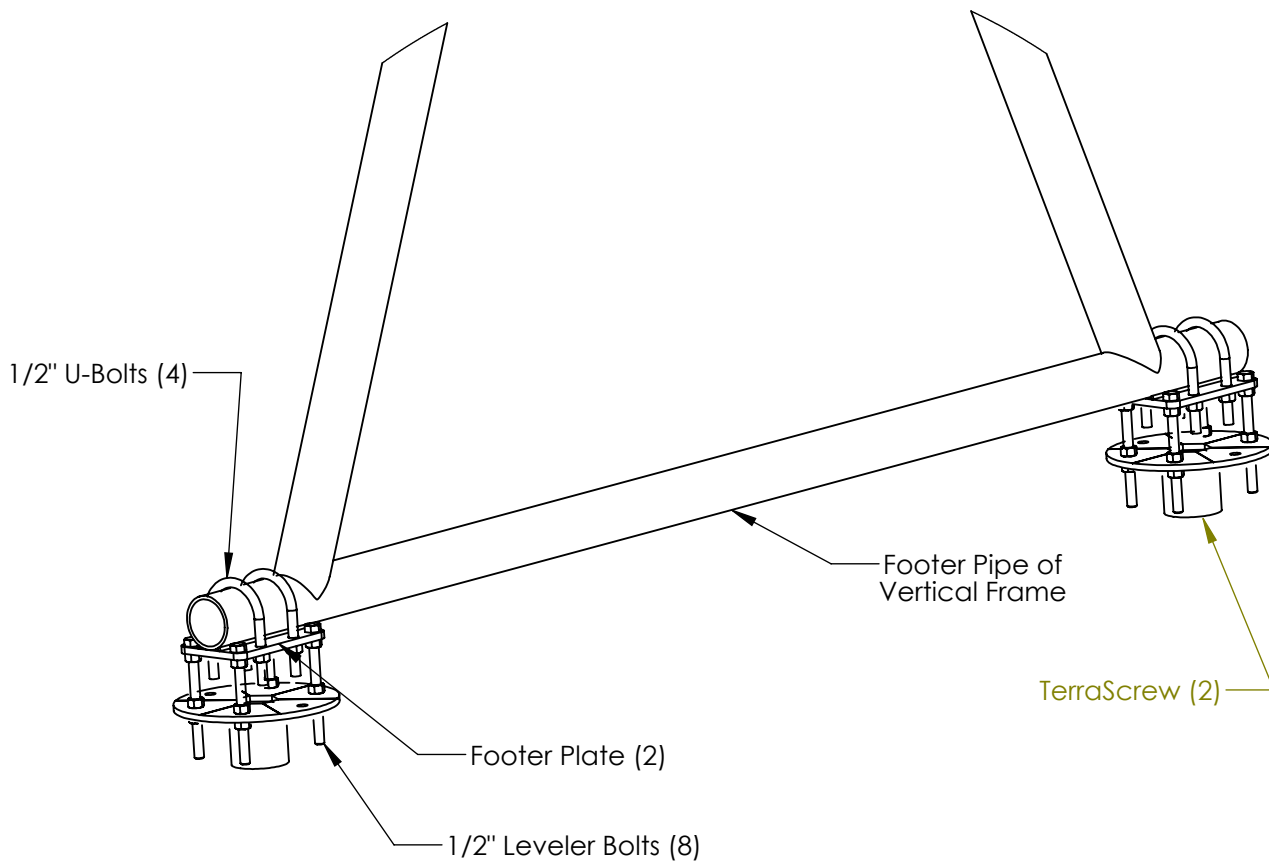


Figure 4

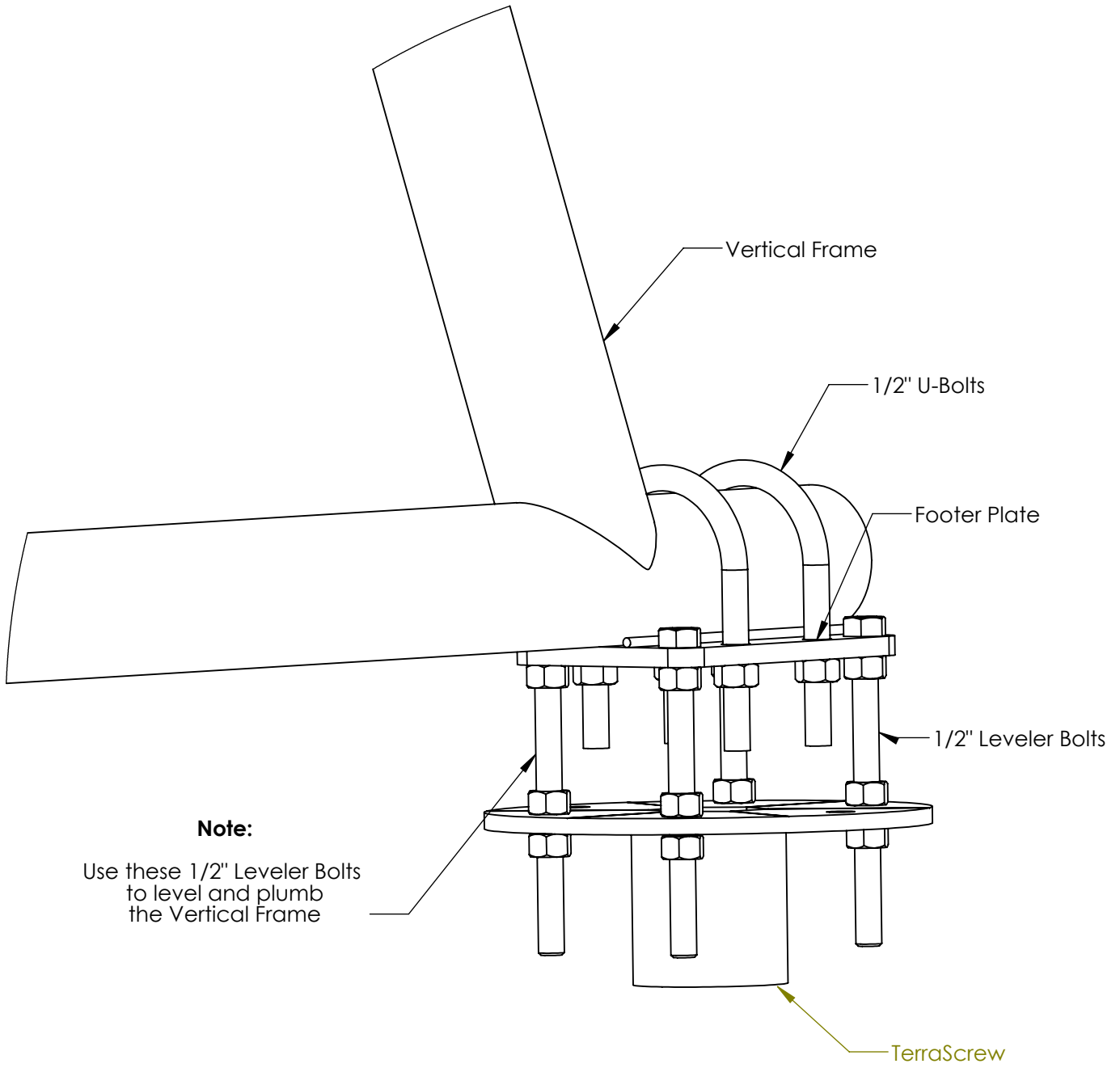


Figure 5

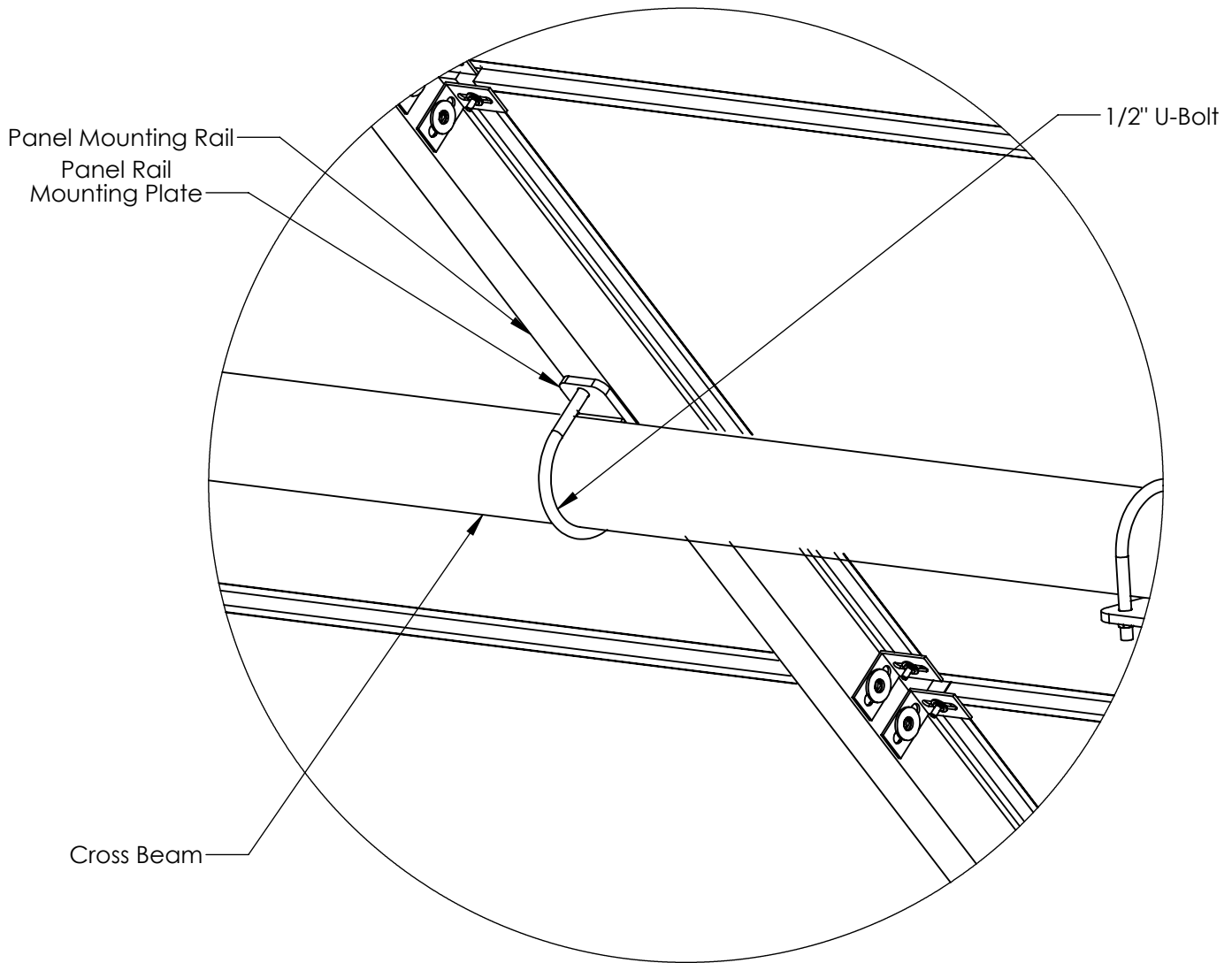


Figure 6

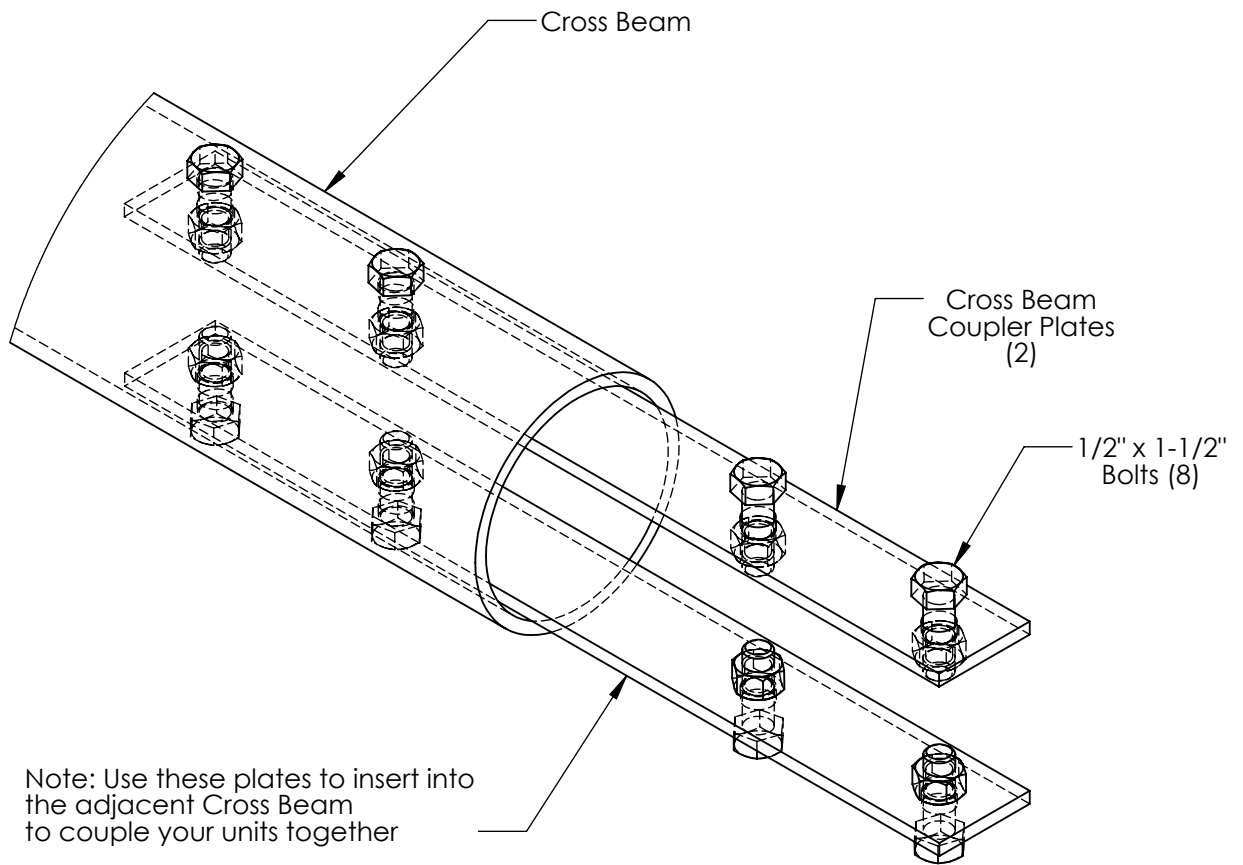


Figure 7

Step 4 - Installing Adjacent Frames

1. Assemble all as in the first 3 steps. Line up subsequent assemblies with the transit.
2. Couple the Cross Beams together with the supplied Cross Beam Couplers (Fig. 6)

Step 5 - Installing the Solar Panels

1. Attach the Panel Mounting Clips to the Panel Mounting Rails in the slotted holes provided as shown in Figure 8.
2. Lay panels in place and use the desired mounting clips to attach to the Panel Mounting Clips

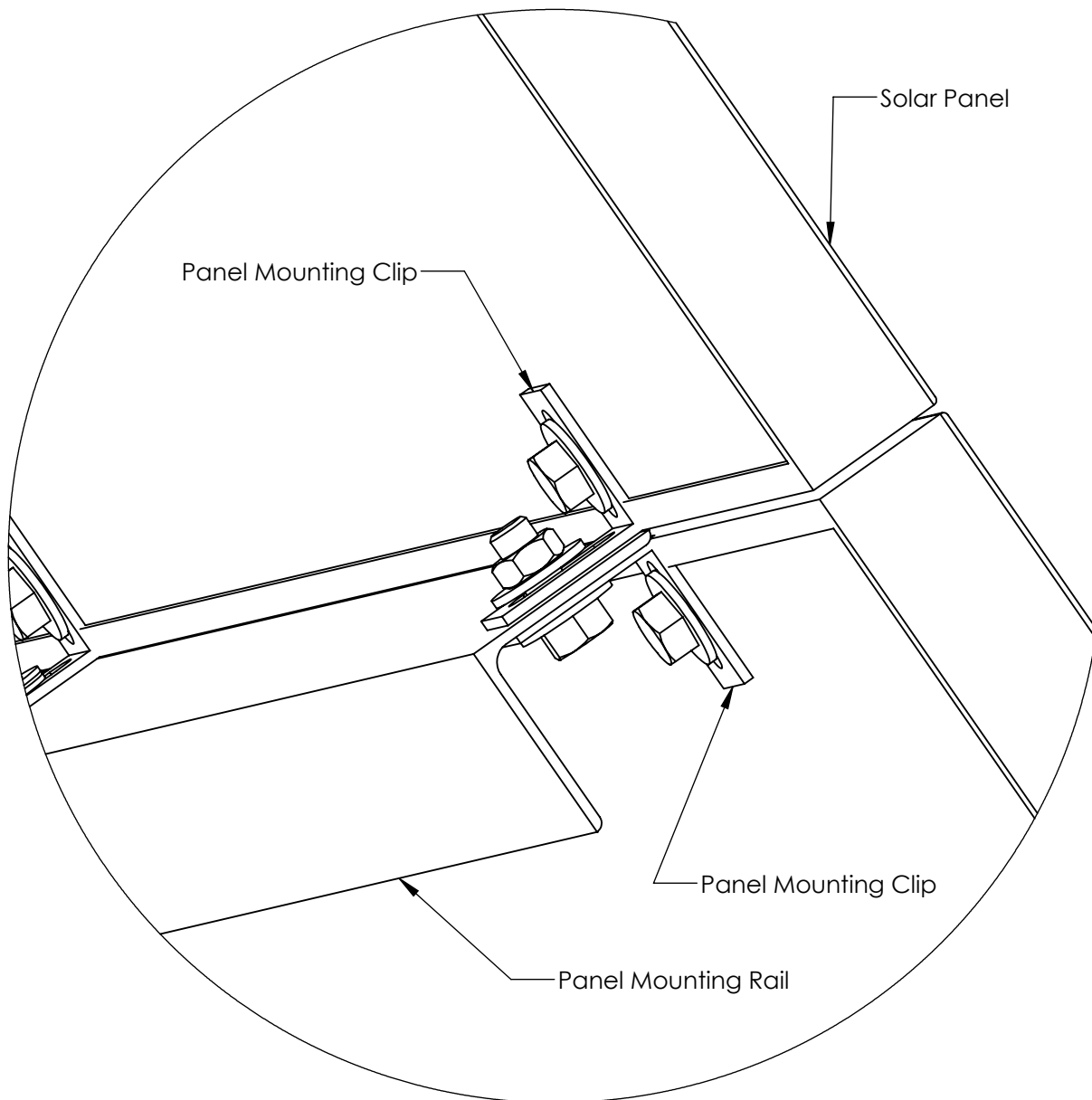


Figure 8