

# Installation Manual

## 4" Series Top of Pole Mount

[www.mtsolar.us](http://www.mtsolar.us)  
844-MT-SOLAR (687-6527)

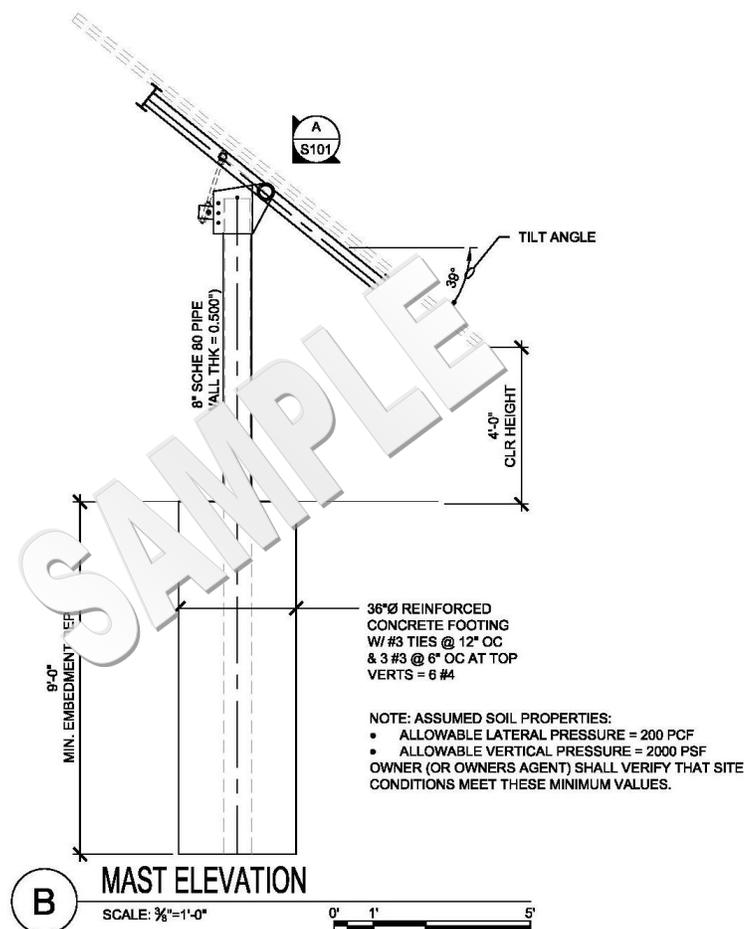
2016 V2.6



Thank you for choosing MT Solar Pole Mounts.

It is the installer’s responsibility to determine foundation parameters based on local site conditions, such as wind speed, snow load, soil type, exposure category, etc. Installations also must comply with local building regulations and requirements.

We recommend consulting an engineer for a recommendation on foundation dimensions and pipe size and thickness. MT Solar can also provide a stamped drawing engineered for site-specific requirements for an additional fee. Please contact us to find out more.



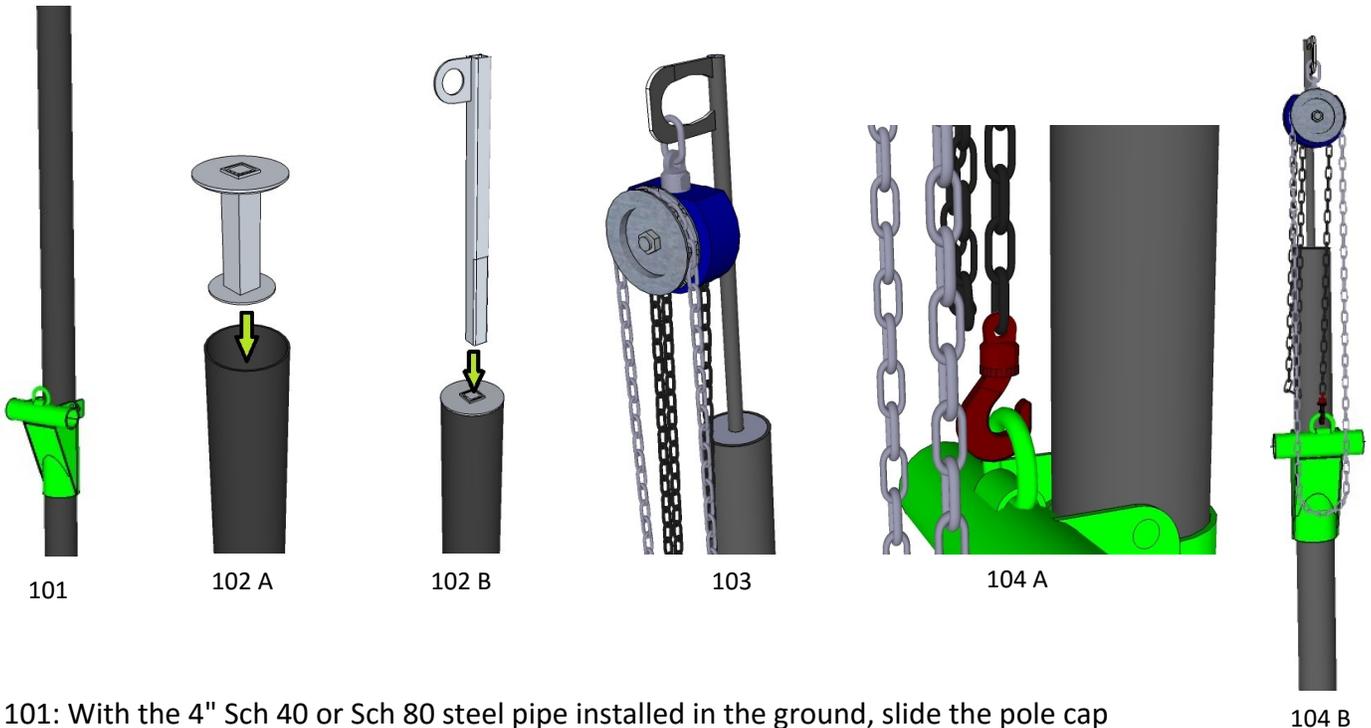
- Tools Required:**
- 3/4" Socket
  - 9/16" Socket
  - Crescent Wrench
  - Torque Wrench
  - Tape Measure
  - Angle Finder
  - Compass
  - Ladder

**Tips for Conventional Pipe Installation:**

- Dig hole according to recommended depth and diameter.
- Set pipe in hole and use a level to ensure it is plumb and vertical to the ground.
- If installing multiple poles, use a string to line up pipes.
- Brace pipe to prevent it from moving while pouring concrete.
- Proper compaction of backfill around sonotube or form is recommended, unless pouring so that concrete is in direct contact with the soil.
- Allow concrete to cure for recommended length of time.

# Installation Guide

The 4" Series Top of Pole Mount does not come standard with the lifting bracket and chain hoist. If you choose to add this option, follow steps 101 to 104 to install the lifting assembly.

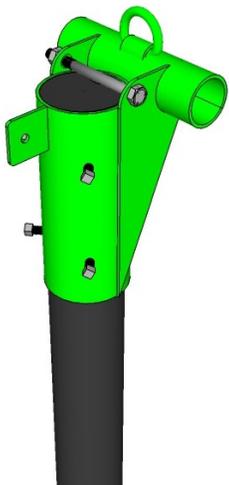


101: With the 4" Sch 40 or Sch 80 steel pipe installed in the ground, slide the pole cap over the pipe.

102: Place the lifting insert into the top of the pipe until it sits flush. Place the lifting bracket into the lifting insert with the eye facing south.

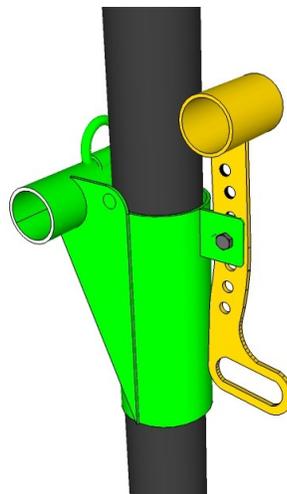
103: Hang a 1 ton or greater chain fall hoist from the lifting eye.

104: Hang the U-Bracket Assembly on the Chain Hoist.



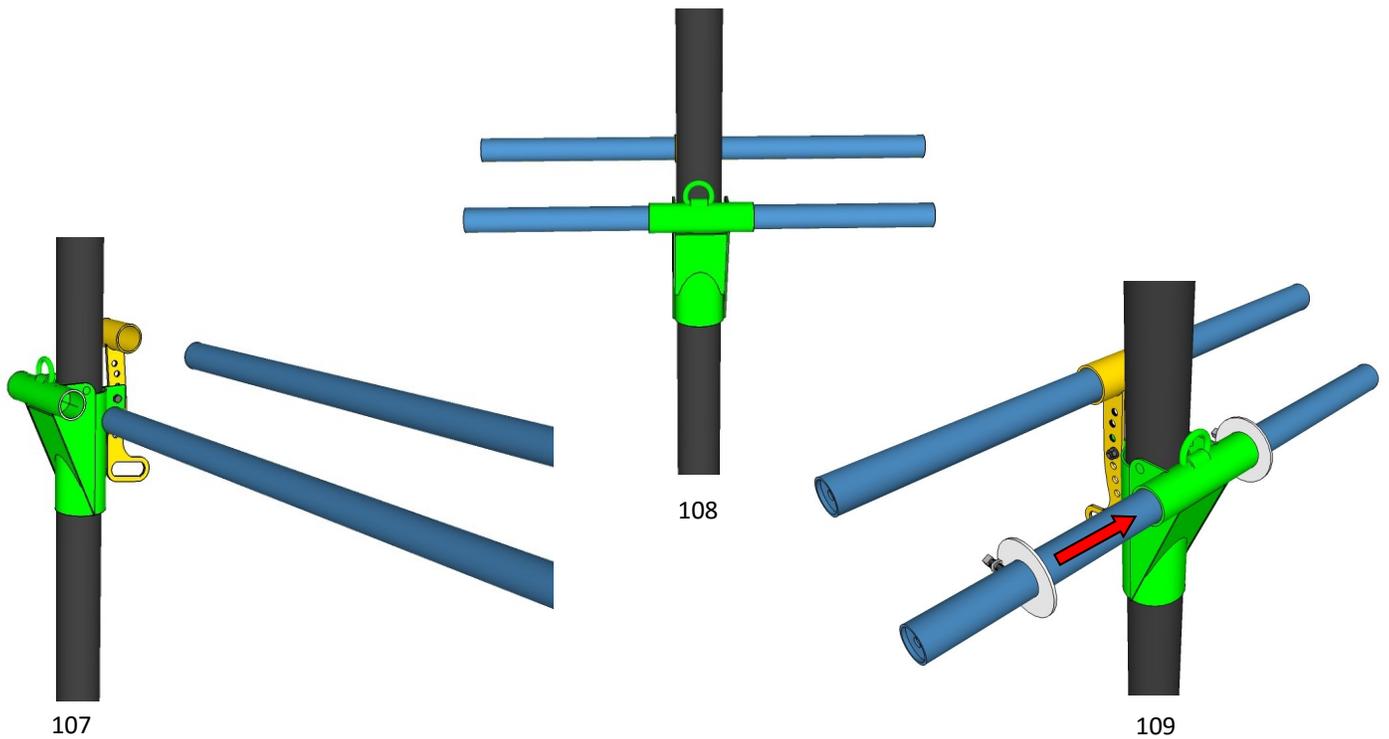
105

105: If you do not have a chain fall hoist, install pole cap at the top of the pole, insert the 5/8" x 7" bolt, two 5/8" flat washers and 5/8" nut and four 1/2" x 1" set screws. Tighten all. Proceed with installation of all components at the top of the pole.



106

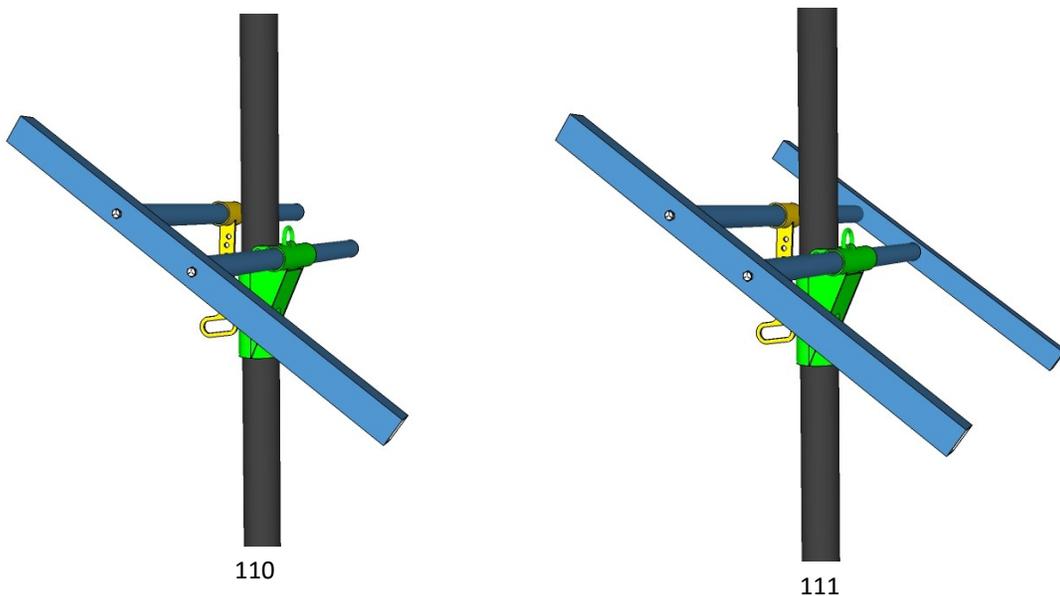
106: Attach the Tilt Adjuster Handle to the tab on the Back Plate with the 1/2" x 1 1/2" Bolt, two 1/2" flat washers and 1/2" Nylock Nut.



107: Slide one of the 2" pipes through the tilt adjuster and the other 2" pipe through the U Bracket Assembly sleeve.

108: Center pipes in sleeves. There should be equal length of pipe on either side of the sleeve.

109: Slide collars on 2" pivot pipe and tighten with 1/2" x 1" square head set bolts. Hold collar firm against the sleeve when tightening.

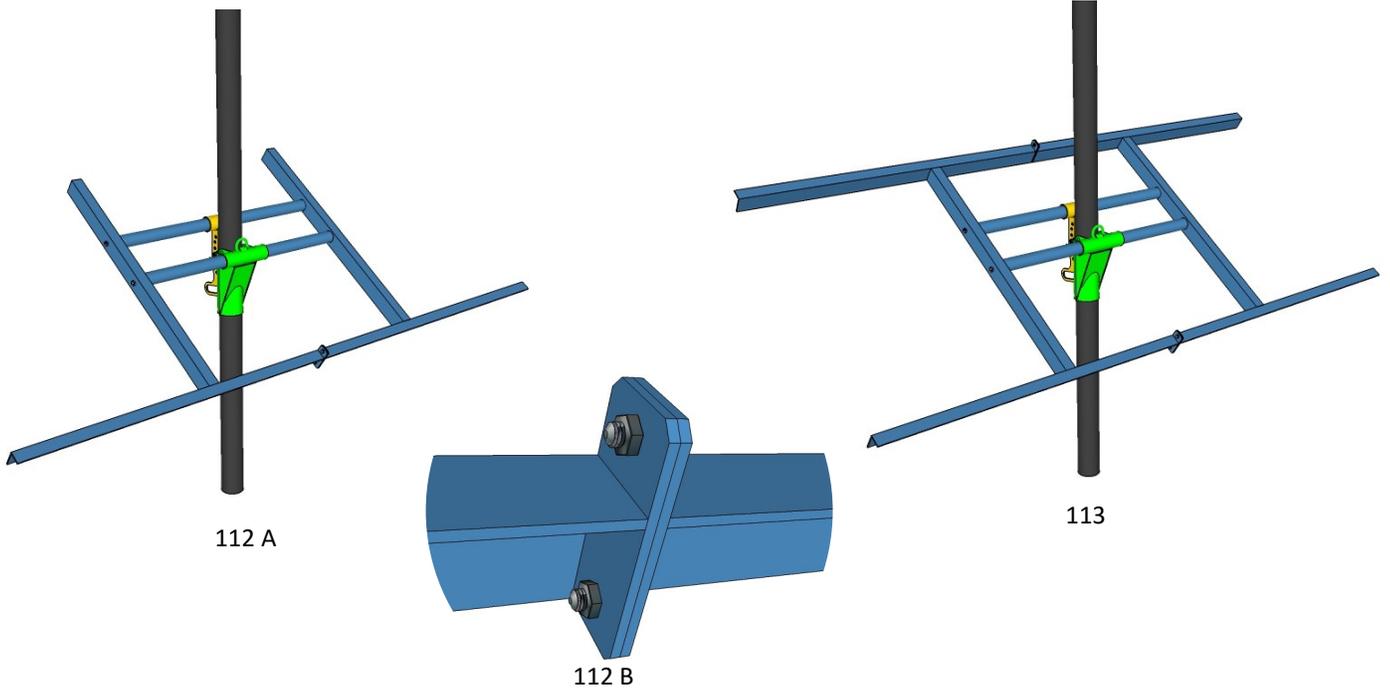


110: Ensure that the MT Solar lettering is upright, and attach one of the 2x3" rectangular tubes to the 2" pipes using the 1/2" x 3 1/2" bolts with 1/2" flat washers and split washers.

111: Install the remaining 2x3" rectangular tube. Snug up all 4 bolts, but leave loose enough to allow for some play when installing Angle pieces. Adjusting the Tilt Adjuster as necessary, level the array in preparation for the installation of the 2" x 3" angle.

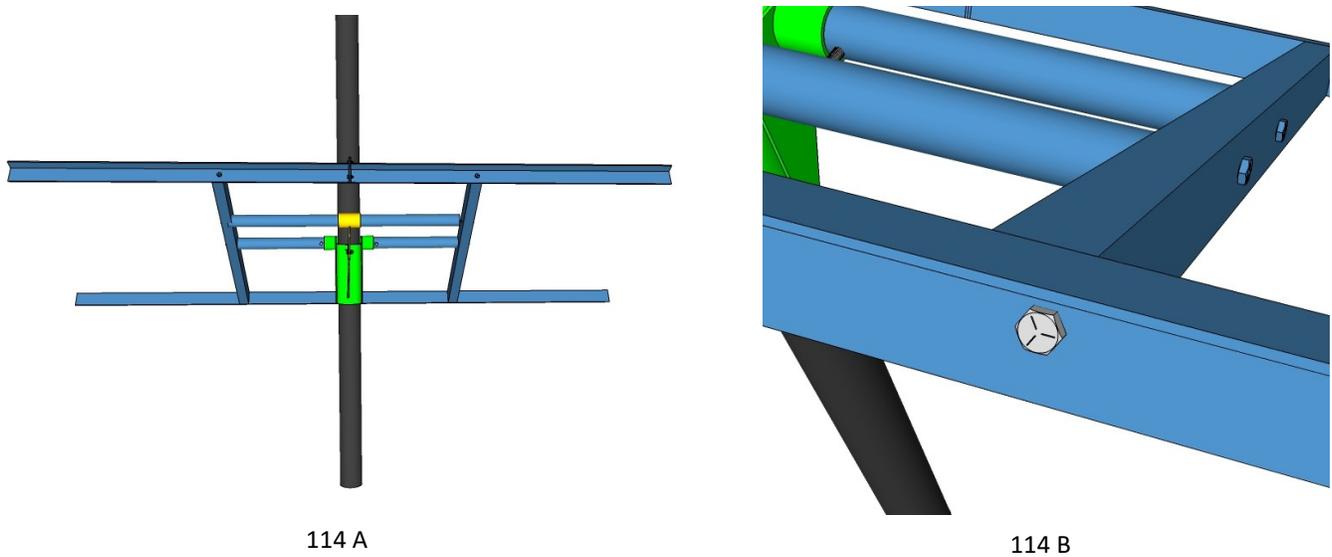
## 4 Module Installation

For 4 Module installations, follow steps 112 thru 117 below. For 2 or 3 Module installations, skip to step 118.

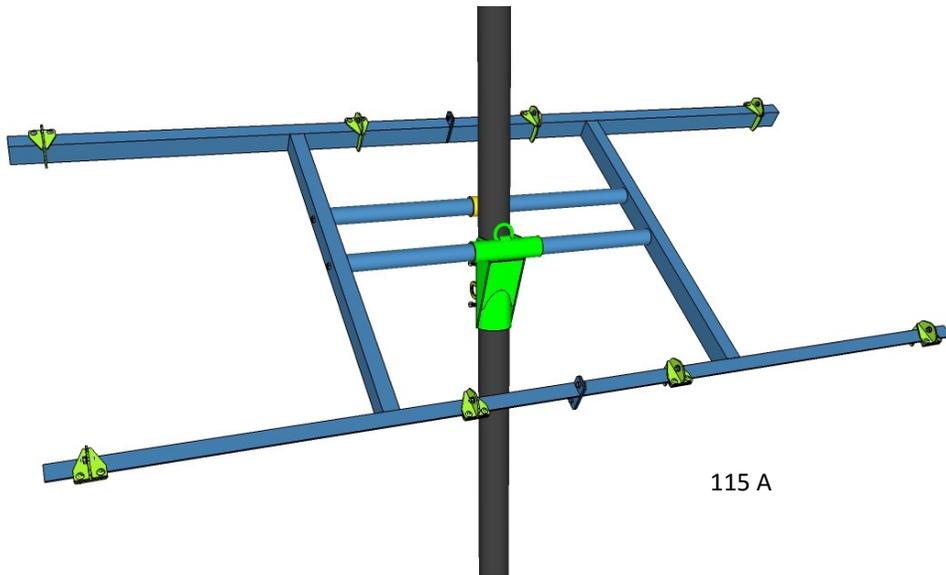


112: Install the first two 3x2 Angle sections to the 2x3 Tube using the 1/2" x 1 1/2" bolts, flat washers and split washers. Use the 1/2" x 1 1/4" bolts and 1/2" flange nuts to splice the two angle sections together.

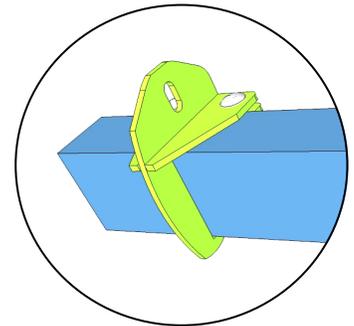
113: Install the second two 3x2 Angle sections but **DO NOT TIGHTEN** at this step.



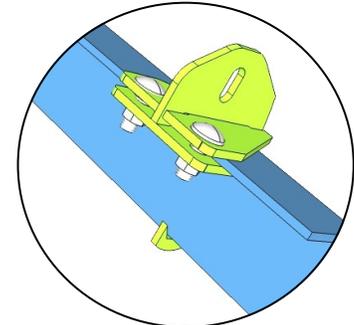
114: Standing on the North Side of the array with the Tube to Angle bolts started but not tightened, sight the Angle pieces to ensure they are parallel. If not, twist the array until they are then tighten the bolts between the Rectangular Tubes and the Angle.



115 A



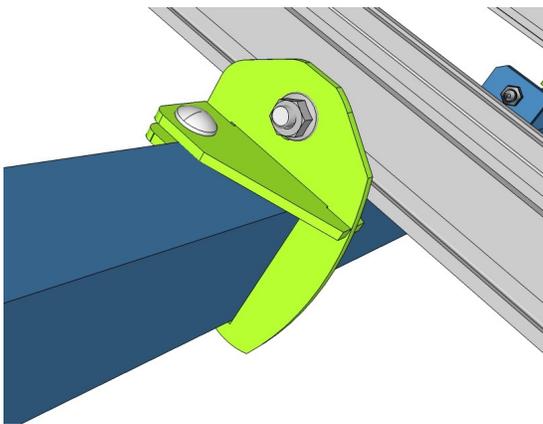
115 B



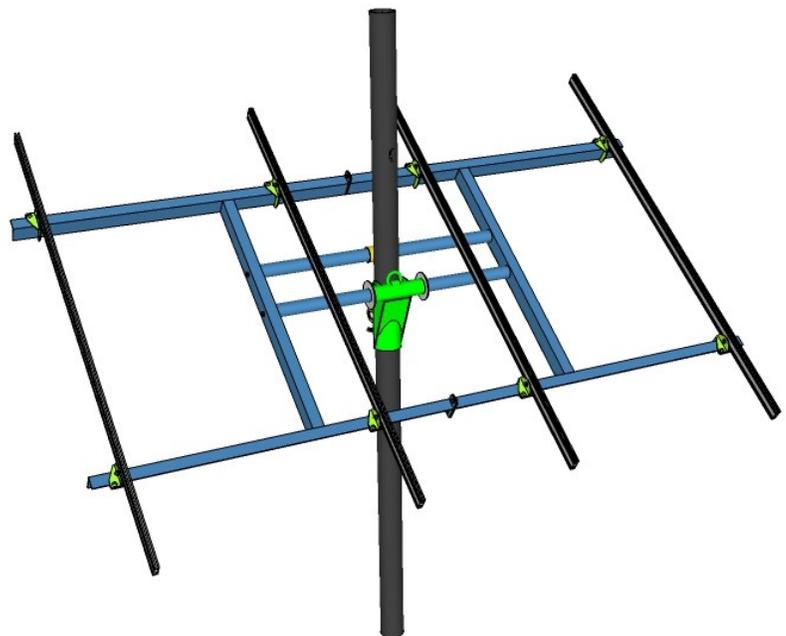
115 C

115: Plan the layout of your rails according to your module width. Install the Beam Clamps on the I-beam using the 3/8" x 1 1/4" carriage bolts and 3/8" flange nuts.

Remember to leave a 5" gap in the center to allow for the 4" diameter pipe to protrude through, if you wish to put all the modules on at ground level.



116



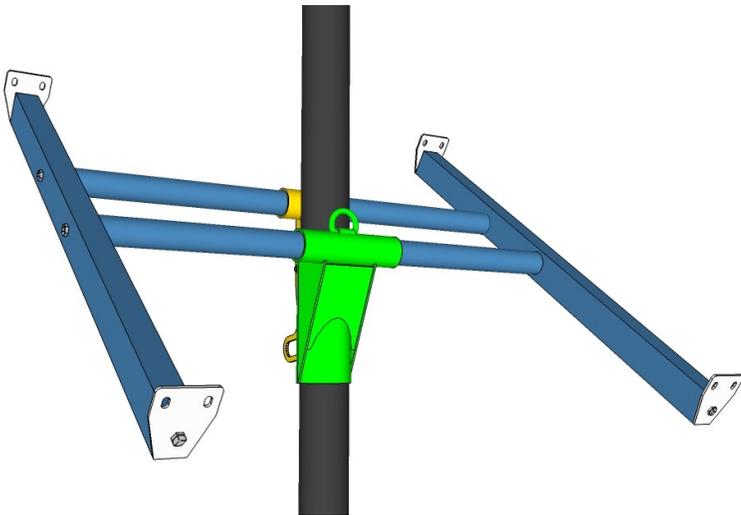
117

116: Install the Mounting Rail into the beam clamps slot as per Mounting Rail instructions. Use 3/8" x 1" stainless steel bolts and 3/8" serrated flange nuts. Tighten beam clamps once the rails are in position for modules.

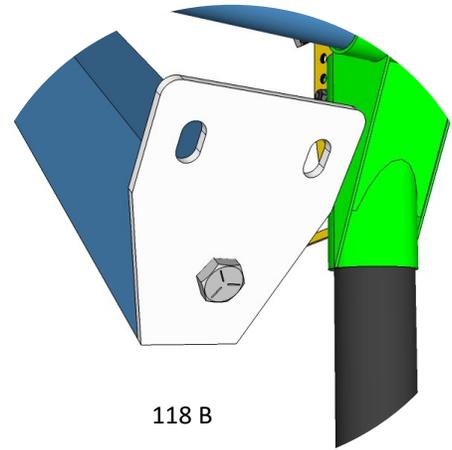
117: Center rails over Angle pieces, keeping equal length of rail off the end of each angle.

## 2 & 3 Module Installation

For 2 & 3 Module installations, follow the steps 118 thru 119 below. For 4 Module installations, see steps 112 through 117 above.

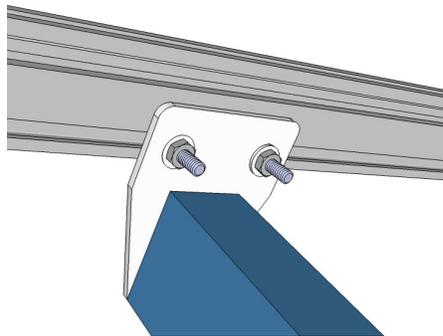


118 A

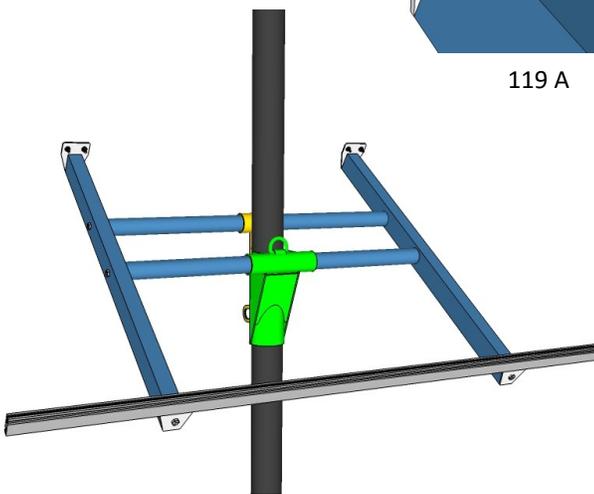


118 B

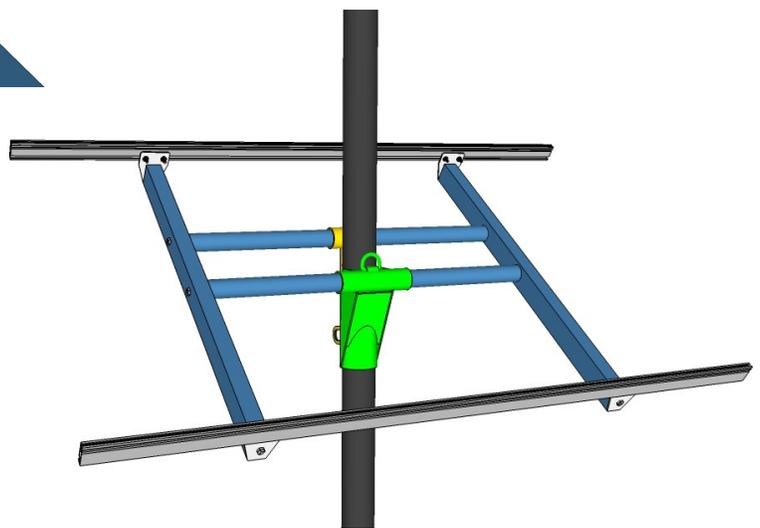
118: Install the Rail Attachment brackets to the ends of the 2x3 rectangular tube using the 1/2" x 1 1/2" bolts.



119 A

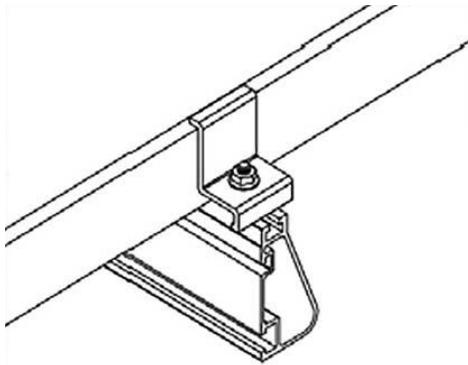


119 B

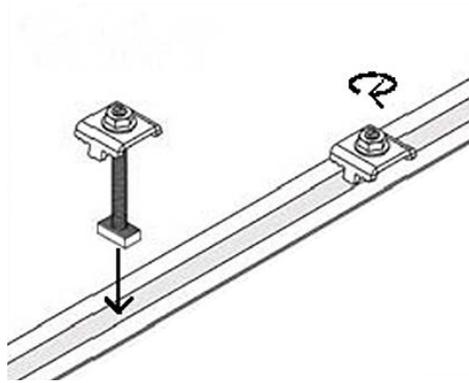


119 C

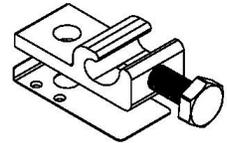
119: Install the Aluminum Rails to the Attachment brackets using the 3/8" x 1" stainless bolts and 3/8" flange nuts.



120 A



120 B

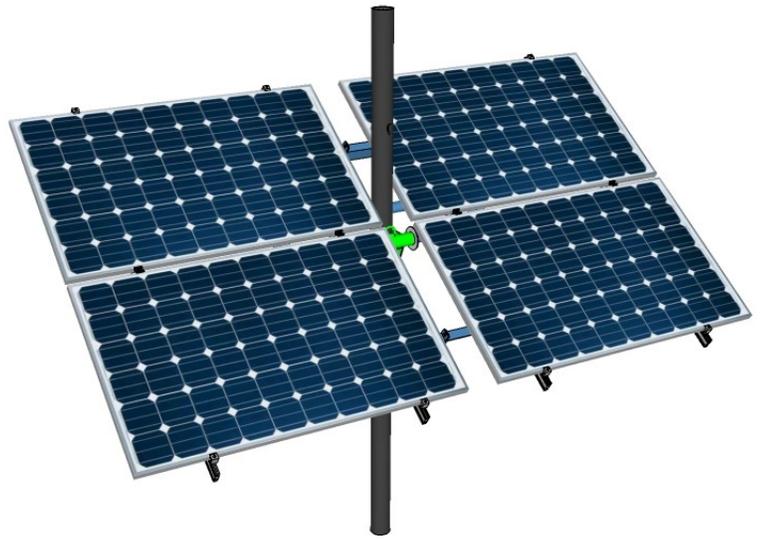


**WEEBLug-6.7**

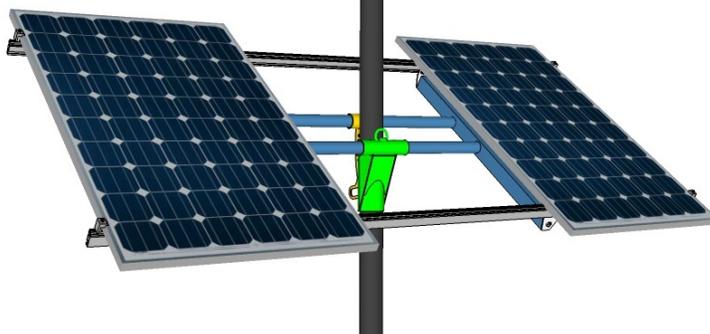
120: Install Solar Modules as per Mounting Rail and module manufacturer instructions using top clamps. See last page of manual for Iron Ridge Rail and Clamp instructions.



121 A



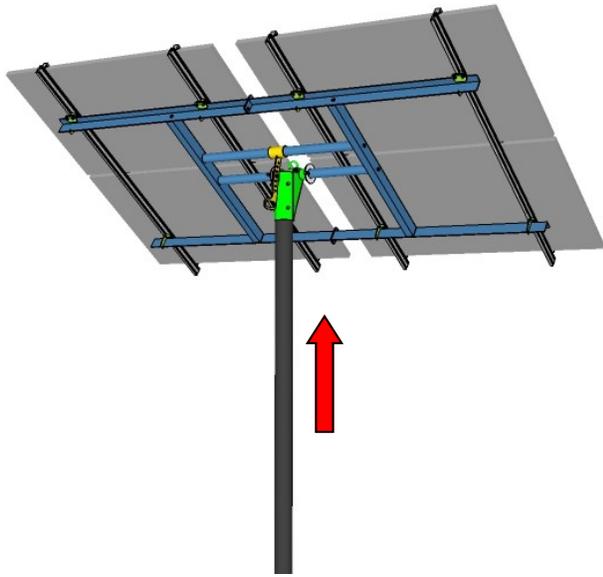
121 B



122

121: For the TOP-2 and TOP-4, if you are installing modules at ground level, leave a 5" gap to allow for the 4" pipe to protrude through the array. If you are installing at the top of the pole, you do not need to provide this gap.

122: For the TOP-3, if installing at ground level, leave the middle module out until array is hoisted to the top. It is ok to temporarily install the outer two modules with just 2 end clamps each.



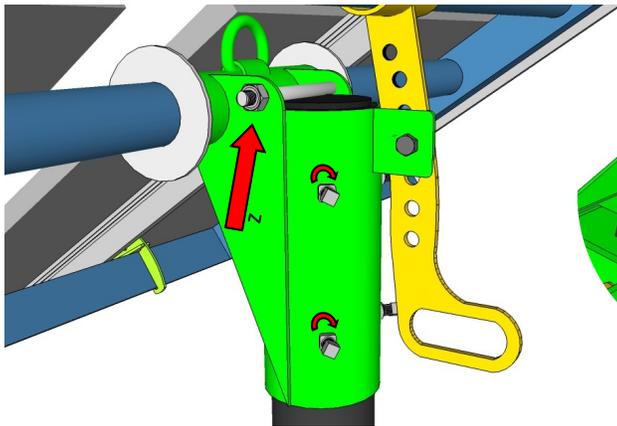
123

123: Once module installation is complete, raise and or tilt the array to facilitate module wiring and wire management as needed. When wiring is completed, raise the array to the top of the pole.



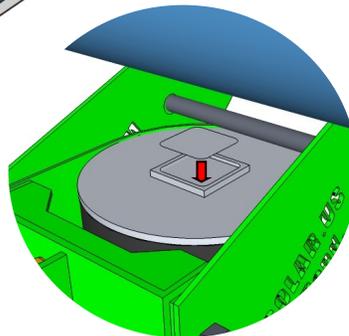
124

124: If necessary, installing remaining module.



125

125: Insert the 5/8" x 7" bolt over the top of the pole with the 5/8" flat washers and 5/8" nut. Securely tighten the 4 tension bolts in the back of the pole cap to 200 ft-lb.



126

126: Remove the chain hoist and lifting bracket and place the 1 3/8" diameter round cap in place.

Using an angle finder, adjust array to proper tilt.

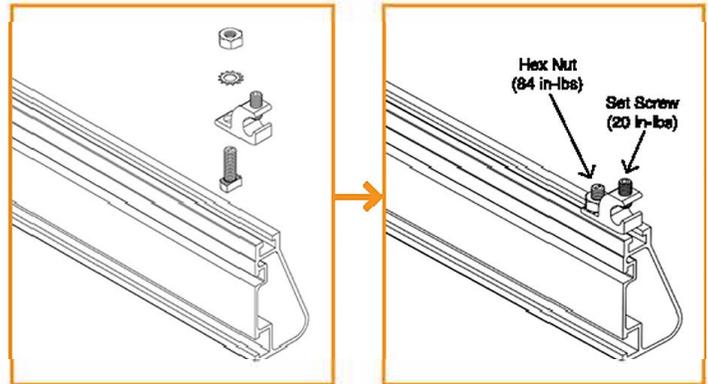
Installation is complete.



## GROUNDING LUG

Assemble Grounding Lug with provided hardware. Torque hex nut to 73 In-lbs. Install a minimum 10 AWG solid copper grounding wire. Torque set screw to 20 in-lbs .

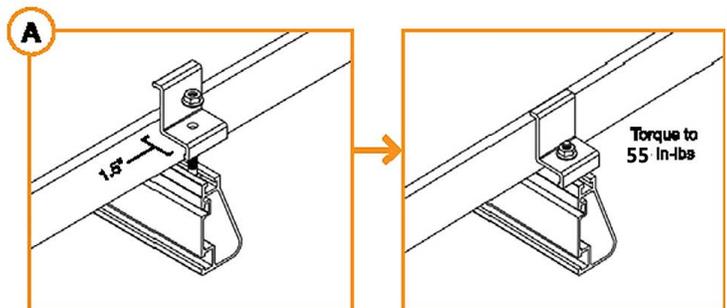
- ▶ Grounding hardware is only needed on one rail per row of modules. Grounding Lugs must be installed on same rail as Grounding Straps.



## A. FIRST END CLAMPS

Place first module a minimum of 1.5" from rail ends. Slide End Clamps into both rails and hook over top of module. Torque to 55 in-lbs.

- ⚠ Ensure rails are square before placing modules.
- ⚠ Hold End Clamps while torquing to prevent rotation.

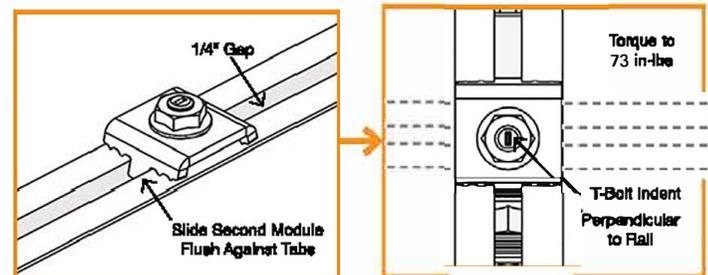
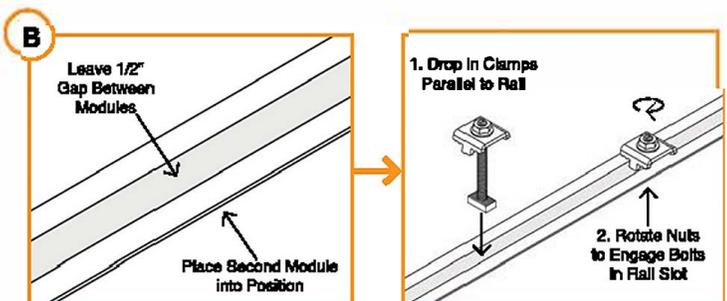


## B. MID CLAMPS

Place second module into position, leaving a 1/2" gap between it and the previous module. While holding module in place, drop Grounding Mid Clamps into rail slots and rotate nuts to engage T-bolts.

Slide second module flush against clamp tabs. Once clamp teeth are in contact with both module frames and the bolts are properly aligned in slots, torque to 73 In-lbs. Repeat procedure for each following module.

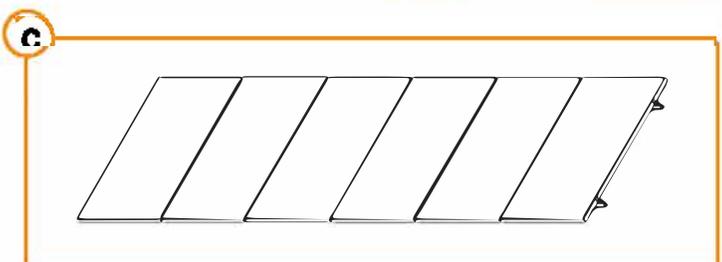
- ▶ Make sure indent at top of T-bolt is perpendicular to rail slot to ensure T-bolts are properly seated.
- ▶ If using Standard Mid Clamps with ETL-listed WEEB Clips, refer to [WEEB Installation Instructions](#). Torque to 120 in-lbs.



## C. LAST END CLAMPS

Place last module in position on rails, a minimum of 1.5" from rail ends. Slide End Clamps into both rails, ensuring it is hooked over top of module. Torque to 55 In-lbs.

- ▶ Repeat all steps for each following row of modules.



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