

Installation Manual

6" Angle Series Top of Pole Mount

www.mtsolar.us
844-MT-SOLAR (687-6527)

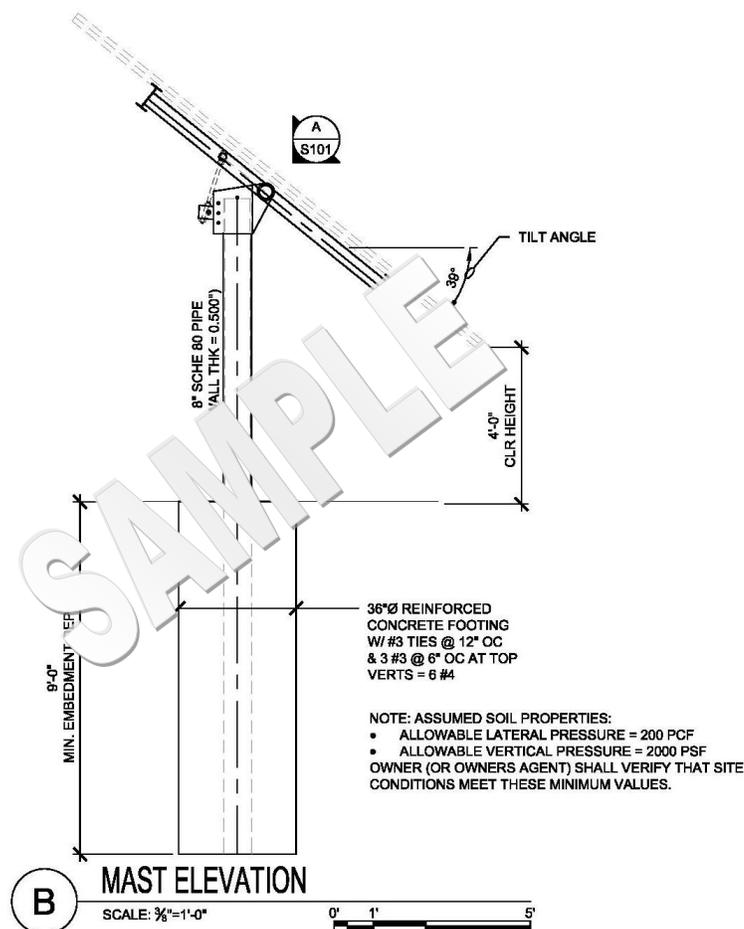
2016 V2.7



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.

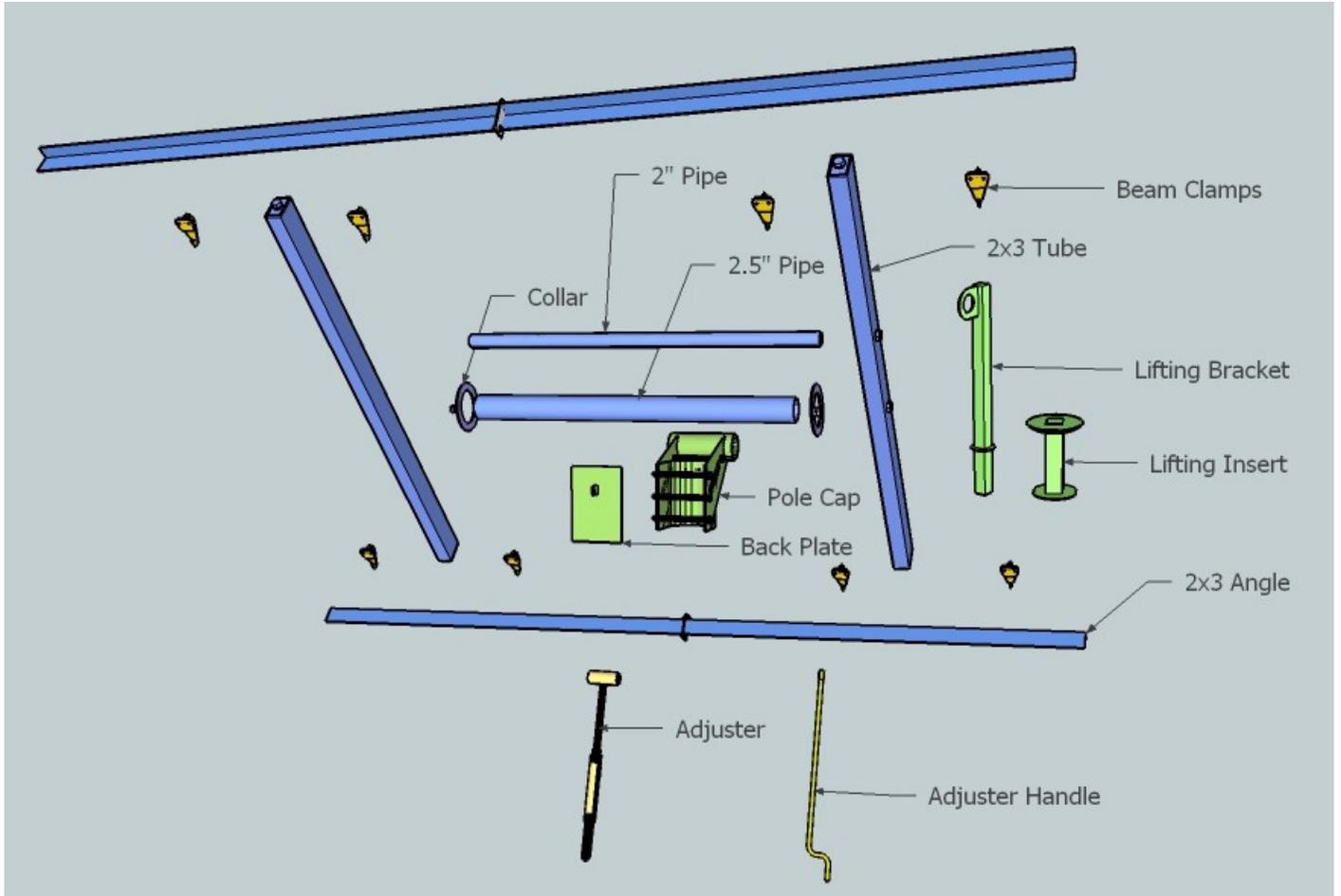
We recommend consulting an engineer for a recommendation on foundation dimensions and pipe size and thickness. MT Solar can also provide a stamped drawing engineered for site-specific requirements for an additional fee. Please contact us to find out more.



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.

6" Series TPM Components— Exploded View



Components List:

Qty	Description
4	3x2 Angle
2	2x3 Tube
1	2.5" Pipe
1	2" Pipe
1	U Bracket / Pole Cap
1	Adjuster
1	Adjuster Handle
1	Back Plate
8	Beam Clamps
2	Locking Collar
1	Lifting Bracket
1	Lifting Insert
4	3/4"x9" Bolts
4	3/4" Nuts
8	3/4" Flat Washers

Qty	Description
2	3/4"x3" Square Head Bolts
3	1/2"x1" Square Head Bolts
1	1/2"x1 1/2" Bolt
2	1/2" Flat Washers
1	1/2" Nylon Lock Nut
4	1/2"x3 1/2" Bolts
8	1/2" Flat Washers
8	1/2" Split Washers
4	1/2"x1 1/2" Bolts
4	1/2"x1 1/4" Bolts
4	1/2"x1 1/4 Flange Nuts
**	3/8"x1 1/4" Carriage Bolts
**	3/8" Flange Nuts
**	3/8"x1" Stainless Bolts
**	3/8" Serrated Flange Nuts

Tools Required:

- 1 1/8" Socket
- 3/4" Socket
- 9/16" Socket
- Crescent Wrench
- Torque Wrench
- Tape Measure
- Angle Finder
- Compass
- Ladder

** Varies depending on the number, size and layout of modules.

See packing list for Quantity.

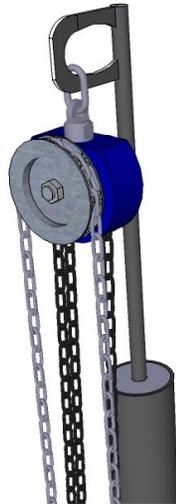
Installation Guide



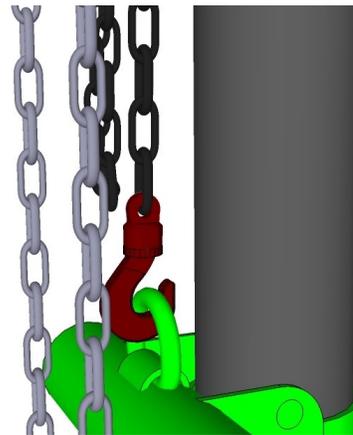
101



102



103



104 A



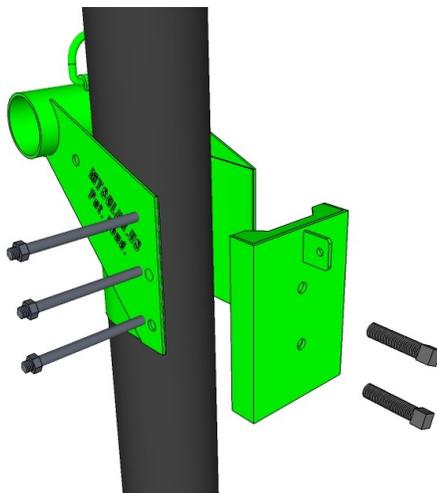
104 B

101: With the 6" Sch 40 or Sch 80 steel pipe installed in the ground, place the lifting insert into the top of the pipe until it sits flush.

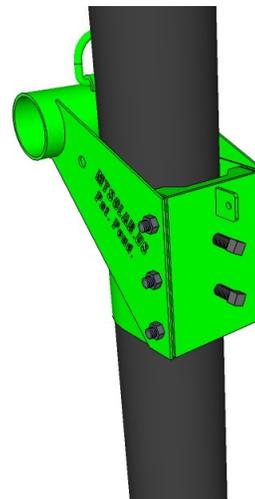
102: Place the lifting bracket into the lifting insert with the eye facing south.

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

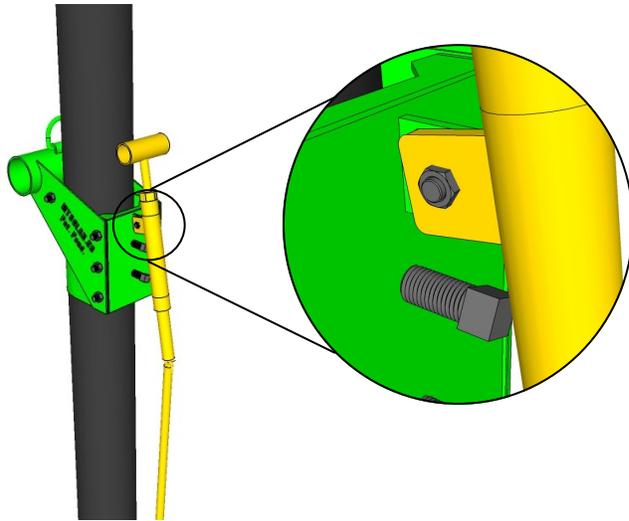


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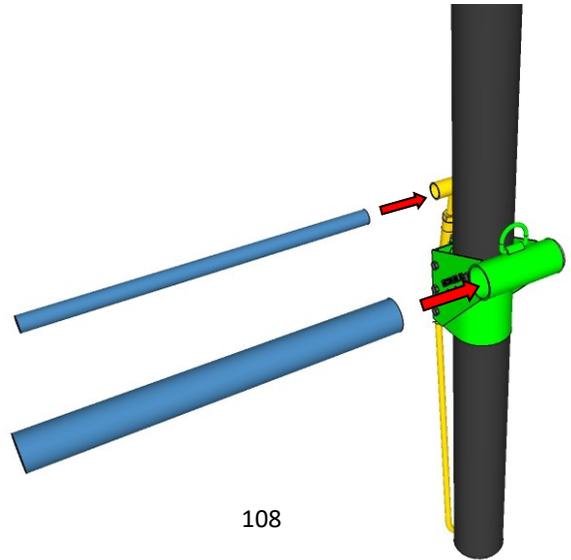
105: While holding the U-Bracket around the pole, insert 3 of the 3/4" x 9" bolts through the holes in the back of the U-bracket and through the holes on the Back Plate with 3/4" flat washers on both sides and 3/4" nuts.

106: Insert the 3/4" x 3" Set Bolts in Back Plate, but do not tighten if leaving chain fall hoist connected.

Note: If installing multiple mounts with a single hoist, bolt the pole cap on the pole at the desired working height. Tighten 3/4" bolts and 3/4" set screws to 200 ft-lb. Assemble rack, rails and modules. Then, move lifting assembly and hoist to pole when ready to lift. Attach to pole cap and loosen bolts. Continue with raising the array for wiring or completing the installation.



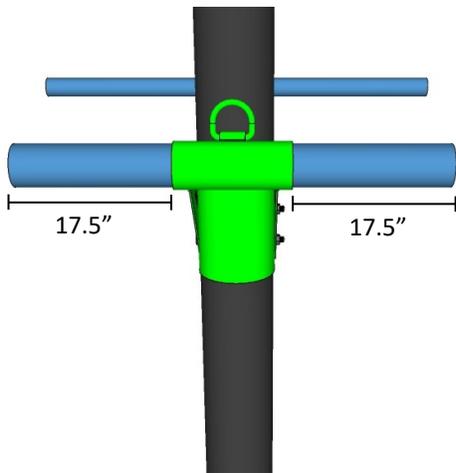
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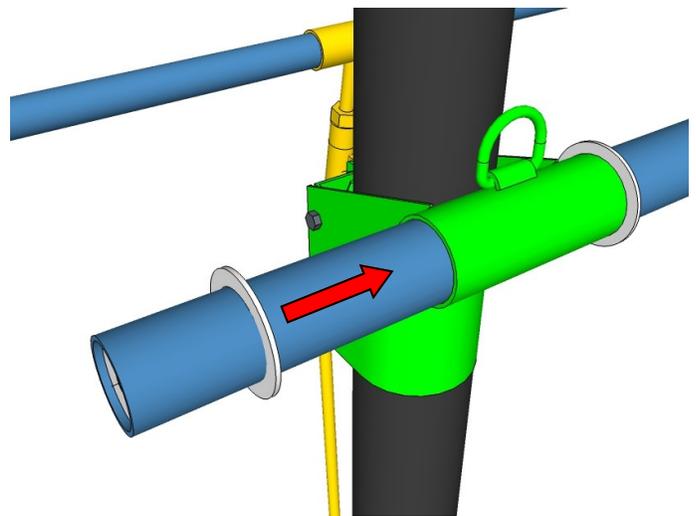
108

107: Attach the Screw Adjuster 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.

108: Slide the 2" pipe through the screw adjuster and slide the 2.5" pipe through the U Bracket Assembly sleeve.



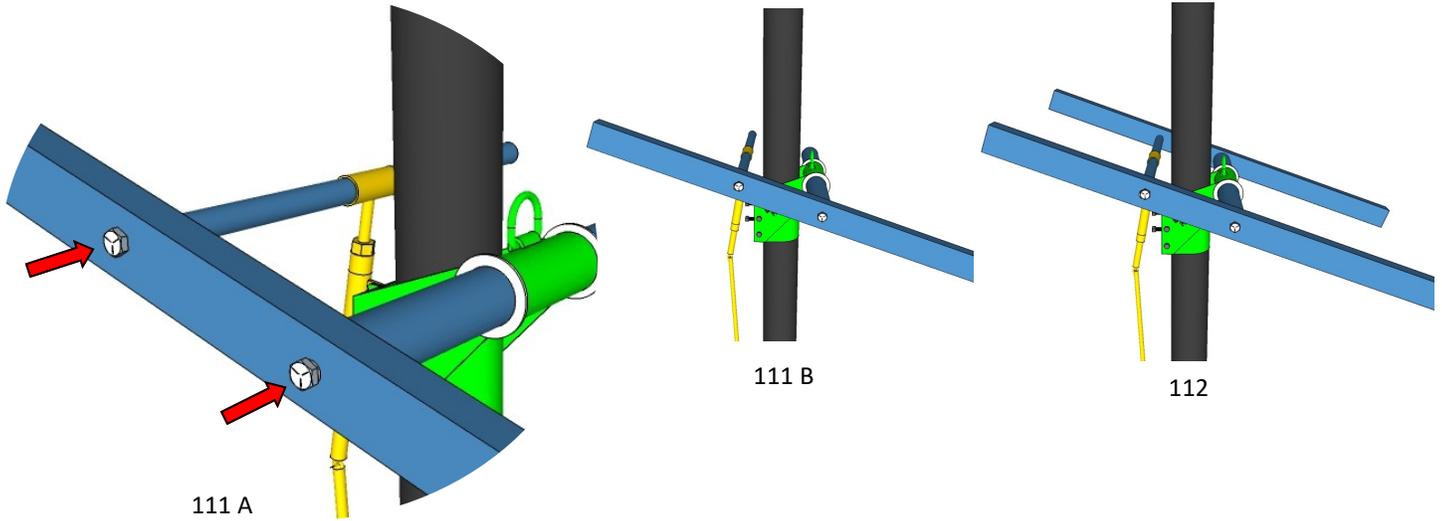
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110

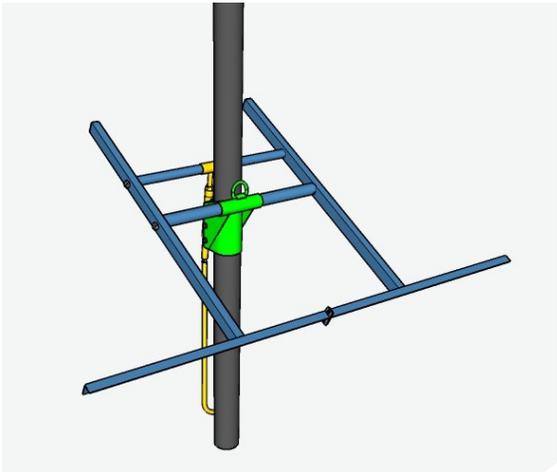
109: Center pipes in sleeves. There should be approximately 17.5" of the 2.5" pipe on either side of the sleeve.

110: Slide collars on 2.5" pipe and tighten with 1/2" x 1" square head set bolts. Hold collar firm against the sleeve when tightening.

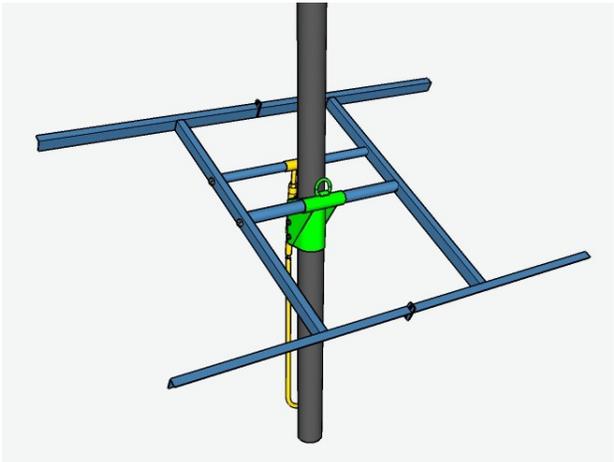


111: Ensure that the MT Solar lettering is upright, and attach one of the 2x3" rectangular tubes to the 2.5" pipe and 2" pipe using the 1/2" x 3 1/2" bolts with 1/2" flat washers and split washers.

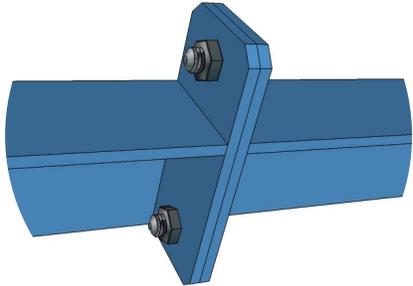
112: Install the remaining 2x3" rectangular tube. Snug up all 4 bolts, but leave loose enough to allow for some play when installing Angle pieces. Adjusting the Screw Adjuster as necessary, level the array in preparation for the installation of the 2" x 3" angle.



113



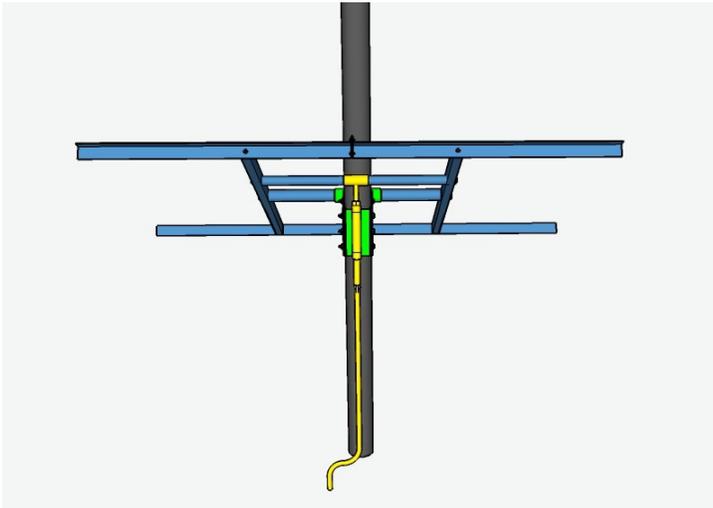
114



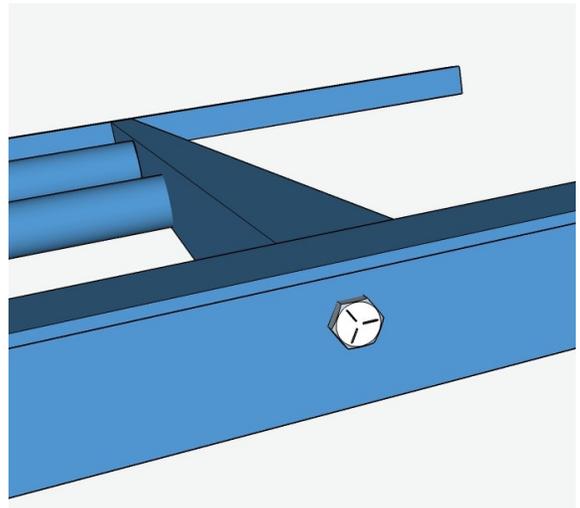
113 B

113: 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.

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

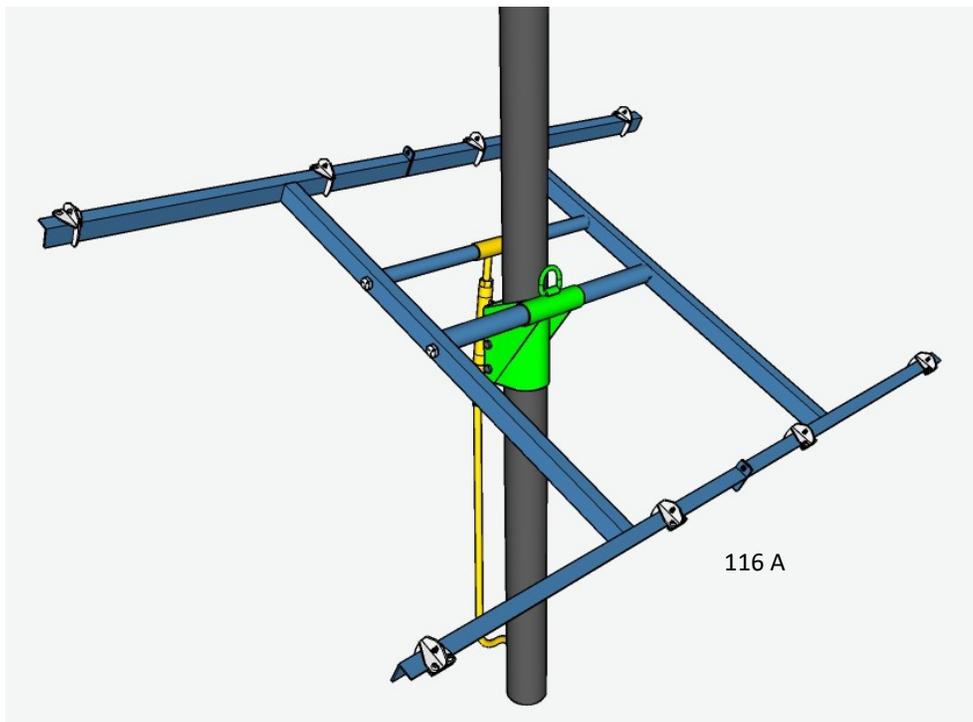


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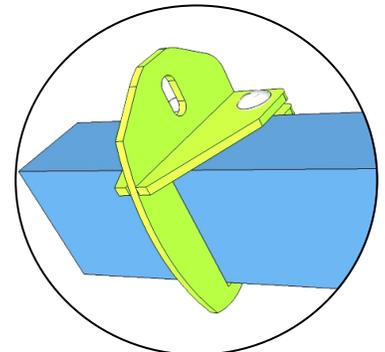


115 B

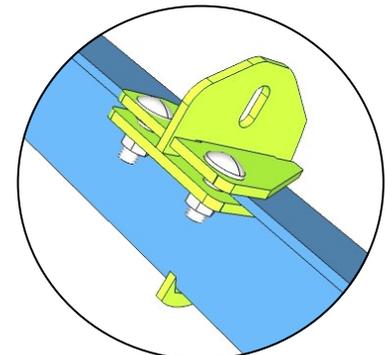
115: Standing on the North Side of the array with the Tube to Angle bolts started but not tightened, sight the Angle pieces to ensure they are parallel. If not, twist the array until they are then tighten the bolts between the Rectangular Tubes and the Angle.



116 A



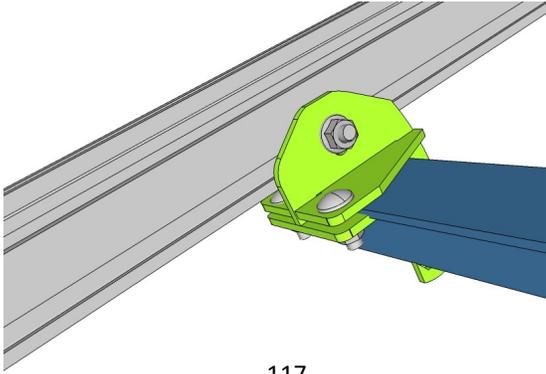
116 B



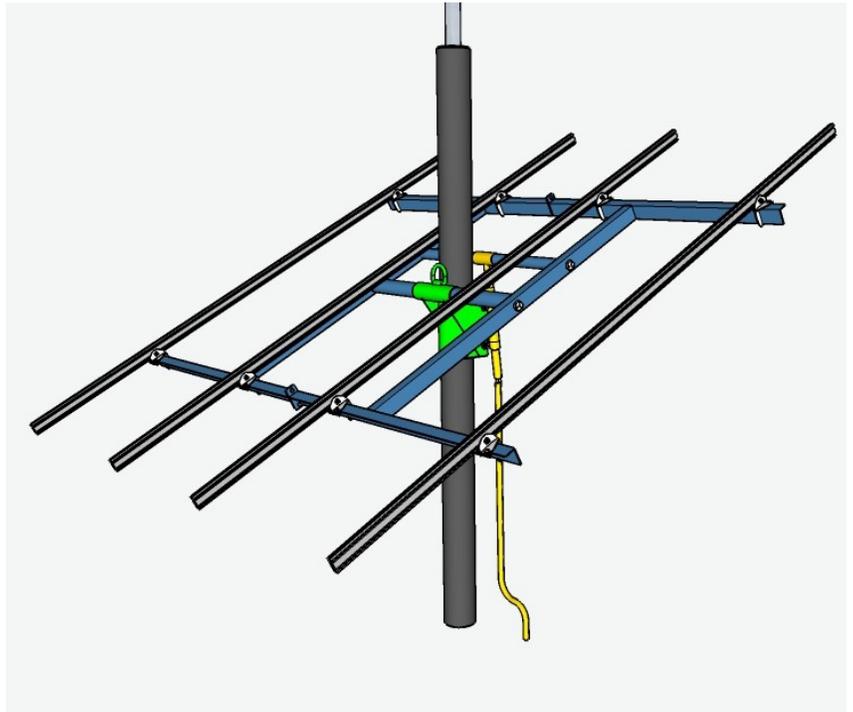
116 C

116: 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 7-8" gap in the center to allow for the 6" diameter pipe to protrude through, if you wish to put all the modules on at ground level.



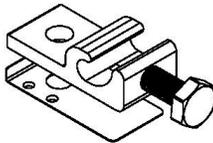
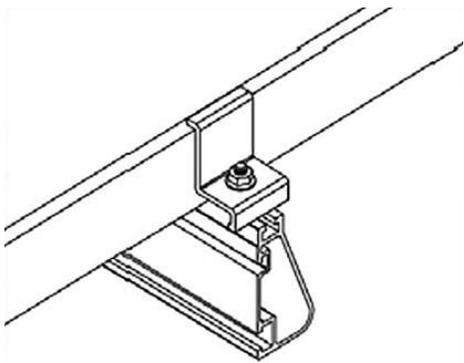
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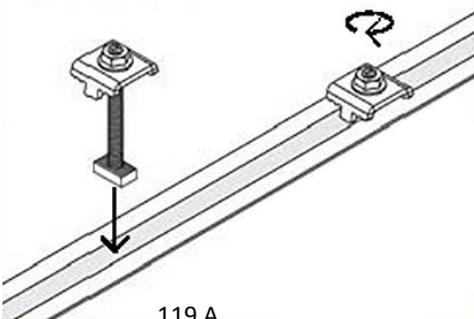
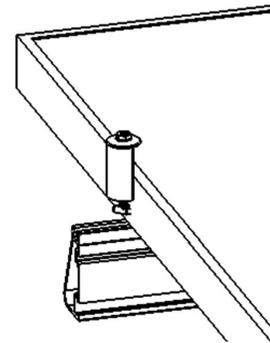
118

117: 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.

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

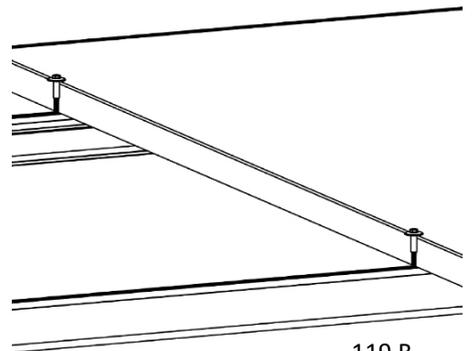


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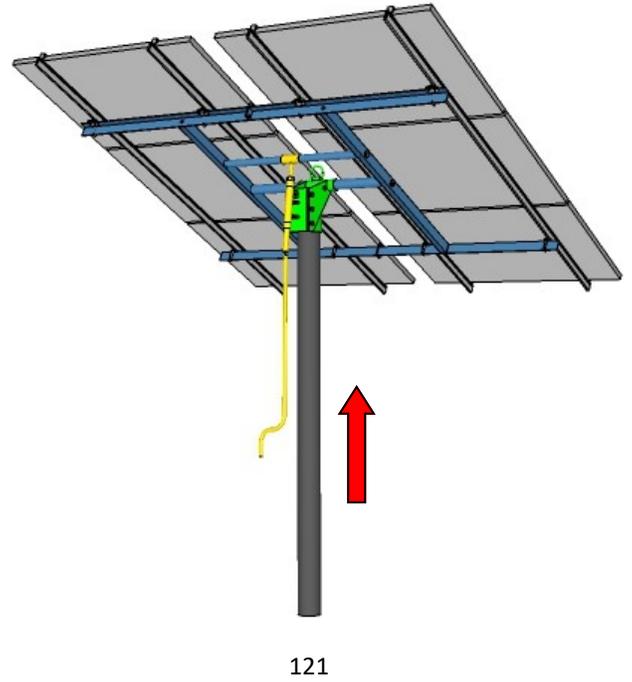
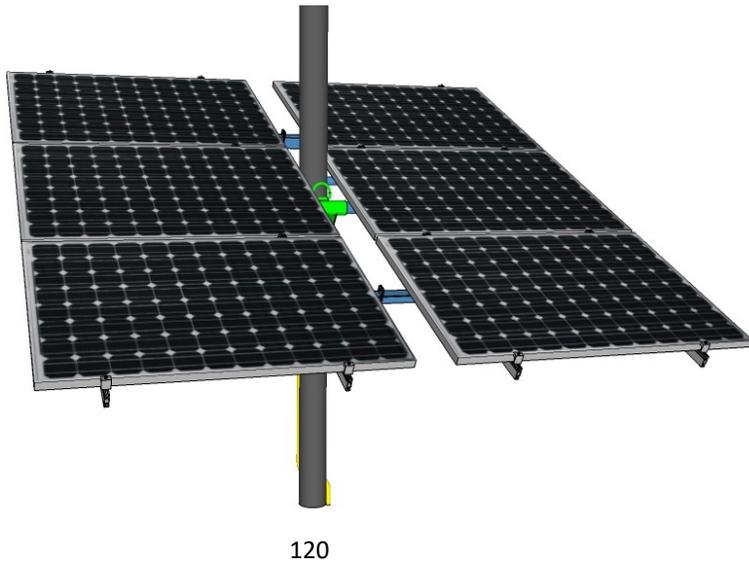
119 A

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



119 B

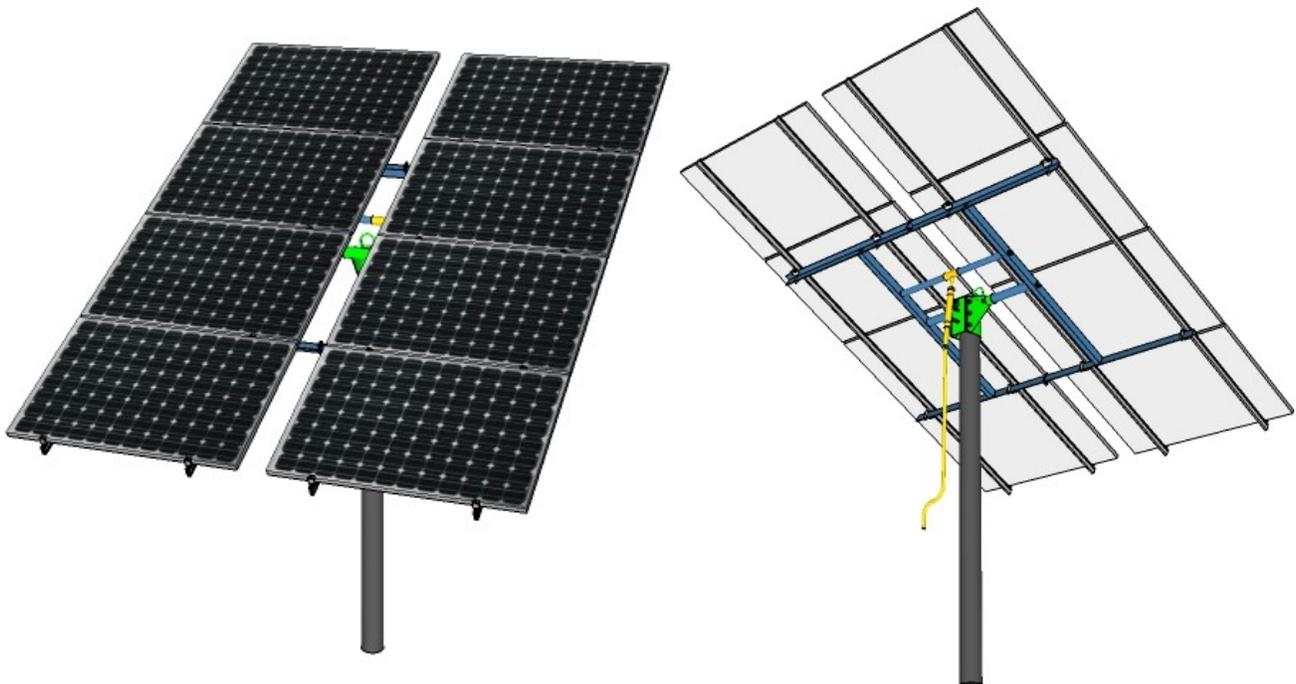
119: Install Solar Modules as per Mounting Rail and module manufacturer instructions using top clamps. See last page of manual for Iron Ridge Rail and Clamp instructions.

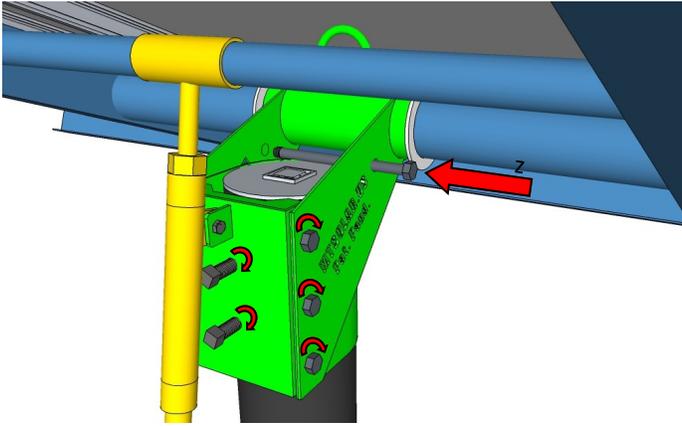


120: Once module installation is complete, raise and or tilt the array to facilitate module wiring and wire management as needed.

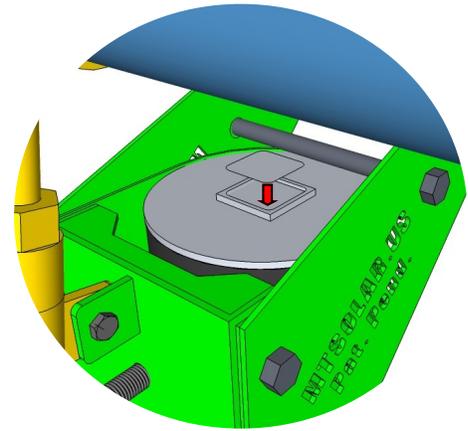
121: When wiring is completed, raise the array to the top of the pole.

8 Module Configuration





122

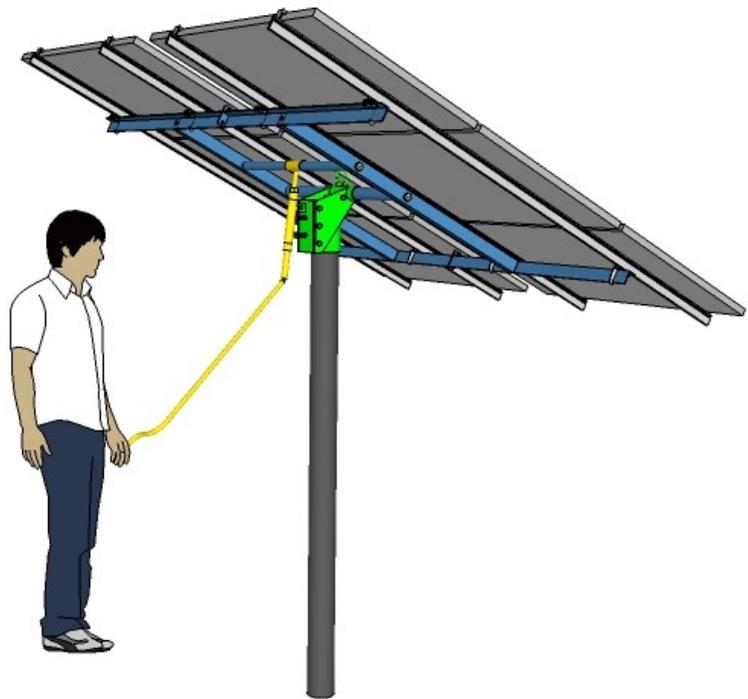


123

122: Insert the last 3/4" x 9" bolt over the top of the pole with the 3/4" flat washers and 3/4" nut. Securely tighten the tension bolts in the back mounting plate to 200 ft-lb and all 3 bolts through the U Bracket Assembly and the back mounting plate.

123: Remove the chain hoist and lifting bracket and place the 2" square cap in place.

124: Attach adjuster handle using the 1/2" x 1" set screw. You may cut the handle to length depending on pole height and site conditions.



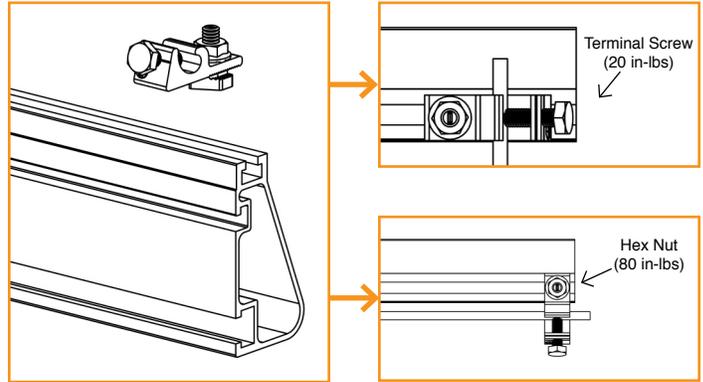
124

Using an angle finder, adjust array to proper tilt.

3. SECURE LUGS

Insert T-bolt in top rail slot and torque hex nut to **80 in-lbs**. Install a minimum 10 AWG solid copper or stranded grounding wire. Torque terminal screw to **20 in-lbs**.

- 💡 Grounding Lugs are only needed on one rail per row of modules (unless frameless modules are being used, see [Page 8](#)).
- 💡 If using Enphase microinverters, Grounding Lugs may not be needed. See [Page 8](#) for more information.
- 💡 Grounding Lugs can be installed anywhere along the rail and in either orientation shown.

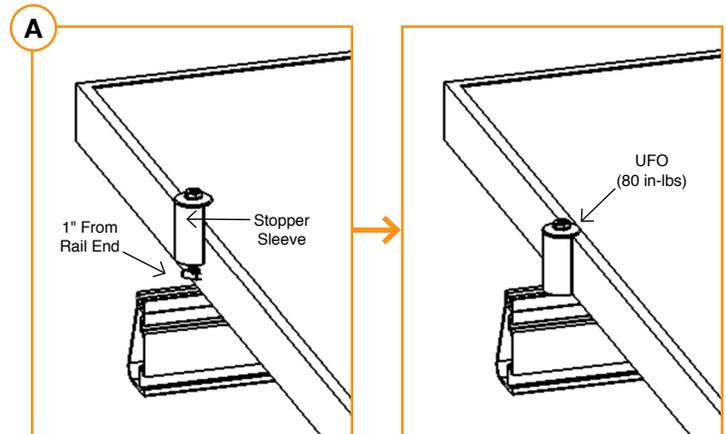


4. SECURE MODULES

A. SECURE FIRST END

Place first module in position on rails, a minimum of 1" from rail ends. Snap Stopper Sleeves onto UFO. Fasten module to rail using the UFO, ensuring that the UFO is hooked over the top of the module. Torque to **80 in-lbs**.

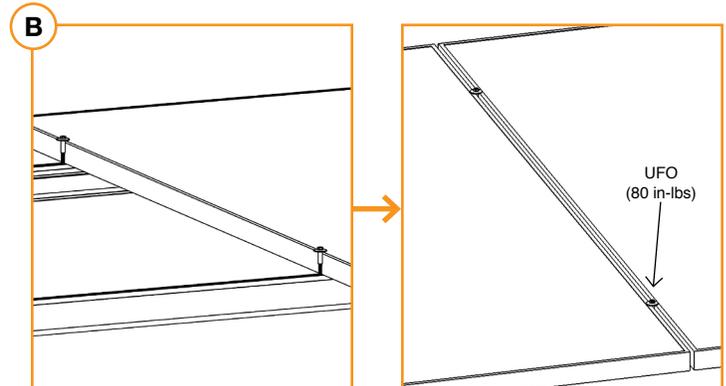
- 💡 Ensure rails are square before placing modules.
- 💡 Hold Stopper Sleeves on end while torquing to prevent rotation.



B. SECURE NEXT MODULES

Place UFO into each rail, placing them flush against first module. Slide second module against UFO. Torque to **80 in-lbs**. Repeat for each following module.

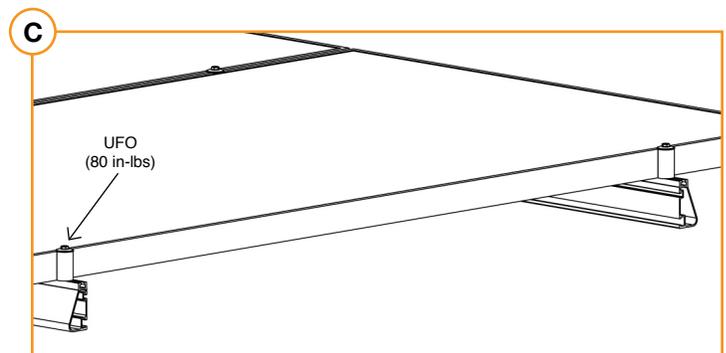
- 💡 When reinstalling UFO, move modules a minimum of 1/16" so UFOs are in contact with a new section of module frame.
- 💡 If using Wire Clips, refer to [Page 7](#).



C. SECURE LAST END

Place last module in position on rails, a minimum of 1" from rail ends. Snap Stopper Sleeves onto UFO. Secure UFO Clamps on rails, ensuring they are hooked over top of module. Torque to **80 in-lbs**.

- 💡 Hold Stopper Sleeves on end while torquing to prevent rotation.
- 💡 Repeat all steps for each following row of modules.





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