

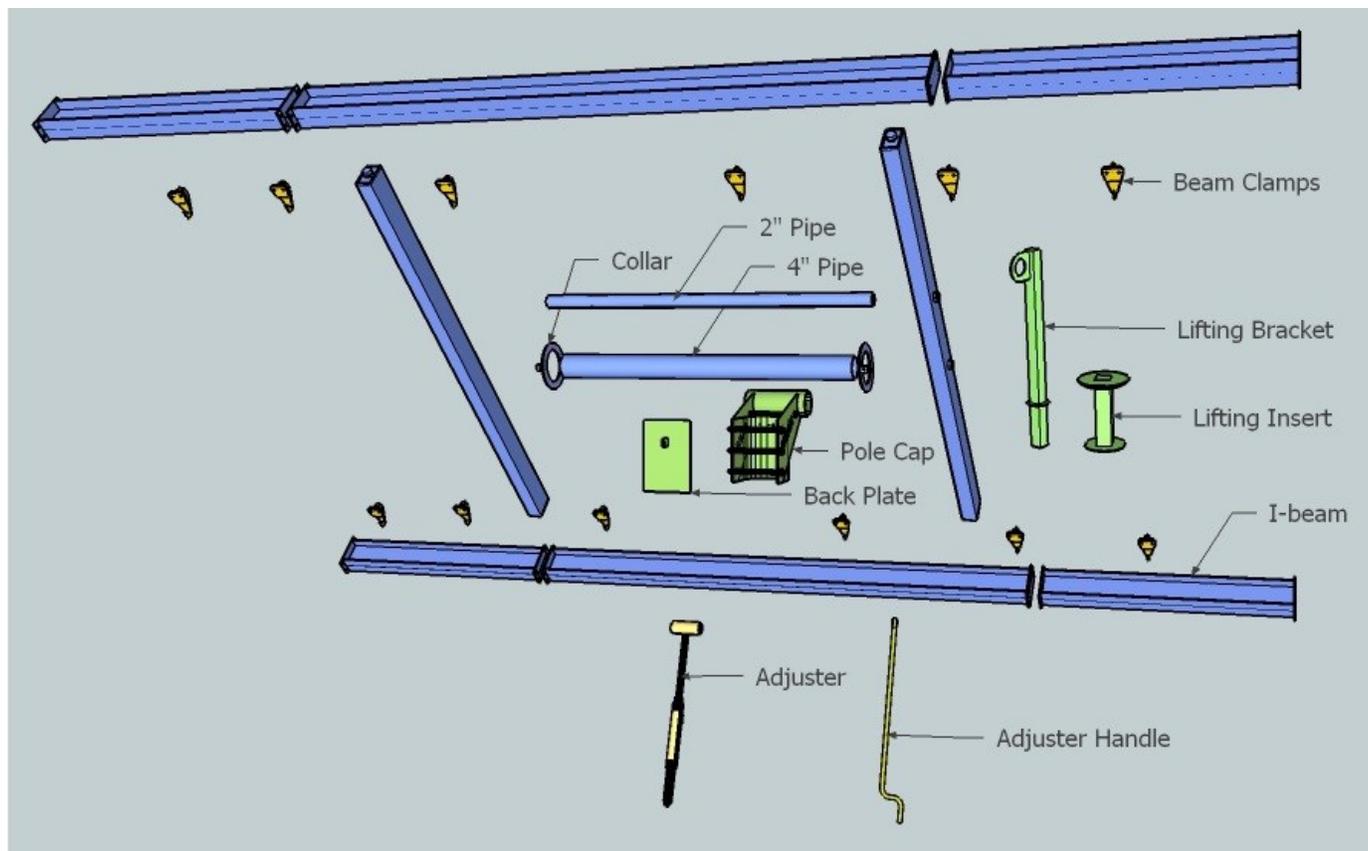
Installation Manual

8" Series Top of Pole Mount

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

2016 V2.8

8" Series TPM Components— Exploded View



Components List:

Qty	Description	Qty	Description
2	Center I-Beams	2	1/2"x1" Sq. Head Set Bolts
4	Wing I-Beams	2	3/4"x5" Bolts
2	3x5 Tubes	2	5" Square Flat Washers
1	4.5" Pipe	2	3/4" Split Washers
1	2" Pipe	2	1/2"x4 1/2" Bolts
1	U Bracket / Pole Cap	2	1/2" Flat Washers
1	Adjuster	2	1/2" Split Washers
1	Adjuster Handle	4	3/4"x2" Bolts
1	Back Plate	4	3/4" Flat Washers
**	Beam Clamps	4	3/4" Split Washers
2	Locking Collars	16	1/2"x1 1/4" Bolts
1	Lifting Insert Cap	16	1/2" Flange Nuts
1	Lifting Insert	**	3/8x1 1/4" Carriage Bolts
4	3/4"x11" Bolts	**	3/8" Flange Nuts
8	3/4" Flat Washers	**	3/8"x1" Stainless Bolts
4	3/4" Nuts	**	3/8" Stainless Flange Nuts
2	3/4"x3" Sq. Head Set Bolts		
1	1/2"x1 1/2" Bolt		Installers Package (Optional)
2	1/2" Flat Washers	1	Chain Fall Hoist
1	1/2" Nylock Nut	1	Lifting Bracket

Tools Required:

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

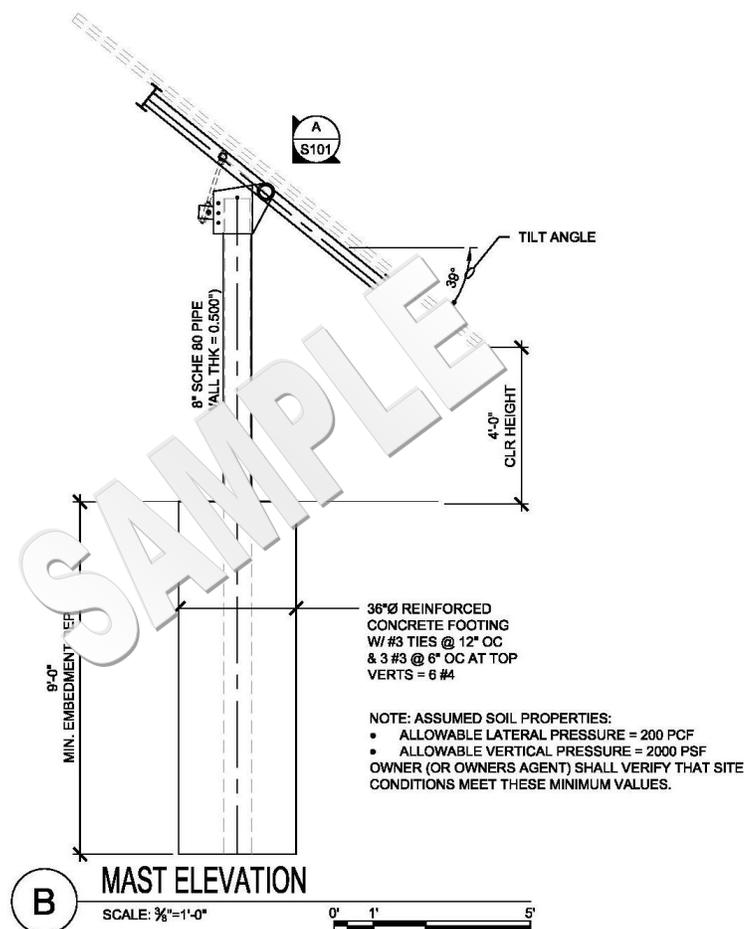
** Varies depending on the number, size and layout of modules.

See packing list for Quantity.

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.

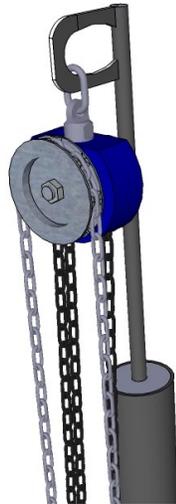
Installation Guide



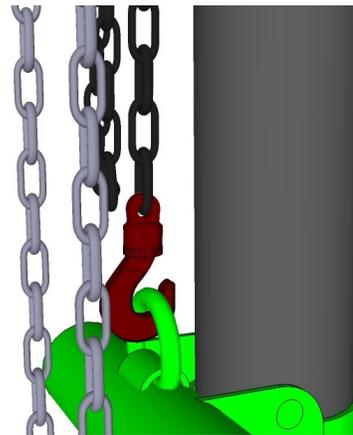
101



102



103



104 A



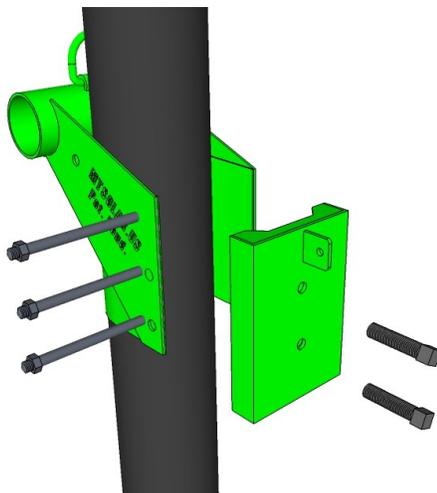
104 B

101: With the 8" 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.

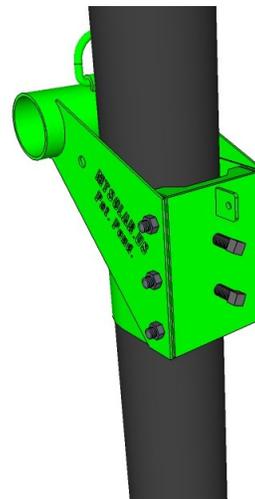
102: Place the lifting bracket into the lifting insert with the eye facing south.

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

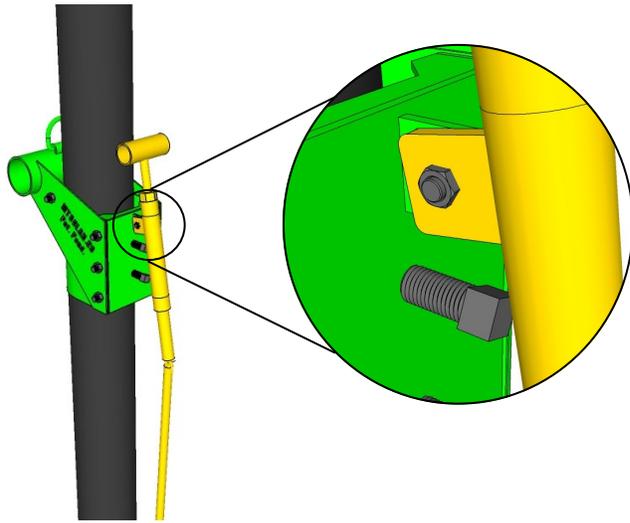


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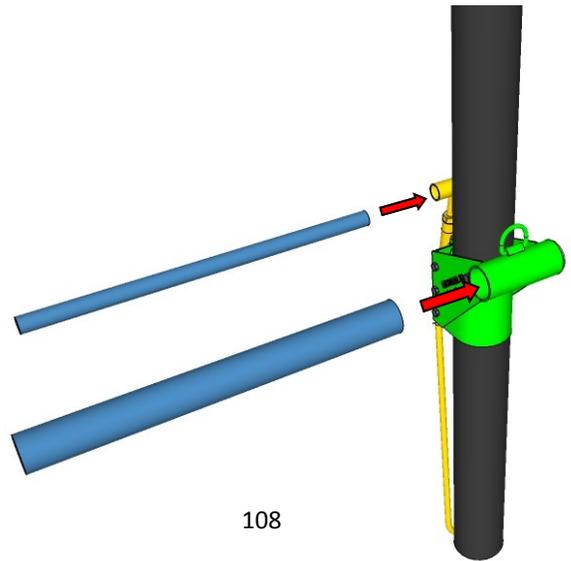
105: While holding the U-Bracket around the pole, insert 3 of the 3/4" x 11" bolts through the holes in the back of the U-bracket and through the holes on the Back Plate with 3/4" flat washers on both sides and 3/4" nuts, but do not tighten.

106: Insert 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.



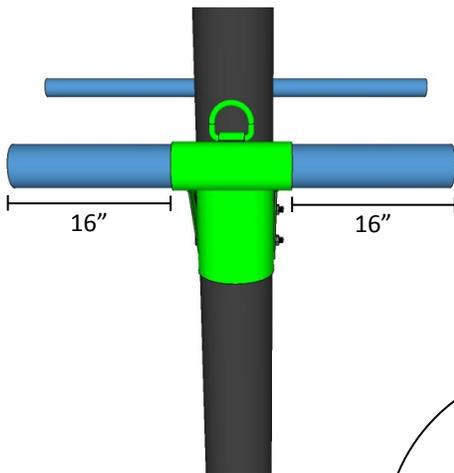
107



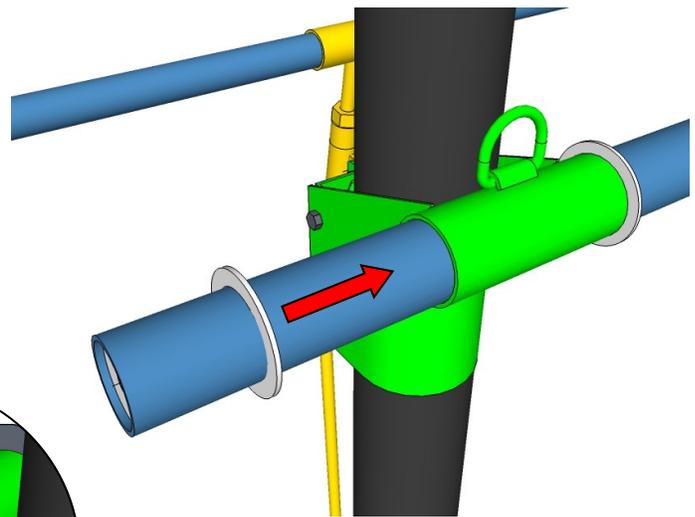
108

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. Make sure the bolt is snug tight, but do not over-tighten to allow for some movement of the adjuster tab.

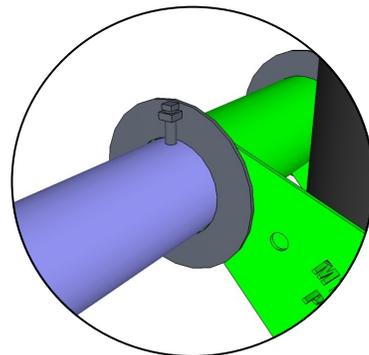
108: Slide the 2" pipe through the screw adjuster and slide the 4.5" pipe through the U Bracket Assembly sleeve.



109



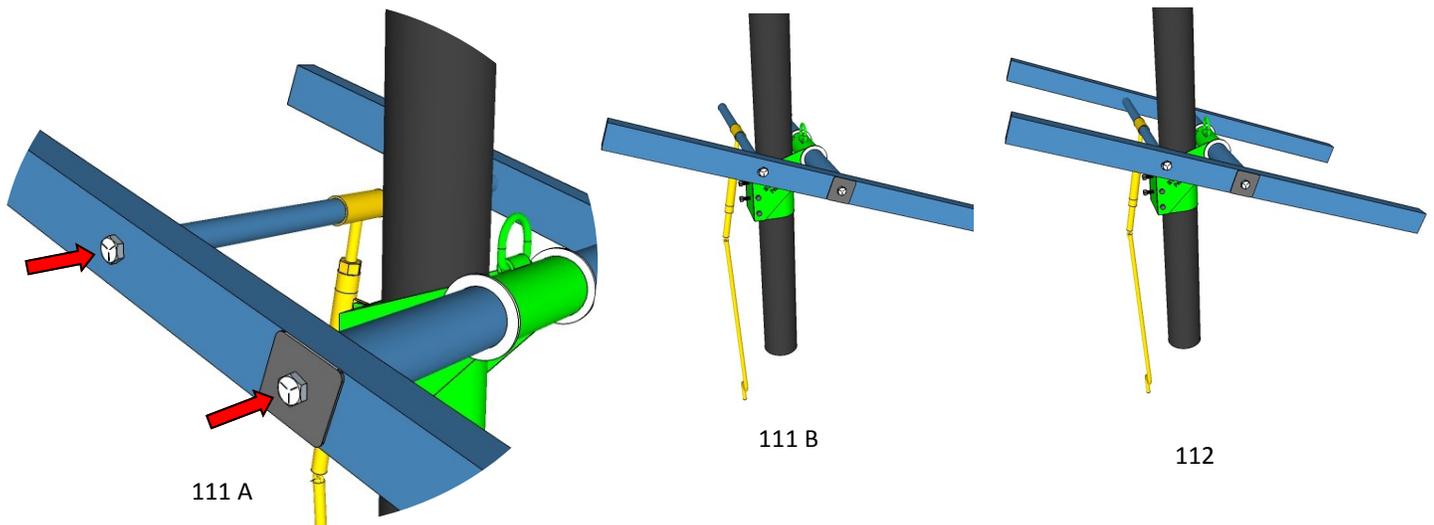
110 A



110 B

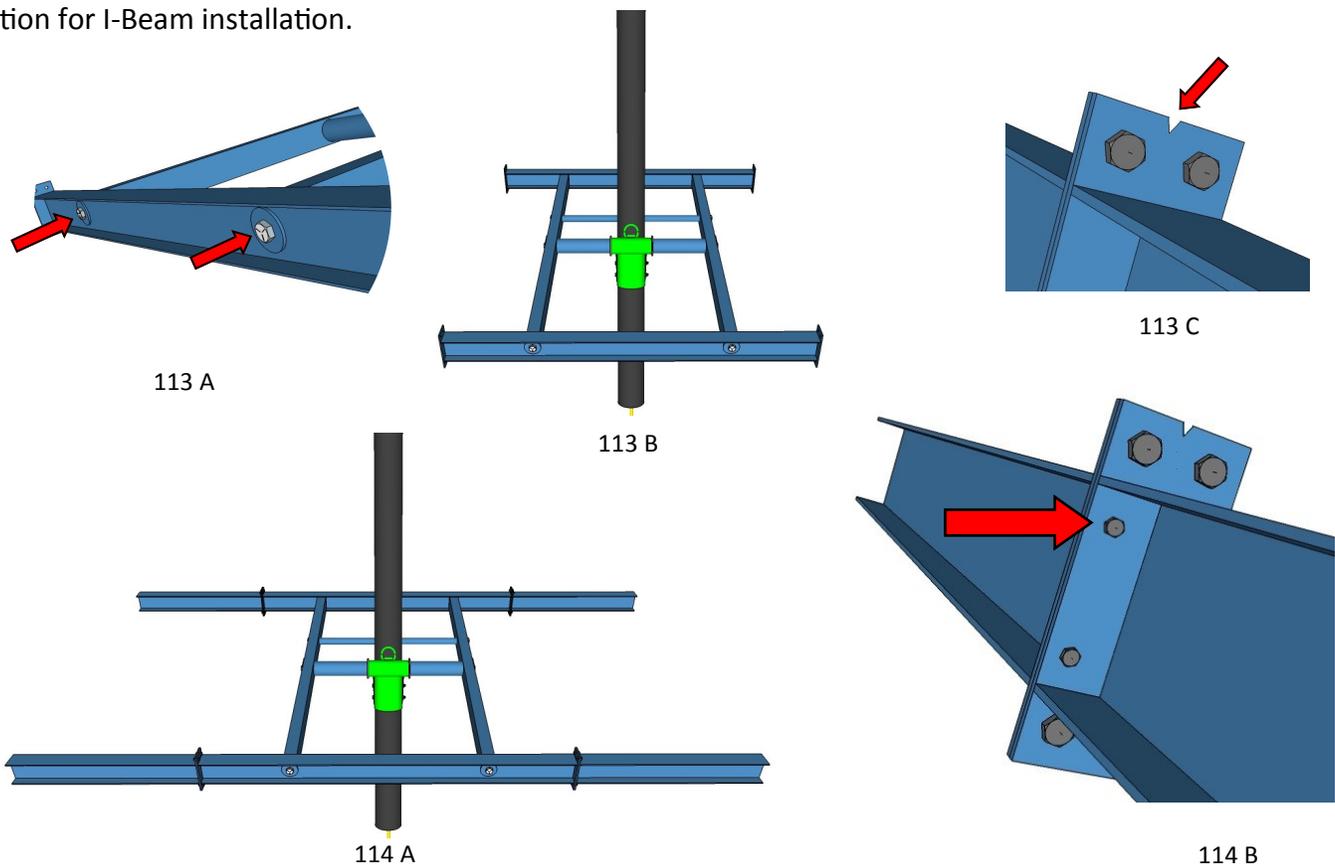
109: Center pipes in sleeves. There should be approximately 16" of the 4.5" pipe on either side of the sleeve.

110: Slide collars on 4.5" pipe and tighten with 1/2" x 1" square head set bolts. Hold collar firm against the sleeve when tightening. The nut should be facing out, away from the sleeve.



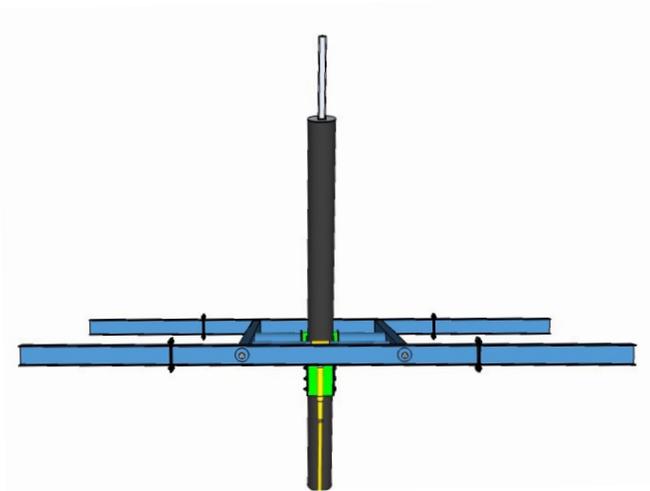
111: Ensure that the MT Solar lettering is upright, and attach one of the 3x5 rectangular tubes to the 4.5" pipe using the 3/4" x 5" bolts, **large 5" square plates** and 3/4" split washers. Attach to the 2" pipe using the 1/2" x 4 1/2" bolts with 1/2" flat washers and split washers.

112: Install the remaining 5"x3" rectangular tube. Snug up all 4 bolts, but leave loose enough to allow for some play when installing I-beams. Adjusting the Screw Adjuster as necessary, level the array in preparation for I-Beam installation.

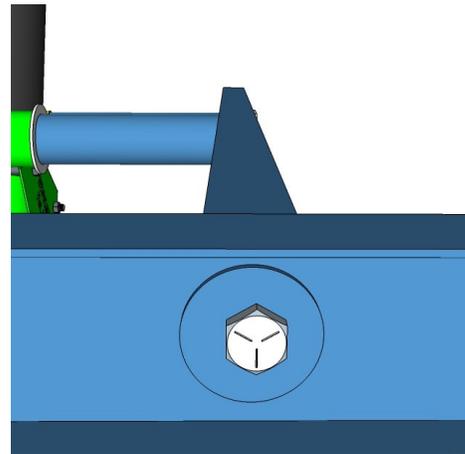


113: Install center I-beams to the 3x5 tubes using the 3/4" x 2" bolts, 3/4" flat washers & 3/4" split washers. **DO NOT TIGHTEN** at this step. Install all I-beams with notches up.

114: Splice the two I-beam wings on the ends of the center beam using the 1/2" x 1 1/4" bolts and 1/2" flange nuts. The Alignment Set Screws may be used to align the I-Beam Center piece to the I-Beam Wings, if necessary. Once I-beams are level, make sure all alignment set screws are touching the plate of the I-Beam wing and tighten the 1/2" bolts to 45 ft lbs.



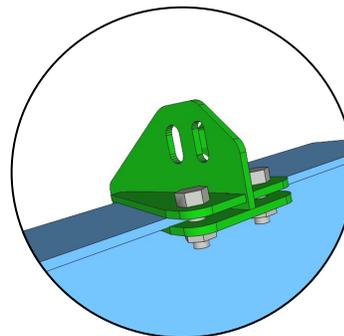
115 A



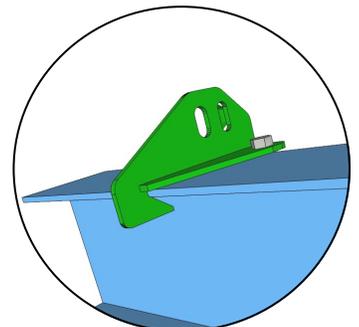
115 B

115: Standing on the North Side of the array with the Tube to Beam bolts started but not tightened, sight the beams to ensure they are parallel. If not, twist the array until they are. .

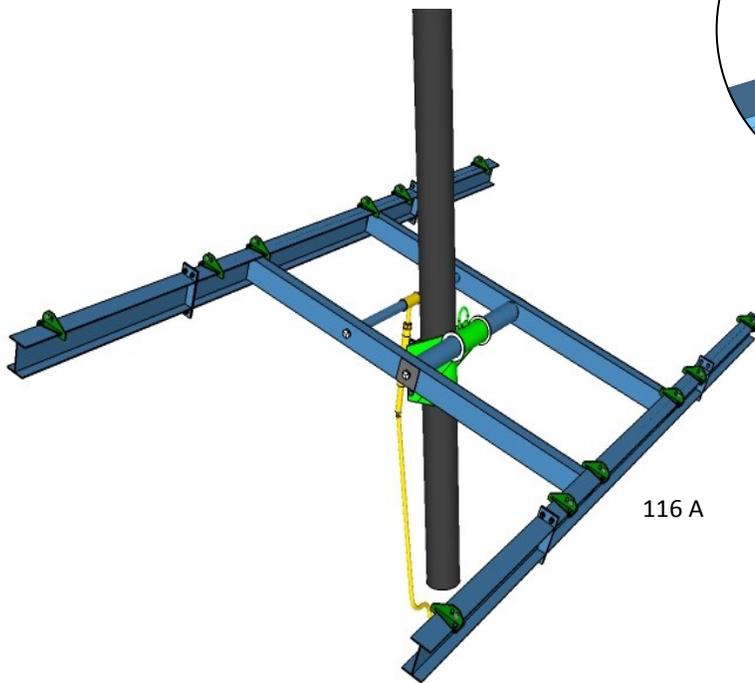
Then tighten all the 3/4" bolts between the Pipe and Rectangular Tubes and the Tubes and the Beams to 100 ft lbs.



116 B



116 C



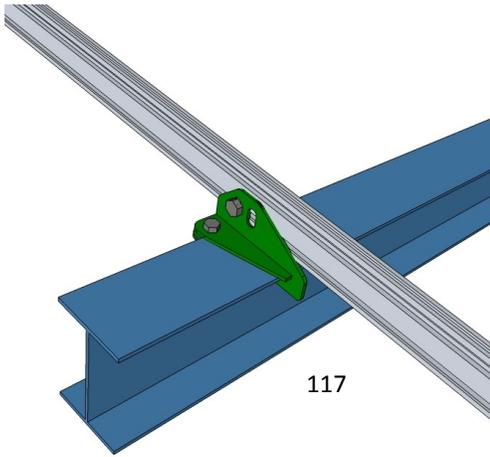
116 A



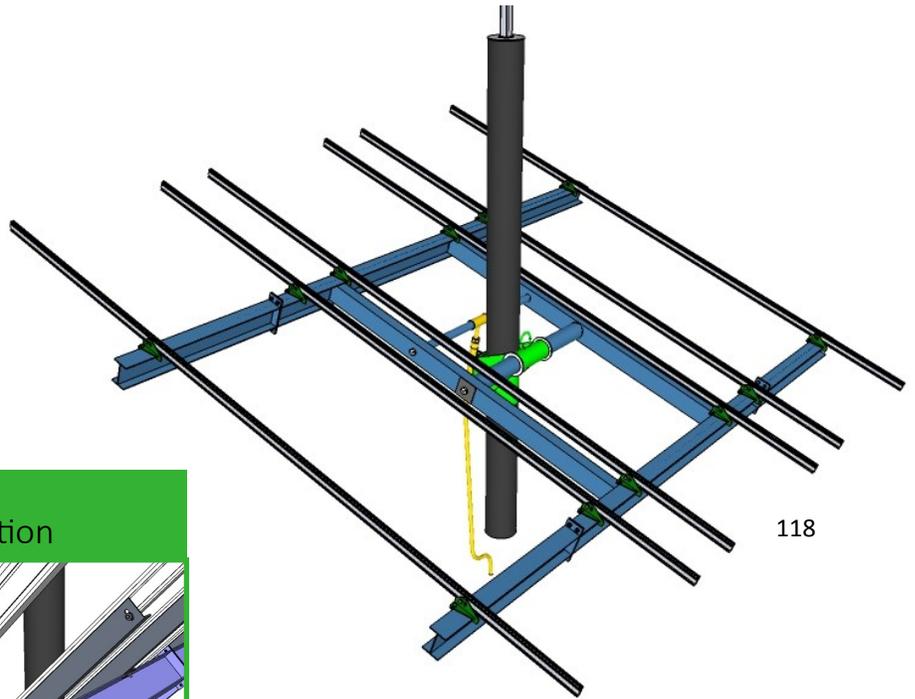
116: Plan the layout of your rails according to your module manufacturer's recommendation. Install the Beam Clamps on the I-beam using the 3/8" x 1 1/4" carriage bolts and 3/8" flange nuts. Tighten to 20 ft lbs. The TOP-15 uses a long angle-shaped clamp to give extra support to the span and cantilever. Attach angle using the plates provided and the 3/8" x 1 1/4" carriage bolts and 3/8" flange nuts.

For the 8-TOP-8, remember to leave a 9-10" gap in the center to allow for the 8 5/8" (OD) pipe to protrude through, if you wish to put all the modules on at ground level.

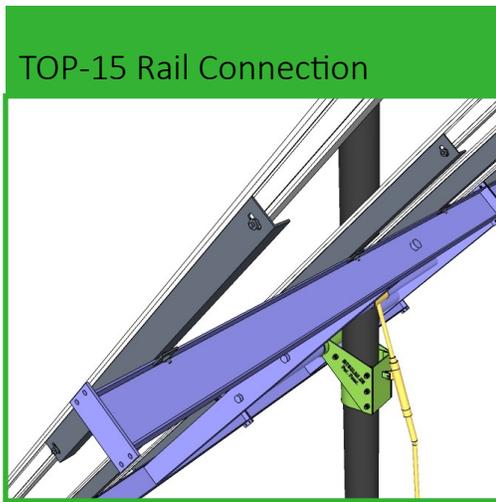
*For standard array configurations using 60 cell modules (approximately 40" x 65"), see pg 11.



117



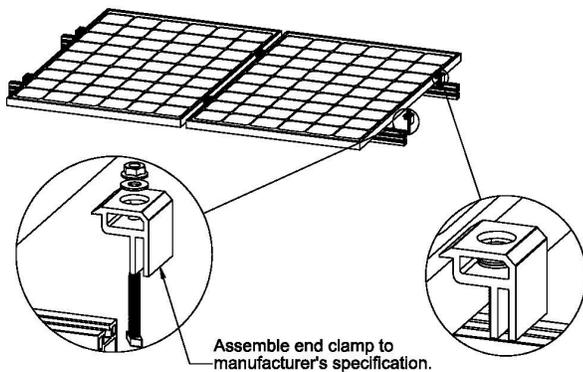
118



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.

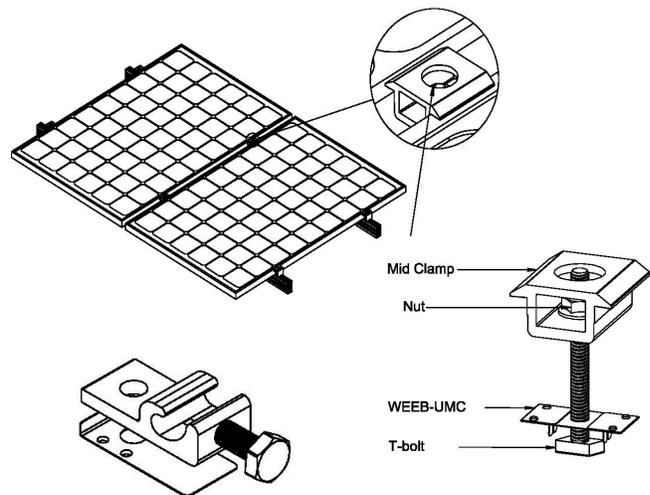
118: Center rails over I-beams, keeping equal length of rail off the end of each beam.

Sunmodo Example:
For Iron Ridge, see last page.



Assemble end clamp to manufacturer's specification.

119 A



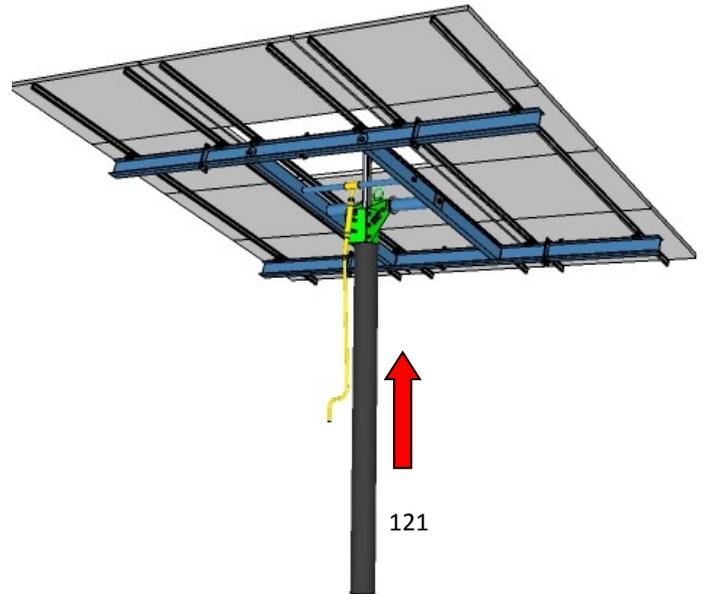
WEELug-6.7

119 B

119: Install Solar Modules as per Mounting Rail and module manufacturer instructions using top clamps.



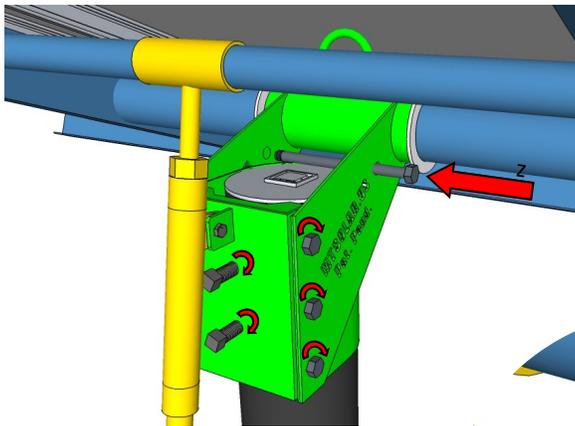
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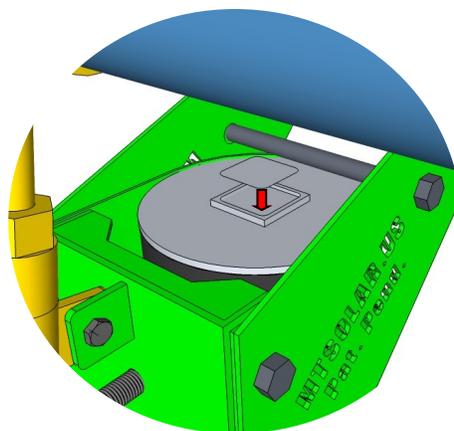
121

120: Leave out the appropriate module(s) to allow for the 8" pipe. It is ok to install the top and bottom modules of the center row(s) with just 2 clamps until the array is lifted to the top. Raise and or tilt the array to facilitate module installation and/or module wiring and wire management as needed.

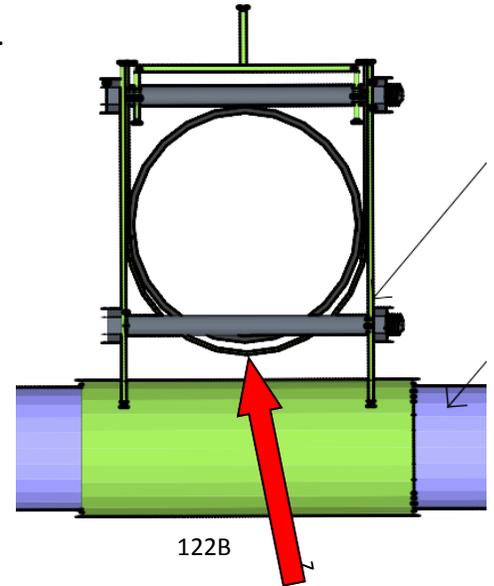
121: When wiring is completed, raise the array to the top of the pole.



122A



123



122B

NO GAP!!

Remove the gap by tightening the square set bolts until the front of the U-Bracket is snug against pipe, then make one more full rotation of the bolt.

122: With the mount hanging free on the hoist, **FIRST** tighten the square-headed tension bolts in the back mounting plate to a minimum of 200 ft-lb. **Remove the gap** by tightening the tension bolts until the front of the U-Bracket is snug against pipe, then make one more full rotation of the bolt. **SECOND**, tighten all three 11" bolts in back mounting plate to 100 ft-lb. Insert the last 3/4" x 11" bolt over the top of the pole with the 3/4" flat washers and 3/4" nut. Tighten to 20 ft lbs.

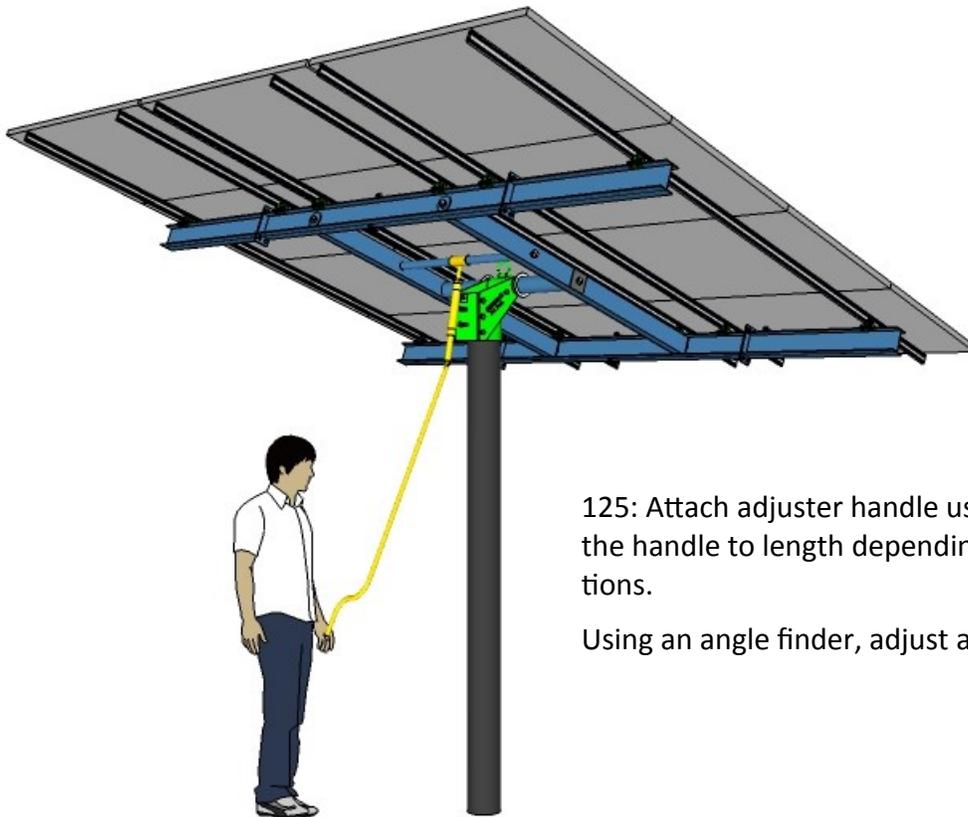
123: Remove the chain hoist and lifting bracket and place the 2" square cap in place.



124: Place the final module in the empty space. It may be advantageous to fully extend the Screw Adjuster to make this easier. If necessary, the lifting bracket can be removed and the array tilted to 90 degrees. In this position the lifting bracket and chain hoist can be re-installed and once the bolts are loosened the array can be lowered down to install the final module.

Grease adjuster screw using grease provided. There is a grease zerk located on the inside of the adjuster.

124



125: Attach adjuster handle using the set screw. You may cut the handle to length depending on pole height and site conditions.

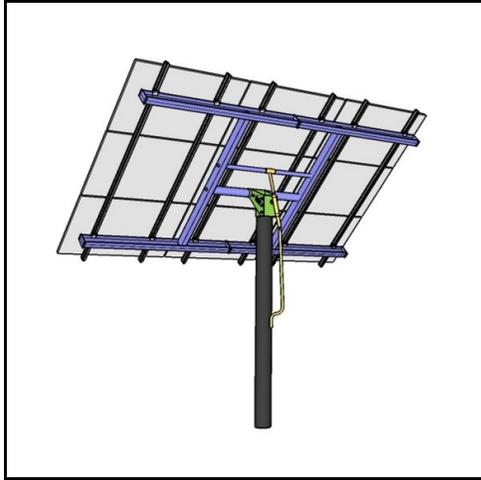
Using an angle finder, adjust array to proper tilt.

125

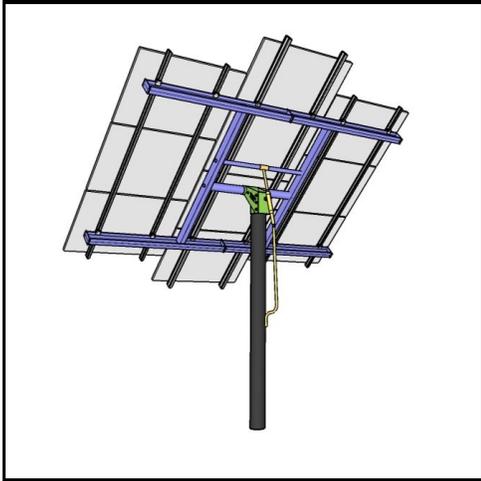
8 Module Configuration



9 Module Configuration



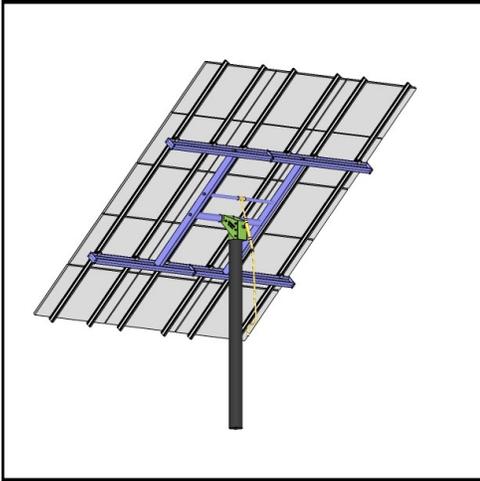
10 Module Configuration



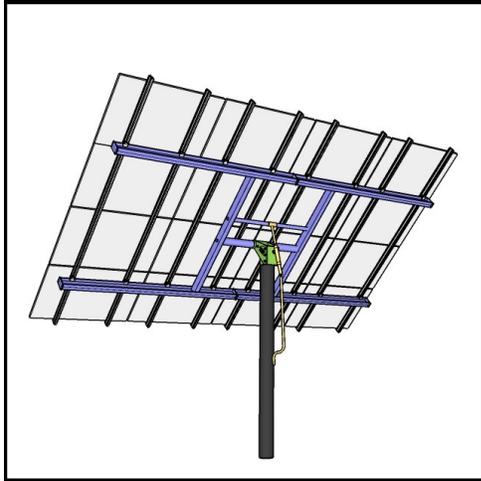
12 Module Configuration



15 Module Configuration



16 Module Configuration



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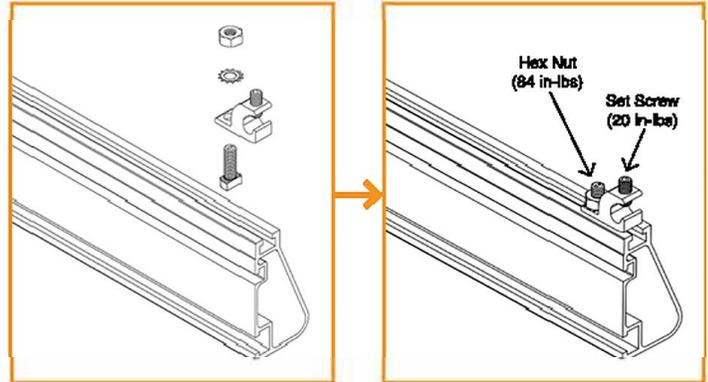
54179 Herak Road

Charlo, MT 59824

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 .

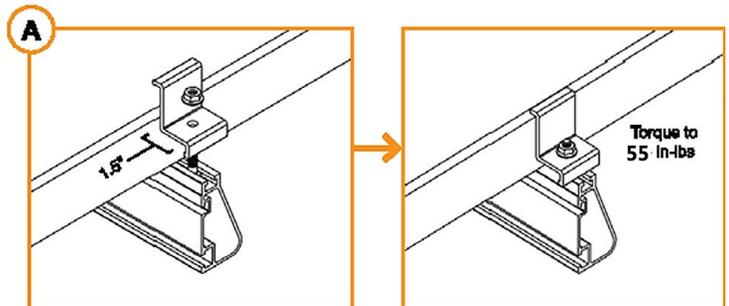
- ▶ Grounding hardware is only needed on one rail per row of modules. Grounding Lugs must be installed on same rail as Grounding Straps.



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.

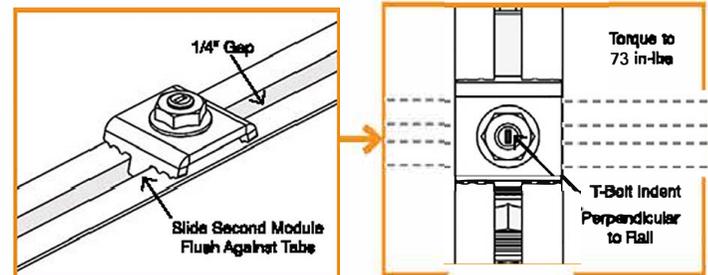
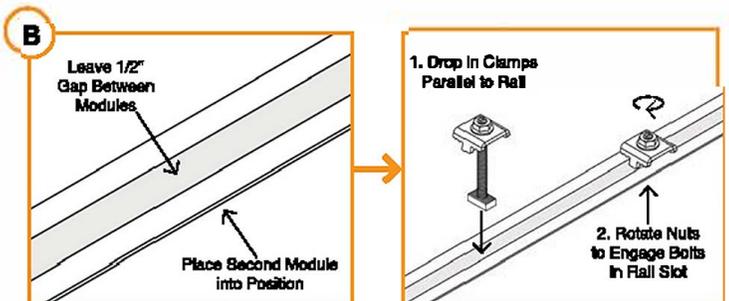


B. MID CLAMPS

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.

