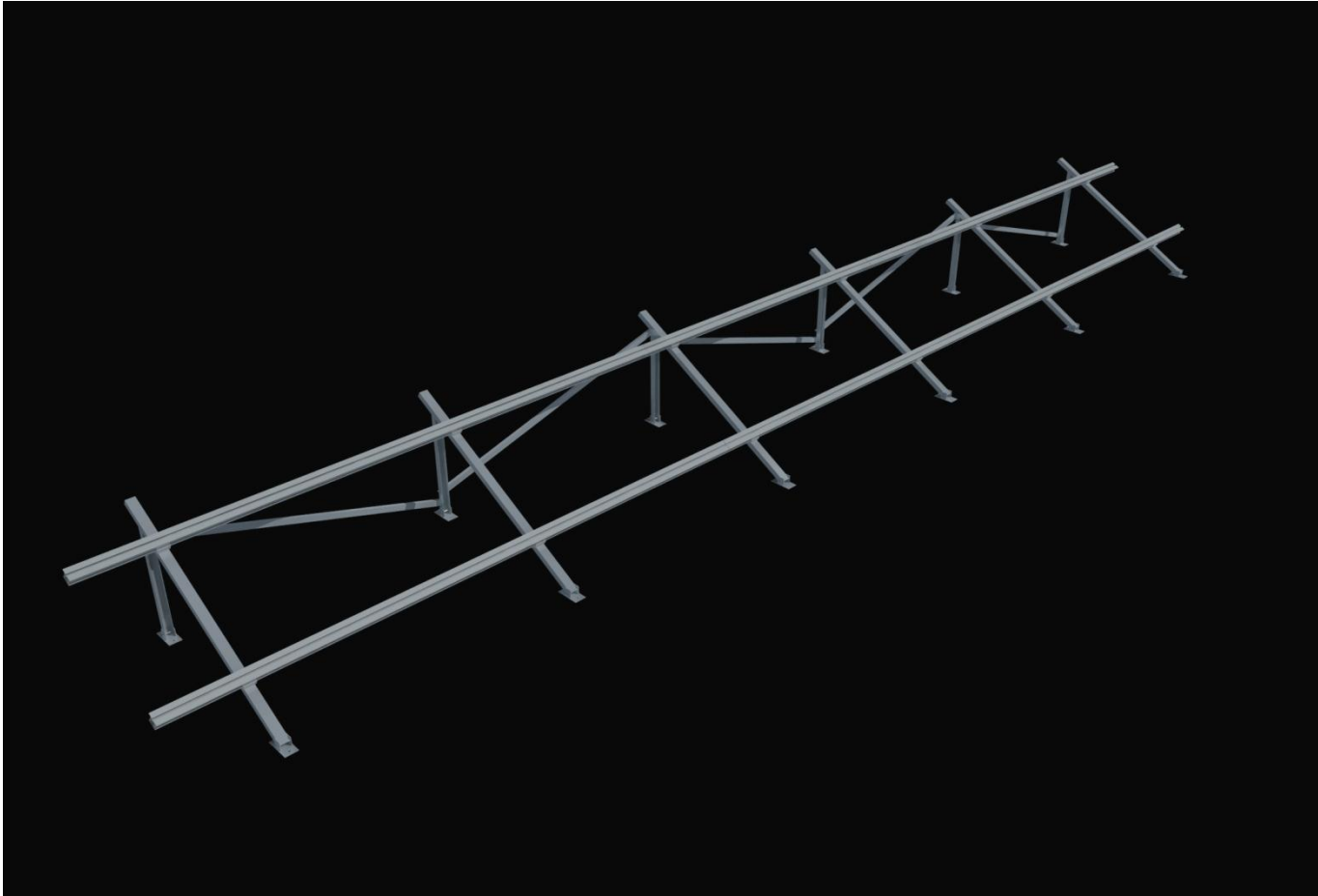


TOUGH TRAC™



Mid Angle Portrait Installation Manual

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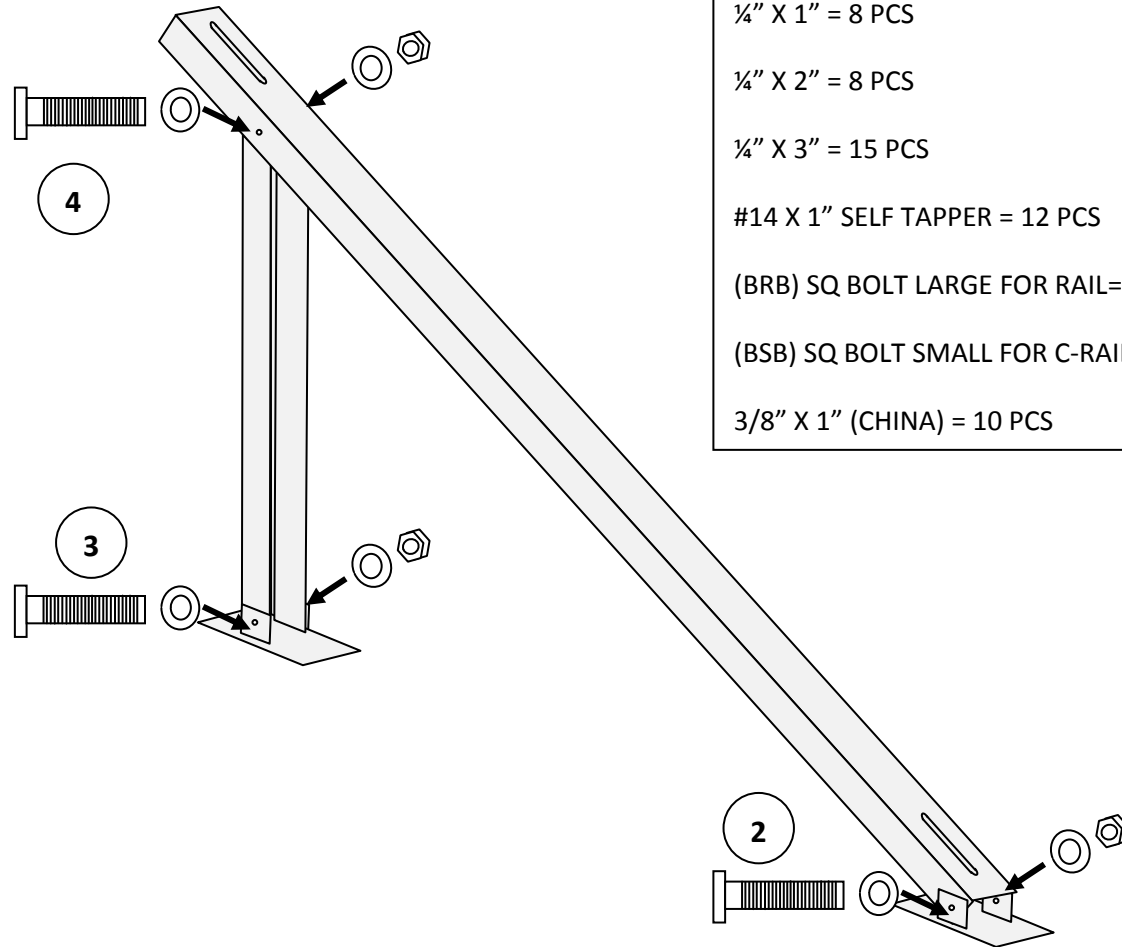
Installer Responsibilities

- Inquire and comply with all local and state building codes that apply to this installation.
- Consult with your engineer to inspect and determine that all roofs, rafters, trusses, and all structural support can handle and support the solar array and live load conditions.
- Consult and ensure that this mounting solution is appropriate for your particular installation.
- Consult with engineers to determine weight needed for ballast systems.
- To use only TOUGH TRAC™ supplied parts for your installation. Substituting parts may void the warranty.
- Install temporary ballasts to all unfinished arrays to secure the system to the roof to prevent movement or damage due to wind after work hours.
- Ensure all electrical connections are compliant to local electrical codes.

Parts supplied in your system (Stainless Steel Hardware not shown)

	<p>VERTICAL SUPPORTS X 5</p>		<p>FRONT & REAR BASE FEET X 5</p>
	<p>ANGLE ARM X 5</p>		<p>CROSS BRACE X 4</p>
	<p>STANDARD RAIL (6) 11' 4"</p>		<p>SLIDE MOUNT X 12</p>
	<p>TOP MOUNT BRACKET END X 4 BETWEEN X 18</p>		<p>CONNECTOR TUBE X 4</p>

1. Determine location on the roof. Make sure roof/ground is flat.
2. Slide Angle Arm to Front Base Feet and fasten using $\frac{1}{4}$ " x 3" bolt, washers, and nut.
3. Slide Rear Vertical Support into Rear Base Feet and fasten with $\frac{1}{4}$ " x 3" bolt, washers, and nut.
4. Attach Angle Arm to Vertical Support and fasten using $\frac{1}{4}$ " x 3" bolt, washers, and nut.
5. Repeat for other 4 Sections.

**HARDWARE INCLUDED:** $\frac{1}{4}$ " X 1" = 8 PCS $\frac{1}{4}$ " X 2" = 8 PCS $\frac{1}{4}$ " X 3" = 15 PCS

#14 X 1" SELF TAPPER = 12 PCS

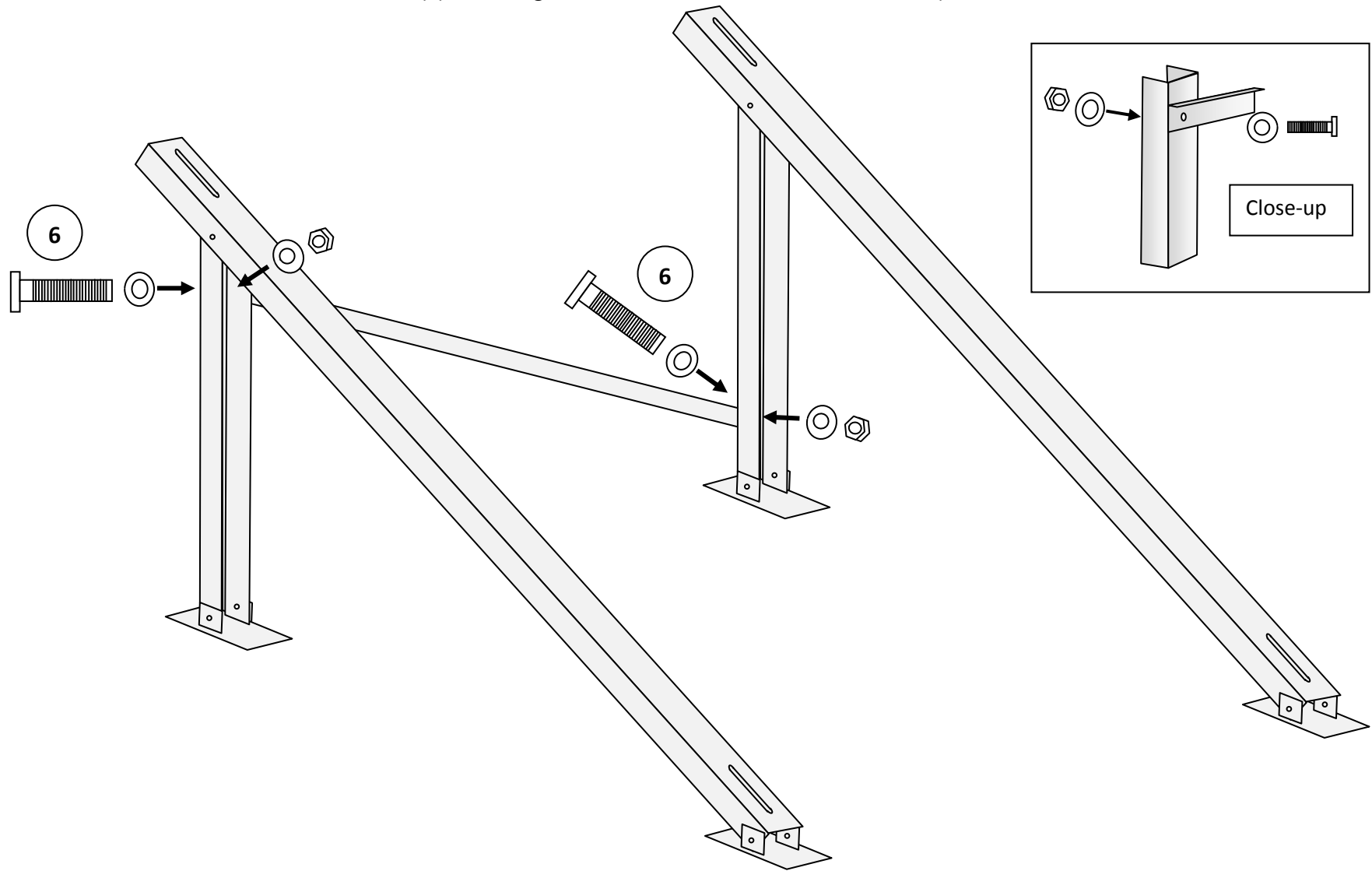
(BRB) SQ BOLT LARGE FOR RAIL= 22 PCS

(BSB) SQ BOLT SMALL FOR C-RAIL (USA) = 10

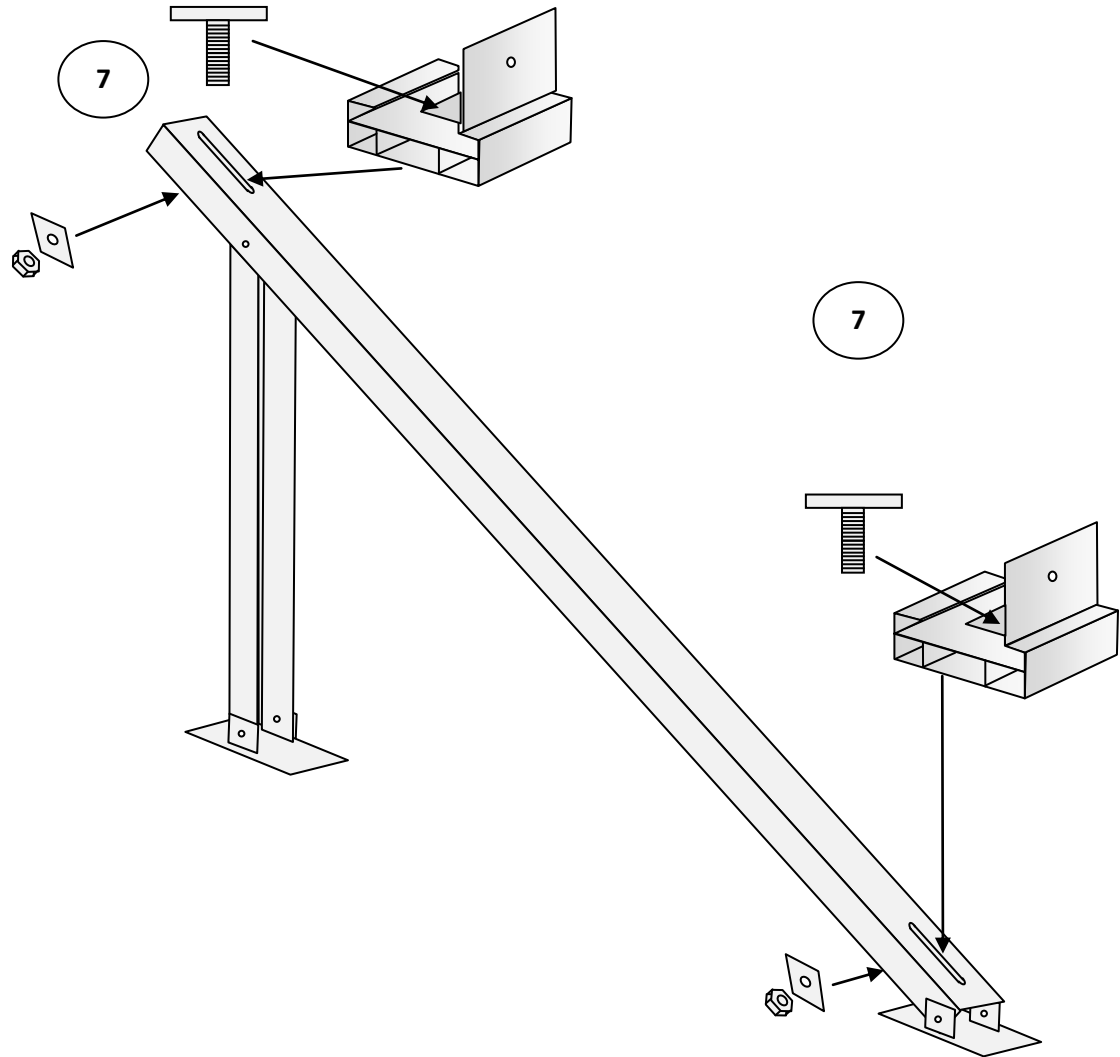
 $\frac{3}{8}$ " X 1" (CHINA) = 10 PCS

*** Important* Consult your Architect, Engineer, or Installer for your correct span width according to your roof design and loads.**

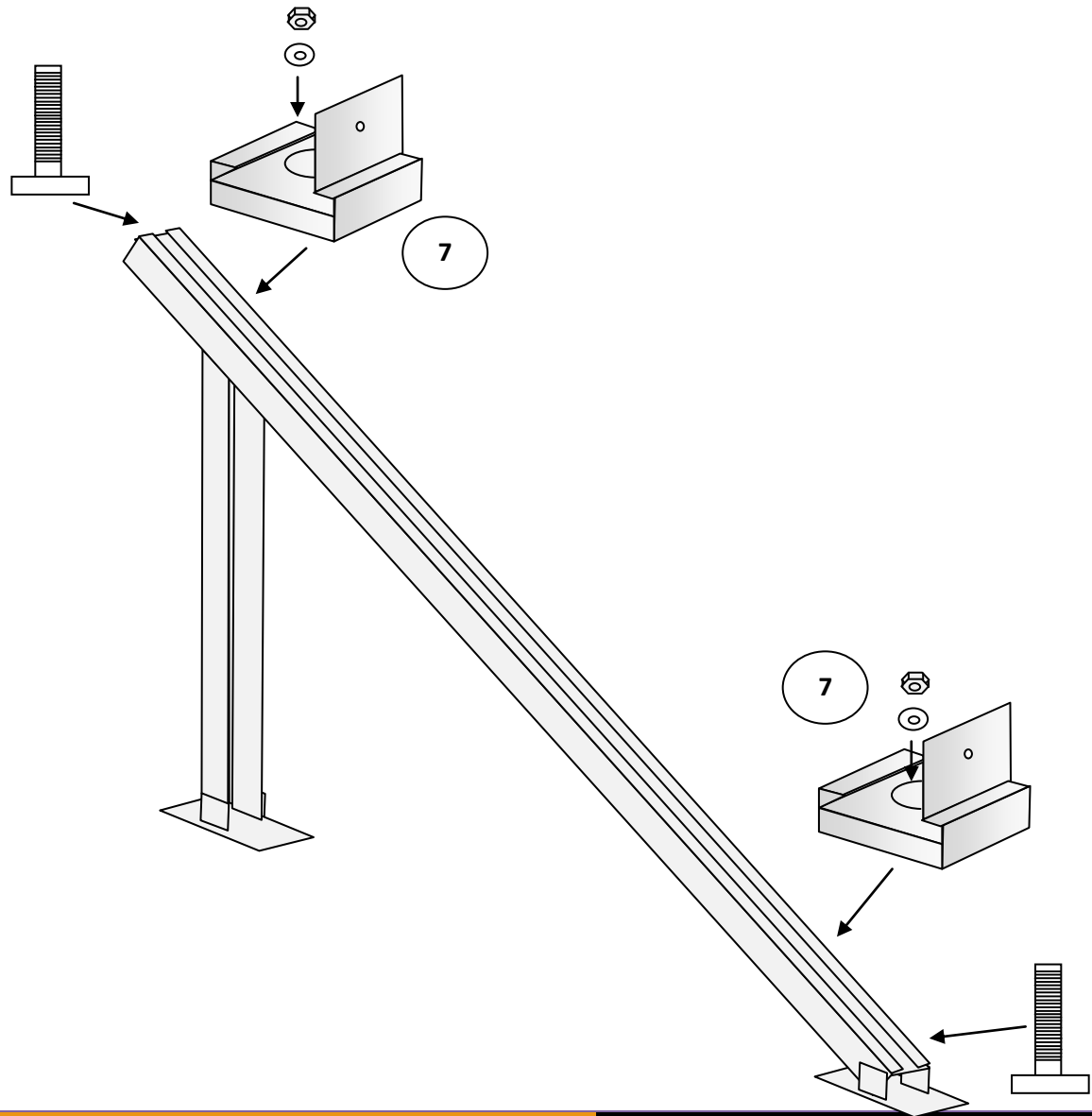
6. Attach Rear Cross Brace to Vertical Support using 1/4" x 1" bolts, washers, and nuts. Repeat for other 4 Cross Braces.



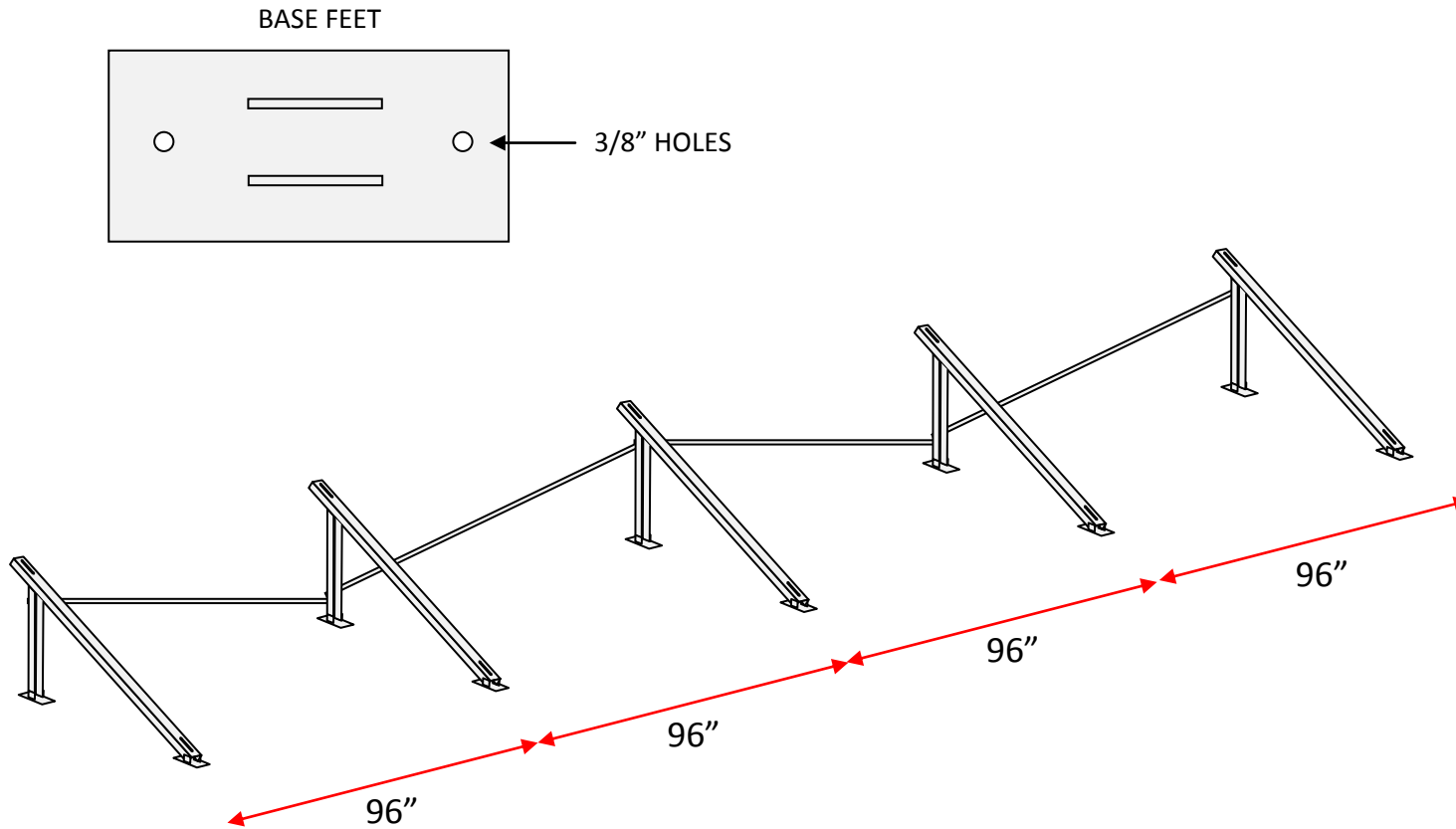
- 7. Attach 2 Slide Mounts to each Angled Arm using the 3/8" open slots with 3/8" x 1" square head bolts, square washers, and nuts.



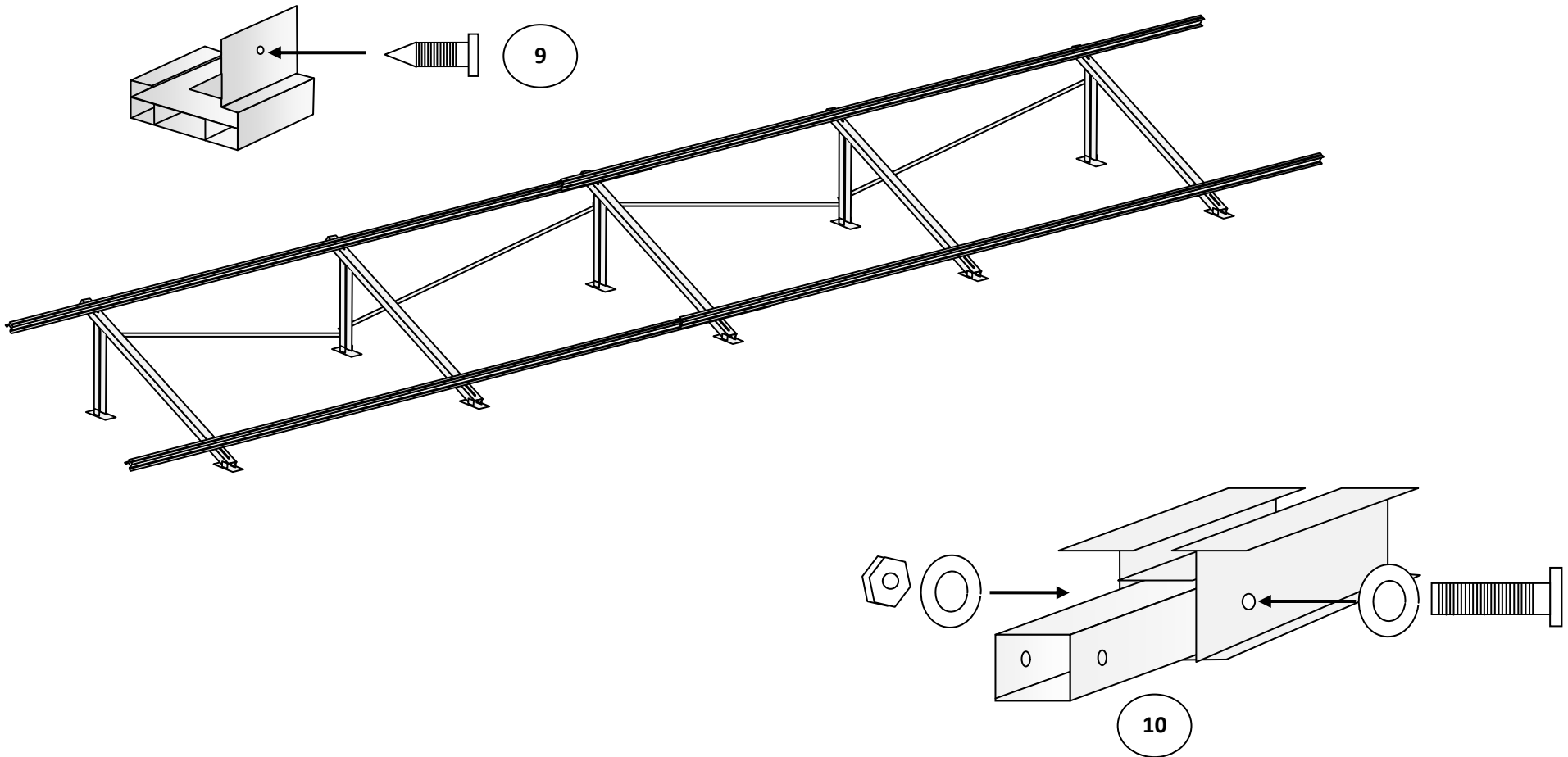
- 7. USA PRODUCT – Slide Square Bolt (7/8" x 7/8") 3/8" x 1" into C-Rail and attach 2 Slide Mounts.



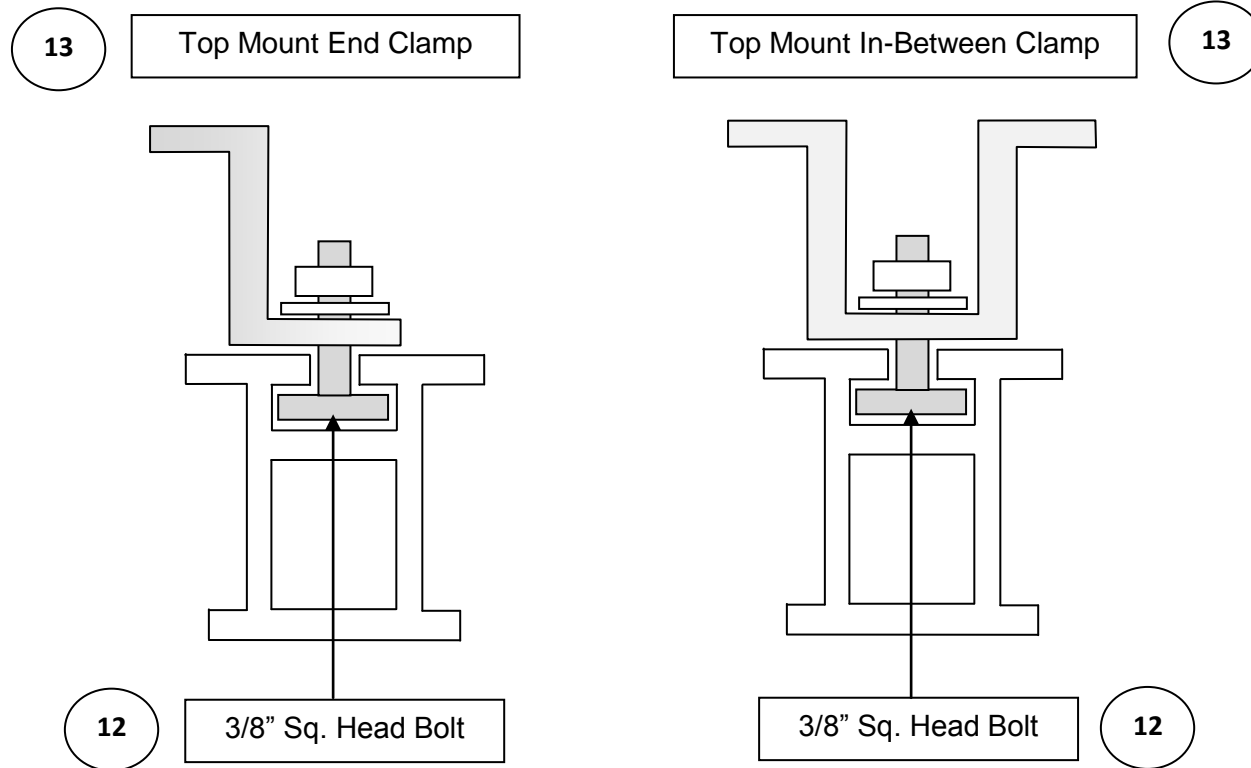
8. Fasten each Section to ground or concrete using the holes provided on the Base Feet. Spacing for each Section is 72".

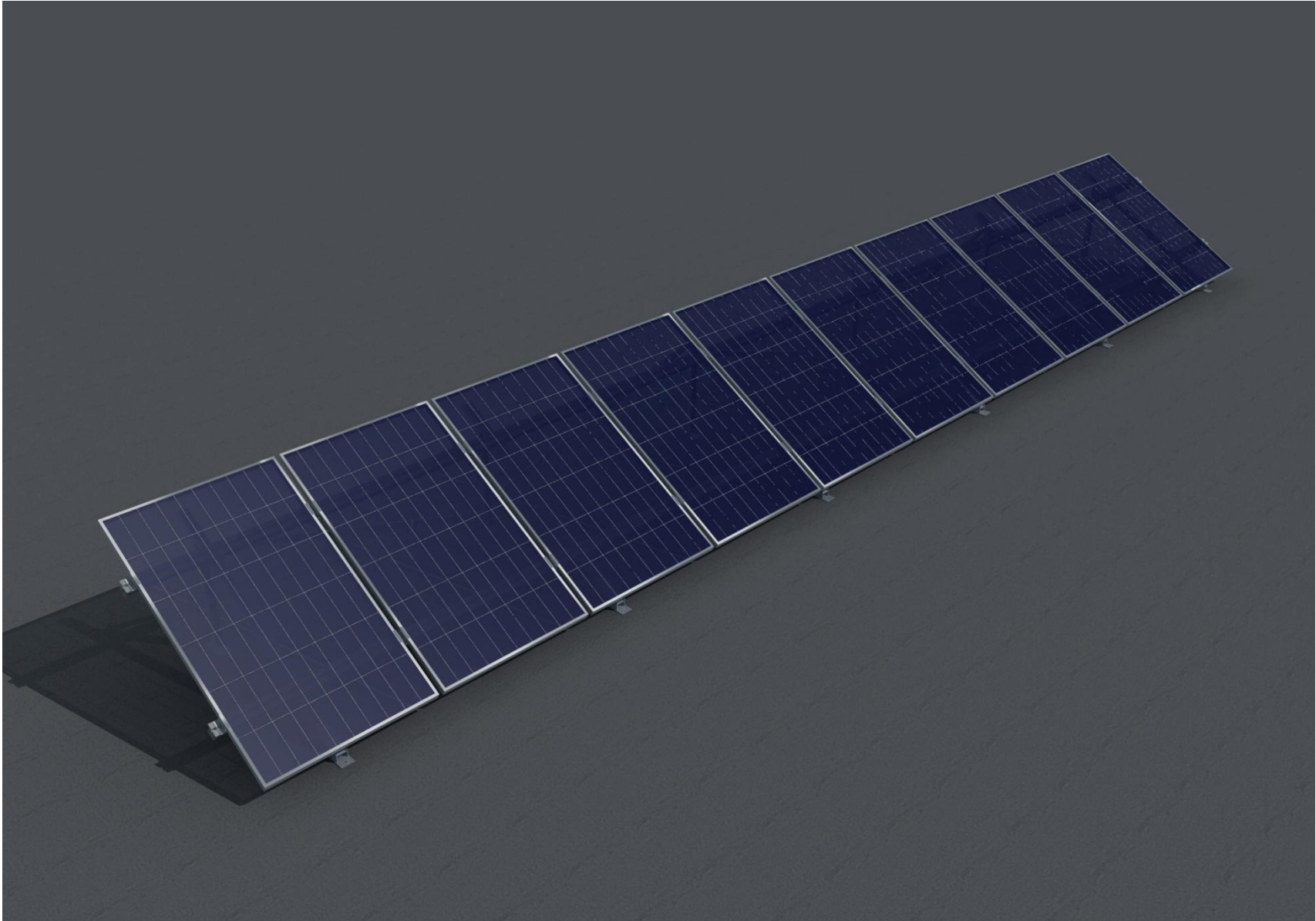


9. Slide TOUGH TRAC Rail through Slide Mounts. Lock Slide Mounts to rail using set screws.
10. Use Connector Tubes to connect and extend STD & HD rails using $\frac{1}{4}$ " x 2" bolts, washers, and nuts.



11. Slide (8) 3/8" x 1" sq. head bolts into each rail
12. Place solar panel on Angle Arm and attach Top Mount Clamps and tighten bolts.





20-year Limited Warranty

TOUGH TRAC™ warrants the original purchaser that each Solar Panel Mounting System ("Units") to be free from defects in materials and workmanship for a period of 20 years from the date of first purchase except for the anodized finish.

The Limited Warranty is considered VOID if TOUGH TRAC™ Units are not installed properly and not used for the purpose for which it is designed. TOUGH TRAC™ Limited Warranty does not cover Units that are damaged resulting from shipping, storage, and misuse or abuse during installation.

The Limited Warranty covers the cost of parts to repair or replace the Units to a proper working condition. Transportation and incidental costs associated with warranty items are not reimbursable. TOUGH TRAC™ Limited Warranty only covers its Units and under no circumstances be liable for indirect or consequential damages resulting from or related use by the original purchaser of the Unit.

All parts supplied for this system is made of 6000 series aluminum. All hardware including all bolts, nuts, and washers are made of Stainless Steel.