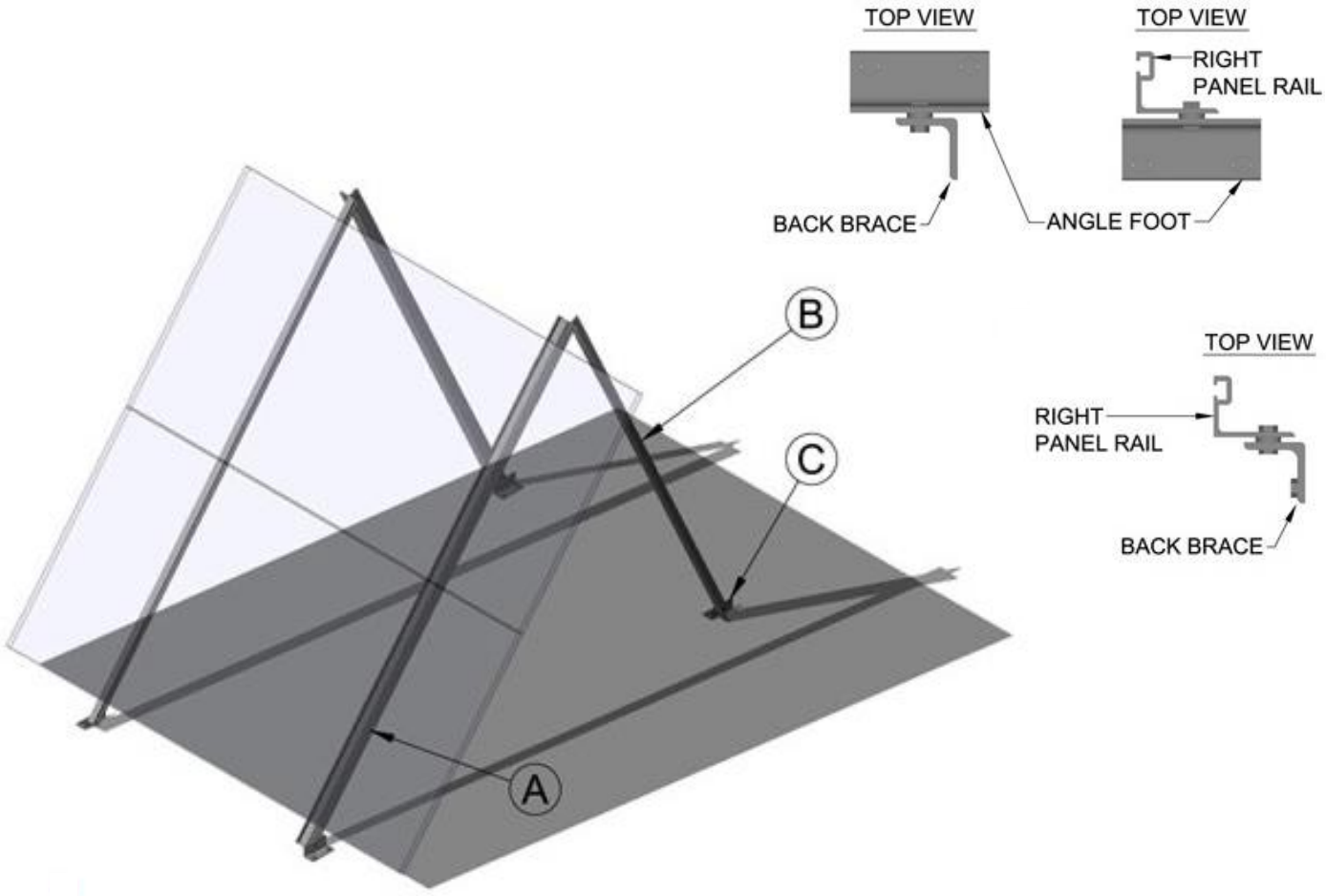
S-Rail

(Roof / Wall / Ground Mount)



A. **ALUMINUM RAILS**: UNIVERSAL T-SLOT ANGLE EXTRUSION 2" X 1½" X 1/8" or 3" X 1 ½" X 3/16" (SIZE DEPENDENT ON MODULES USED) OR PUNCHED ALUMINUM ANGLE – 2 PLACES

B. **BACK BRACES**: 6061 – T6 ALUMINUM ANGLE – 2 PLACES

C. **MOUNTING FEET**: 6061 – T6 ALUMINUM ANGLE BRACKET – 4 PLACES

Note: By changing the position of the back braces and rails you can move your array more vertical or horizontal.

S – RAIL UNIVERSAL		
Roof, Ground and Wall Mount		
		REVISION:
		02.12.16

General SPECIALTIES MANUFACTURING INC

www.generalspecialtiesmfg.com
208-265-5244

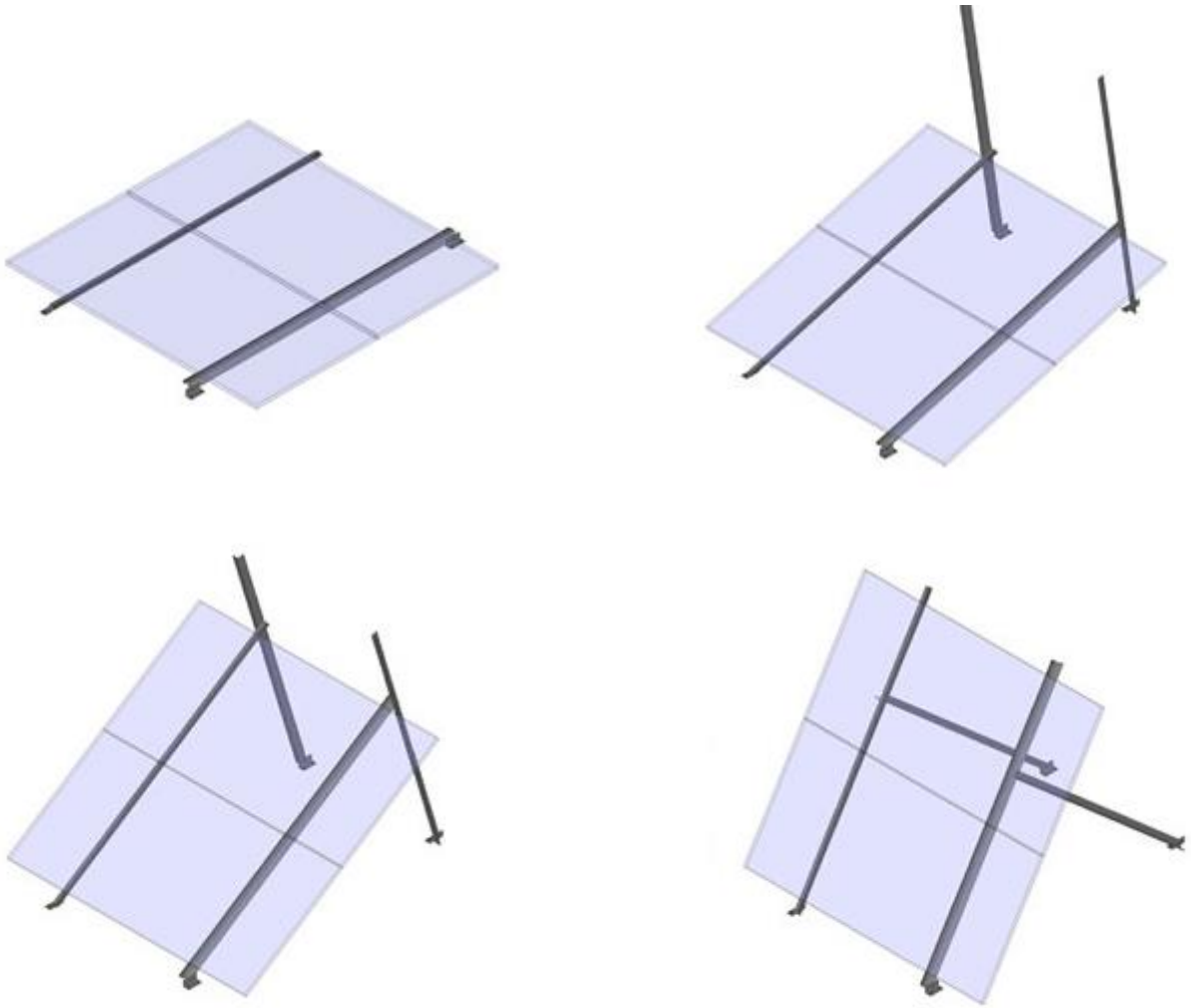
Fastening Hardware

Per each two panel mount:
15 – 5/8" X ¼" stainless steel bolts
15 – ¼" stainless steel flange nuts

2 for feet to rail bottom
2 for feet to brace bottom
1 extra
2 for brace to rail
8 for two panels to rails

NOTE: You will need to purchase whatever fasteners are appropriate for attaching the mount to your particular roof or other mounting surface.

Shown below are 4 of the different adjustment angles for these mounts.



Installation Instructions for Roof / Wall /Ground Mounts for PV Panels

In the northern hemisphere, this mount should be oriented so the panels on it face as close to due south as possible. In the southern hemisphere, facing north.

The mount is made to attach to a roof, side wall, or flat horizontal surface. If the mount is to be attached to a roof, lag bolts may be used if at least 4" of the 5/16" lag bolts on each mounting foot are screwed into a solid wood member. For side wall installations, the upper mounting feet must be attached with bolts that go completely through the wall or if 5/16" lags are used, they should be screwed into at least 3" of solid wood, e.g. into a 2" X 6" wall stud. If mounted to the ground, it must be similarly fastened to a concrete foundation, or wood deck.

It is important that nothing casts a shadow on the solar panels at any time of day. Any shadow falling on the panels will greatly reduce the amount of power generated by the array. For this reason it is important to install the mount away from eaves, overhangs, and other obstructions.

There are several adjustment positions for this mount. In any given season, the surface of the solar panels should be as close to perpendicular to the rays of the sun as possible. Each of the adjustment positions should allow you to keep your mount within 10 degrees of perpendicular to the sun.

When mounting on a roof top it is desirable to install the bottom of the panels near the ridgeline. For optimum southern exposure this ridge should run east – west. If you mount the panels on the southern roof they may not lie down flat enough in the summer for a perpendicular orientation to the sun. This is particularly true on steep roofs.

If you have someone to help you lift the assembled mount into place, go ahead and fasten the panels onto the rails before installation. Bolt the first panel onto the two long slotted rails placing it on the end of the rails marked TOP. Use the mounting holes on your panels which will allow you to have the best access to the wiring junction boxes on the back. Hold this first panel 2" down from the top end of your slotted rails. This will allow the back brace to stick past the rails when the array is laid down flatter as in summertime orientation. Attach this first panel with the stainless bolts provided, finger tighten only. Attach the rest of the panels one at a time below the first one. There should be approximately ¼" between panels.

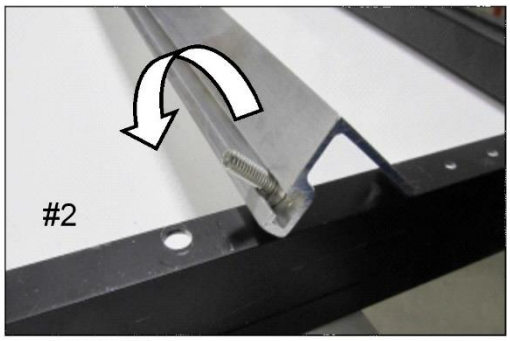
When all the panels are on the rails there may or may not be some excess rail left, depending on the brand of PV you are using. This excess may be trimmed off, or can be left at the bottom of the array to create more distance between it and the mounting surface to allow for snow build up without shading the bottom panel. Square up the panels so the sides are straight, then tighten the bolts with a wrench.

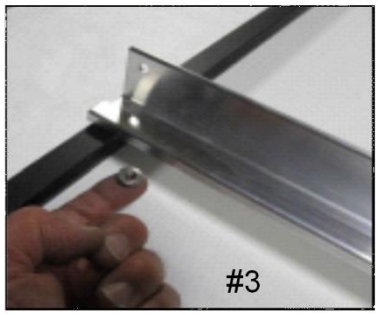
Fasten the support legs to the back of the panel rails, and then attach the feet to the bottom of the back braces and panel rails.

Lift the whole unit into place and attach with lags or bolts.

If you are working alone or the installation is somewhat awkward, you may want to install the mount first and then add the modules at the end.

Instructions for Attaching Solar Panel to Mounting Rails





For T-Slot Rails: Lay T-Slot rails across the short axis of the panel as shown in Photo #1.
Slide stainless bolts into T-slot of rail and position so they are opposite to the mounting holes on the frame of the panel as shown in Photo #2.
Then roll the rails over so the bolts slip into the holes on the panel frame. Place the flange nut on your finger with the flange UP and thread onto the bolt from underneath as shown in Photo #3. Finger tighten.

For Pre-Punched Angle Rails: Attach panel rails to solar module across the width of the panel as in Photo #4. Make sure the part of the rail with the punched slots "toes-out" toward the ends of the panel. Insert the bolts in the holes provided from underneath facing out (Photo #5) and tighten on the flange nut. It is important that the flange nut bears against the rail and not the panel frame, Photo #6.