

SOLAR COLLECTOR TILT MOUNT INSTRUCTIONS

CAUTION

ALL PERSONS WORKING ON ROOFS SHOULD HAVE SUCCESSFULLY COMPLETED A FALL SAFETY COURSE AND SHOULD BE PROPERLY EQUIPPED WITH THE APPROPRIATE SAFETY EQUIPMENT

⚠ WARNING

AFTER COMPLETION OF THE COLLECTOR MOUNTING AND PRIOR TO SYSTEM CHARGING THE COLLECTORS MUST BE COVERED BY A BLANKET OR OTHER MEANS TO AVOID SOLAR RADIATION FROM HEATING THE COLLECTORS. THE SURFACES OF THE COLLECTOR CAN BECOME EXTREMELY HOT AND COULD POSE A BURN HAZARD.

The most important structural consideration is to securely anchor the solar collector and the mounting hardware to the structural members of the roof with the stainless steel hardware provided. The solar collector must be attached to the mounting hardware as detailed in Figure 8.

Preserving the integrity of the roof membrane is the most important roofing consideration. Ensure that all roof penetrations required to plumb and mount the solar collector are properly flashed and sealed in accordance with standard roofing practices.

If the region is subject to hurricane conditions, additional steps may be required to secure the collector and mounting hardware to the structural members. In certain areas of the country, local building codes may require collector wind load testing or prescribe specific mounting procedures. Consult your local building department.

Install the collectors as described in the Tilt Mounting instructions.

SOLAR ORIENTATION

For optimal performance all during the year, the proper tilt angle for solar collectors is latitude plus 15°. This additional 15° tilt improves performance in the winter when the sun is weaker and at a lower angle. The cost in performance in the summer when the sun is high is overcome by the hours of sunlight and strength of irradiation that occurs during the summer months.

BASIC TOOLS AND MATERIALS

Drill & Drill Bits (3/8" & 5/16)
Saw (Hacksaw)
Extension Cord
Tape Measure
Chalk Line
Utility Knife
Level
Pliers

Angle Indicator
8" & 10" Adjustable Wrenches
7/16" & 9/16" Wrenches
Ratchet w/ 7/16" & 9/16" Sockets
6' x 8' or 6' x 10' Tarp (1 per collector)

Installation Hardware (Supplied) Includes:

- Hardware
- Mounting Brackets

The solar collector mounting hardware in this kit is an addition to the solar collector mounting hardware that is included in the solar collector crate package or other optional solar collector mounting kits. Refer to your solar system instruction manual and/or the optional solar collector mounting kit instructions for the installation of these components. Solar collector tilt mount kits are available for angles up to 75° in 15° increments. See Table 1 for vertical mounting and Table 2 for horizontal mounting.

VERTICAL TILT MOUNTING

Locate the mounting points for the mounting brackets per Figure 1 & Table 1. Layout the roof as specified in the solar installation manual or the optional solar collector mounting kit being used. Keep in mind the "A" dimension listed in Table 1 when marking the mounting points.

1. Install the solar collector mounting hardware included with the solar collector crate package or the optional solar collector mounting kit following their instructions.
2. Install the 4" mounting bracket strut to the upper collector mounting location with the stainless steel fasteners included with your solar collector crate package or other optional solar collector mounting kit. See Figure 1 for placement of mounting bracket strut.

3. Install the 4" C-Channel mounting bracket to the lower collector mounting location with the stainless steel fasteners included with your solar collector crate package or other optional solar collector mounting kit. See Figure 1 for placement of C-Channel mounting bracket.
4. Locate the C-Channel Tilt Riser included with your kit. Install this to the upper 4" Mounting strut with the included stainless steel hex bolt, flat washer, lock washer, and hex nut. See Figures 1 & 3.
5. Locate the Collector Mounting Struts included with your kit. Install one of these to the lower 4" C-Channel mounting bracket with the included stainless steel hex bolt, flat washer, lock washer, and hex nut per Figure 2.
6. Install the other end of the collector mounting strut to the upper end of the C-Channel Tilt Riser with the included stainless steel hex bolt, lock washer, flat washer, and hex nut. See Figures 1 & 4.
7. Repeat steps 2-6 for the remainder of the mounting bracket locations.

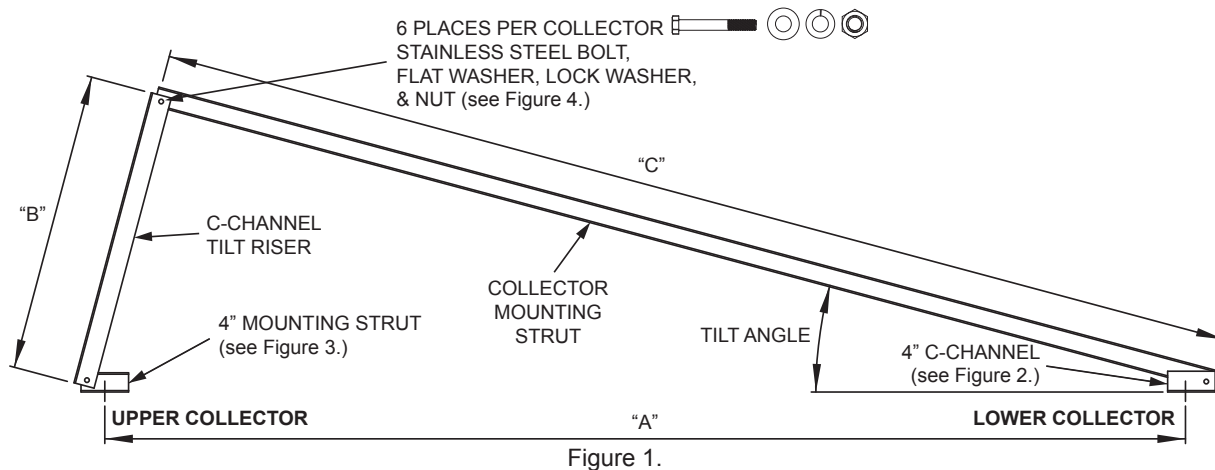


Figure 1.

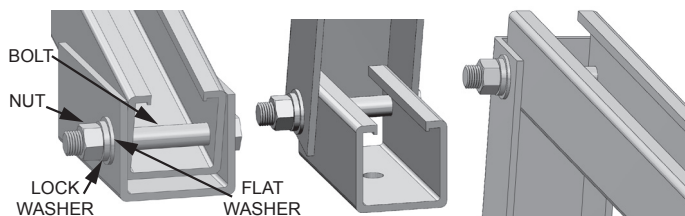


Figure 2.

Figure 3.

Figure 4.

HORIZONTAL TILT MOUNTING

Locate the mounting points for the mounting brackets per Figure 5 & Table 2. Layout the roof as specified in the solar installation manual or the optional solar collector mounting kit being used. Keep in mind the "D" dimension listed in Table 2 when marking the mounting points.

1. Install the solar collector mounting hardware included with the solar collector crate package or the optional solar collector mounting kit following their instructions but using the roof layout as specified in these instructions for your particular tilt kit.
2. Install the 4" mounting bracket strut to the upper collector mounting location with the stainless steel fasteners included with your solar collector crate package or other optional solar collector mounting kit. See Figure 5 for placement of mounting bracket strut.
3. Install the 4" C-Channel mounting bracket to the lower collector mounting location with the stainless steel fasteners included with your solar collector crate package or other optional solar collector mounting kit. See Figure 5 for placement of C-Channel mounting bracket.
4. Locate the C-Channel Tilt Risers included with your kit. This tilt riser leg will need to be cut-to-length with a hack saw or other suitable tool to match the "E" length noted in Table 2 for the solar collector size being used and tilt angle that is desired. See Table 2 and Figure 6.
5. Drill a 3/8" hole through the "cut" end of the C-Channel Tilt Riser as depicted in Figure 6.

| COLLECTOR | TILT ANGLE | "A" MOUNTING BRACKET SPACING | "B" LENGTH | "C" LENGTH |
|----------------|------------|------------------------------|------------|------------|
| Vert 3.5' X 7' | 15° | 91.00 | 25.25 | 92.00 |
| | 30° | 84.00 | 47.50 | 92.00 |
| | 45° | 73.00 | 66.50 | 92.00 |
| | 60° | 79.75 | 40.25 | 92.00 |
| | 75° | 89.00 | 26.50 | 92.00 |
| Vert 4' X 8' | 15° | 95.75 | 25.25 | 103.00 |
| | 30° | 87.50 | 47.50 | 103.00 |
| | 45° | 77.25 | 73.50 | 103.00 |
| | 60° | 48.00 | 89.00 | 103.00 |
| | 75° | 27.50 | 99.50 | 103.00 |
| Vert 4' X 10' | 15° | 119.25 | 33.50 | 127.00 |
| | 30° | 106.00 | 64.00 | 127.00 |
| | 45° | 92.75 | 90.25 | 127.00 |
| | 60° | 65.00 | 110.00 | 127.00 |
| | 75° | 61.50 | 127.00 | 127.00 |

Table 1.

6. Install the C-Channel Tilt Riser to the upper 4" mounting bracket strut with the included stainless steel hex bolt, lock washer, flat washer, and hex nut. See Figures 3 & 5.
7. Locate the Collector Mounting Struts included with your kit. This mounting strut will need to be cut to length with a hack saw or other suitable tool to match the "F" length noted in Table 2 for the solar collector size being used and tilt angle that is desired. See Table 2 and Figure 7.
8. Drill a 3/8" hole through the "cut" end of the Collector Mounting Strut as depicted in Figure 7.
9. Install one end of the Collector Mounting Strut to the lower 4" C-Channel mounting bracket with the included stainless steel hex bolt, lock washer, flat washer, and hex nut. See Figures 2 & 5.
10. Install the other end of the Collector Mounting Strut to the loose end of the C-Channel Tilt Riser with the included stainless steel hex bolt, lock washer, flat washer, and hex nut. See Figures 4 & 5.
11. Repeat steps 2-10 for the remainder of the mounting bracket locations.

| COLLECTOR | TILT ANGLE | "D" MOUNTING BRACKET SPACING | "E" LENGTH | "F" LENGTH |
|-----------------|------------|------------------------------|------------|------------|
| Horiz 3.5' X 7' | 15° | 44.00 | 13.25 | 48.50 |
| | 30° | 40.25 | 24.75 | 48.50 |
| | 45° | 31.75 | 34.50 | 48.50 |
| | 60° | 20.50 | 42.00 | 48.50 |
| | 75° | 9.00 | 46.75 | 48.50 |
| Horiz 4' X 8' | 15° | 50.00 | 14.75 | 54.50 |
| | 30° | 45.25 | 27.50 | 54.50 |
| | 45° | 37.50 | 38.50 | 54.50 |
| | 60° | 27.75 | 47.00 | 54.50 |
| | 75° | 14.75 | 52.25 | 54.50 |
| Horiz 4' X 10' | 15° | 50.00 | 14.75 | 54.50 |
| | 30° | 45.25 | 27.50 | 54.50 |
| | 45° | 37.50 | 38.50 | 54.50 |
| | 60° | 27.75 | 47.00 | 54.50 |
| | 75° | 14.75 | 52.25 | 54.50 |

Table 2.

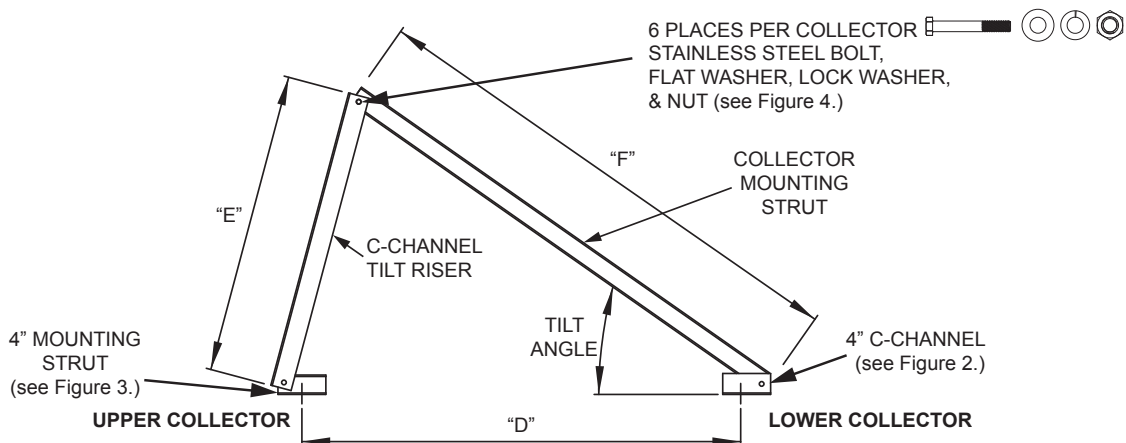


Figure 5.

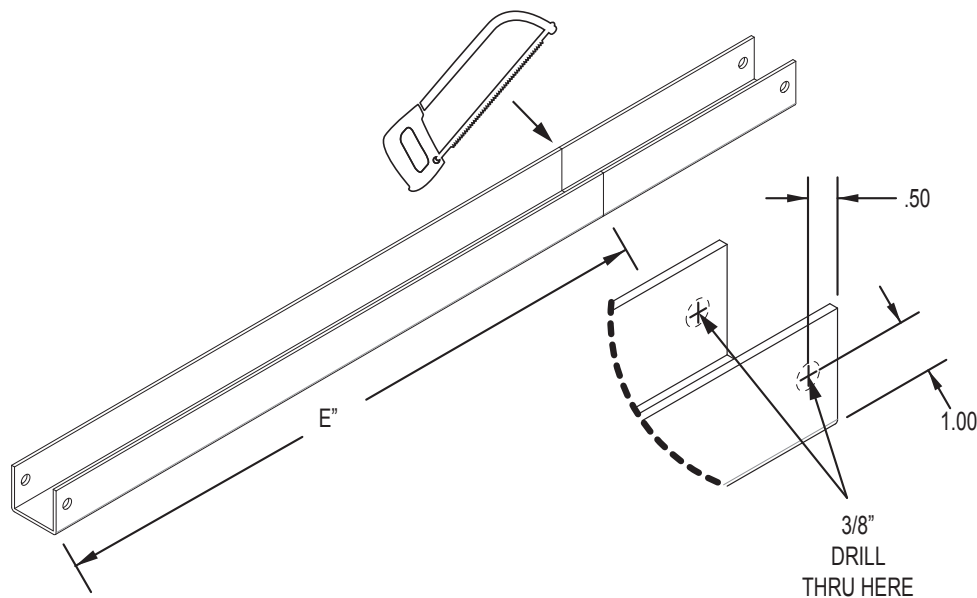


Figure 6.

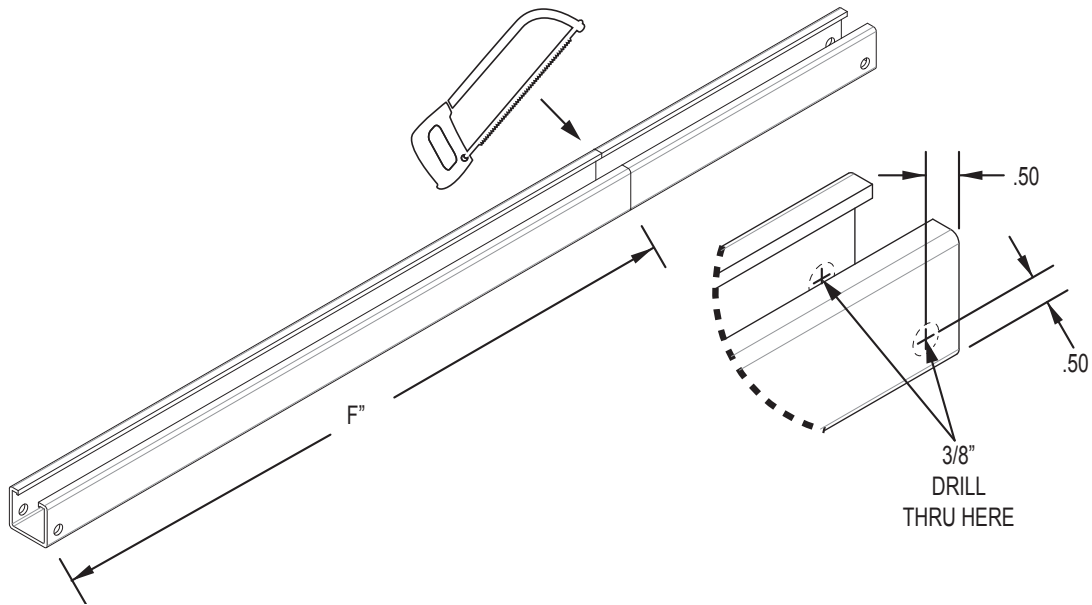


Figure 7.

ATTACHING COLLECTOR TO MOUNTING STRUT

Once all of the mounting brackets have been secured to the roof the solar collector(s) can be installed. See Figure 8 for these instructions.

1. Insert the stainless steel channel nut w/spring inside of the collector mounting strut.
2. Fasten the solar collector mounting clip to the channel nut with the stainless steel bolt, lock-washer, and flat washer as shown. Do not tighten. Repeat step for the other mounting bracket locations.
3. The solar collector can now be set on the Collector Mounting Struts. To aid in handling the collectors on the roof the mounting clips may be tightened to the lower end of the Collector Mounting Struts prior to raising the collectors. The collector can then be set on the lower mounting clips while the top clips are fastened over the lip of the collector frame.
4. After the solar collector is in position, locate the upper mounting clip so that its lip over-hangs the lip of the solar collector frame as shown. Tighten the mounting clip to the solar collector frame securely. Repeat for the other upper mounting clips.
5. Once the upper mounting clips are secured, the lower mounting clips can be loosened and retightened over the collector lip as directed in step 4.
6. Repeat steps as needed for mounting other solar collectors.

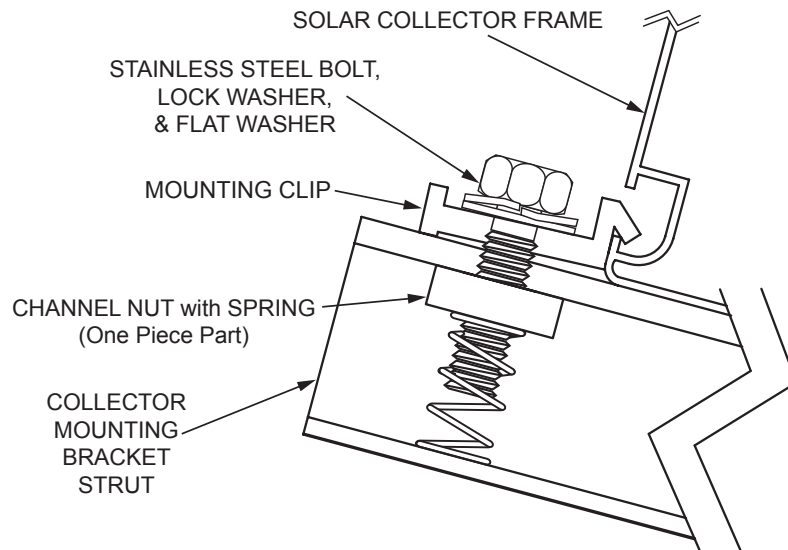


Figure 8.