

## SOLAR COLLECTOR SHINGLE ROOF MOUNTING 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 5.

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 Spanner Mounting instructions.

### BASIC TOOLS AND MATERIALS

Drill & Drill Bits  
Saw (Hand or Circular w/Extension Cord)  
Tape Measure  
Chalk Line  
Utility Knife  
Level  
Pliers  
8" & 10" Adjustable Wrenches  
7/16" & 9/16" Wrenches

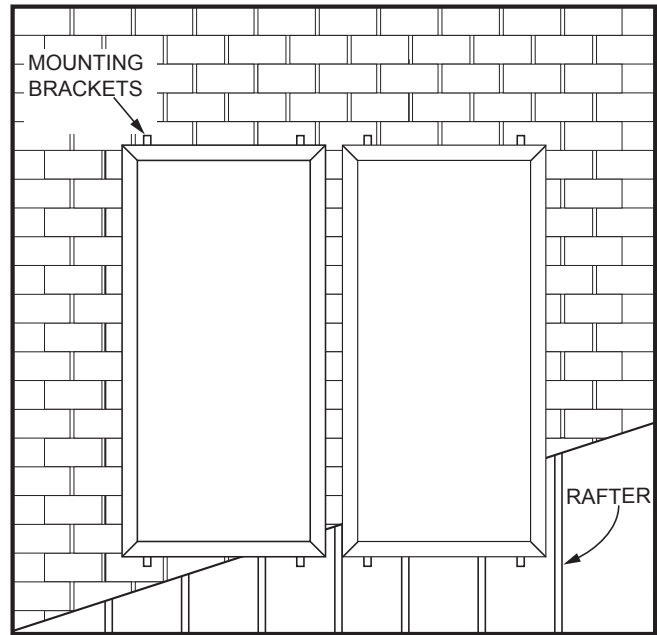
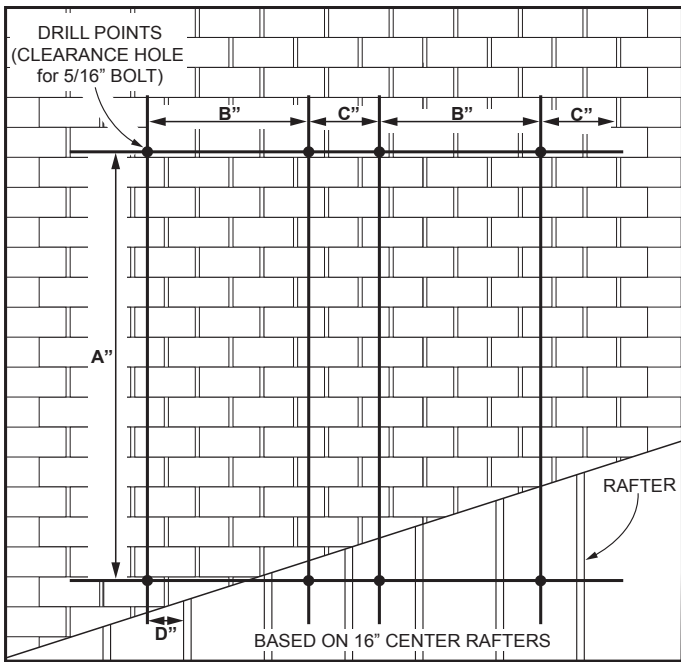
Ratchet  
7/16" & 9/16" Sockets  
6' x 8' or 6' x 10' Tarp (1 per collector)  
10 linear feet of 2" x 4" or 2" x 6" lumber for spanner mounting per number of collectors in the system

Installation Hardware (Supplied):  
Includes:  
• Hardware & Mounting Brackets

### SPANNER MOUNTING

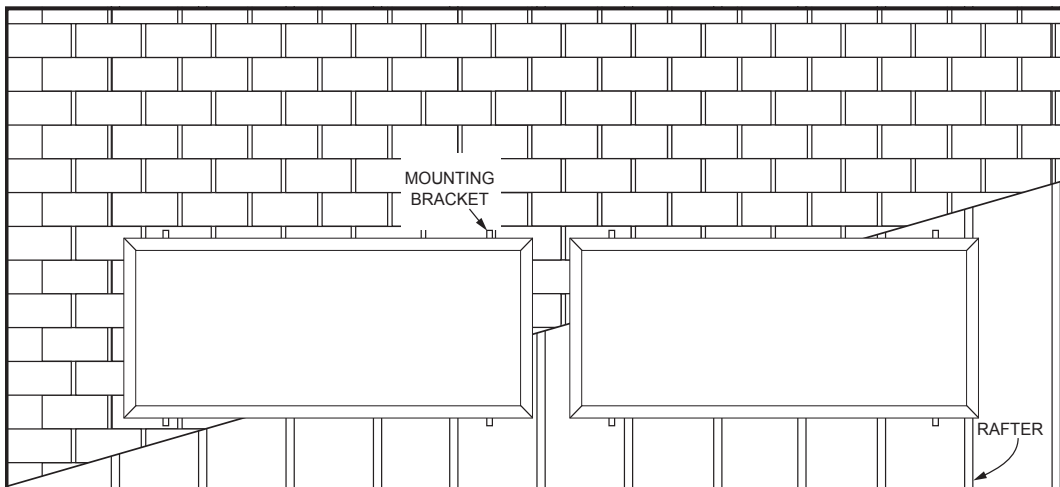
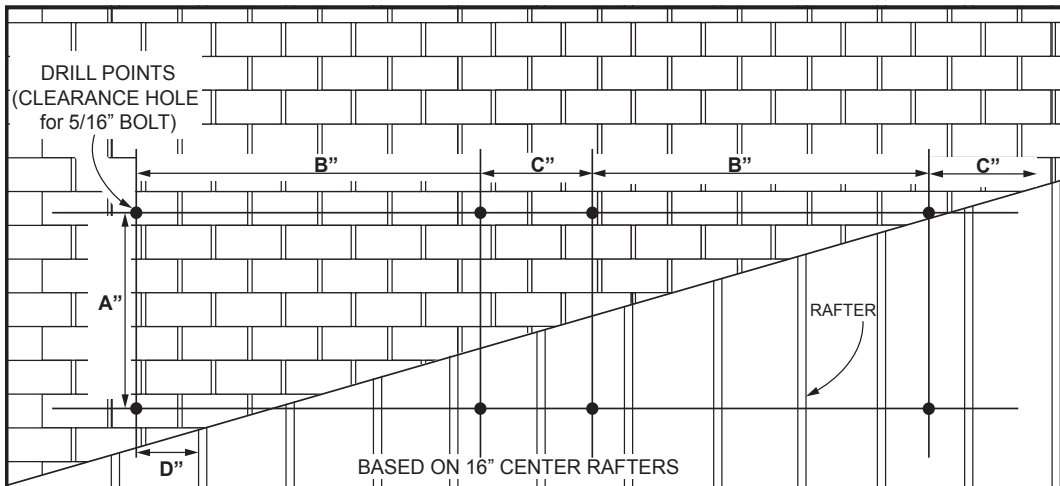
Although there are other installation methods for mounting solar collectors, it has been determined that the spanner mounting method is the most suitable for this application. Consult with your installer if other mounting means are required for your installation.

1. After locating the mounting points from Figure 1 for vertical mounting, Figure 2 for horizontal mounting, and Table 1, layout the roof as specified and drill 5/16" holes between the rafters where indicated.
2. Insert the flashing so the top part is under the next row of shingles and the flashing hole/grommet aligns with the mounting hole. See Figure 3.
3. The compression bracket washer is positioned over the flashing seal with the concave side towards the seal. See Figure 4.
4. The mounting bracket is then placed on the compression bracket washer.
5. A 12" length of stainless steel 5/16" all-thread is then inserted through the hole and a stainless steel nut, lock washer, and EPDM bonded washer secures the all-thread to the mounting bracket. The all-thread should extend about 4" below the roof rafters.
6. Fabricate spanners, one for each mounting bracket, using a 2" x 4" or similar lumber. Spanners must be long enough to span at least two rafters. In the attic or crawl space drill a 5/16" hole through each spanner and insert the all-thread through it. Secure each spanner to the rafters with decking or wood screws. See Figure 4.
7. Fabricate spacer blocks, one for each mounting bracket, using a 2" x 4" or similar lumber the same width of the rafter next to each all-thread. Place spacer blocks next to the all-thread between the spanner and roof. Secure each spacer block to the spanners with decking or wood screws. Spacer blocks are necessary to avoid deformation of the roof. See Figure 4.
8. With a stainless steel nut, lock washer and fender washer secure the all-thread to each spanner. Tighten down until the mounting bracket is tightly secured to the roof (approx. 97 inch pounds). Be careful not to overtighten and dish out the roof underneath the mounting bracket.
9. Repeat steps 2-8 for the remainder of the mounting bracket locations.



VERTICAL MOUNTING

Figure 1.



HORIZONTAL MOUNTING

Figure 2.

# NOTICE

\* IF MOUNTING WITH AN OPTIONAL TILT MOUNT KIT, FOR OPTIMAL COLLECTOR ANGLE REFER TO ITS INSTRUCTION SHEET FOR THE APPLICABLE "A" DIMENSION.

COLLECTOR	A	B	C	D
Vert. 3.5' X 7'	86*	32	14	7-1/4
Vert. 4' X 8'	97*	35	16	11-3/4
Vert. 4' X 10'	121*	35	16	11-3/4
Horiz. 3.5' X 7'	42.25*	62	28	13-1/2
Horiz. 4' X 8'	47*	72	28	12
Horiz. 4' X 10'	47*	94	30	9

Table 1.

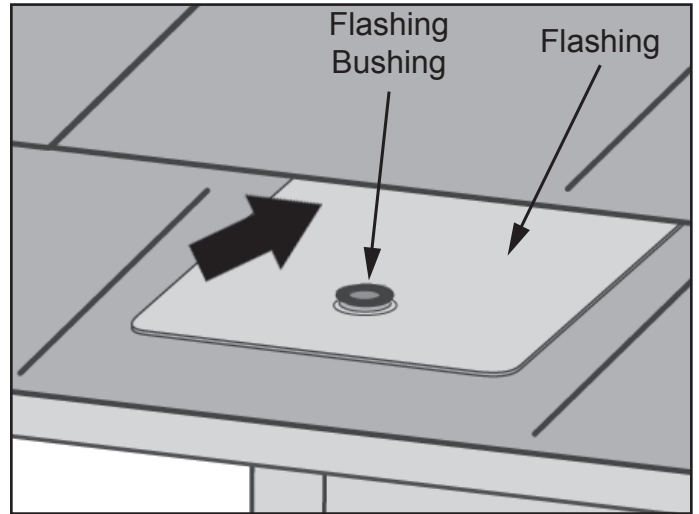


Figure 3.

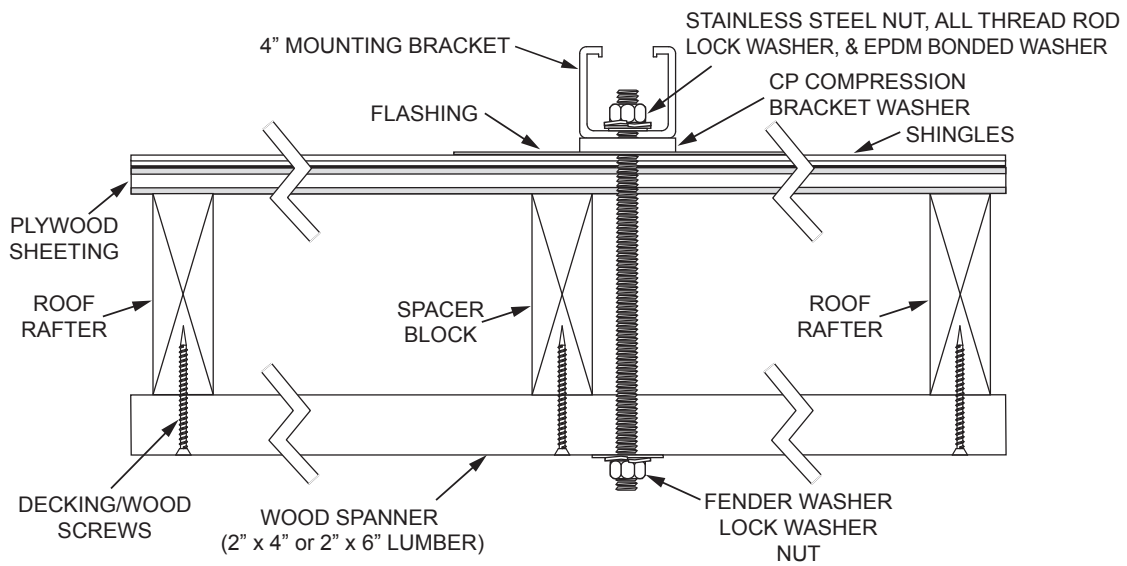


Figure 4.

## ATTACHING COLLECTOR TO MOUNTING BRACKETS

Once all of the mounting brackets have been secured to the roof the solar collector(s) can be installed. See Figure 5 for these instructions.

1. Insert the stainless steel channel nut w/spring inside of the mounting bracket.
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 mounting brackets. To aid in handling the collectors on the roof the mounting clips may be tightened to the lower mounting brackets prior to raising the collectors. The collector can then be set on the lower mounting brackets while the top clips are fastened over the lip on 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 bottom mounting clips can be loosened and retightened over the collector lip as directed in step 4.
6. Repeat steps as needed for other solar collectors.

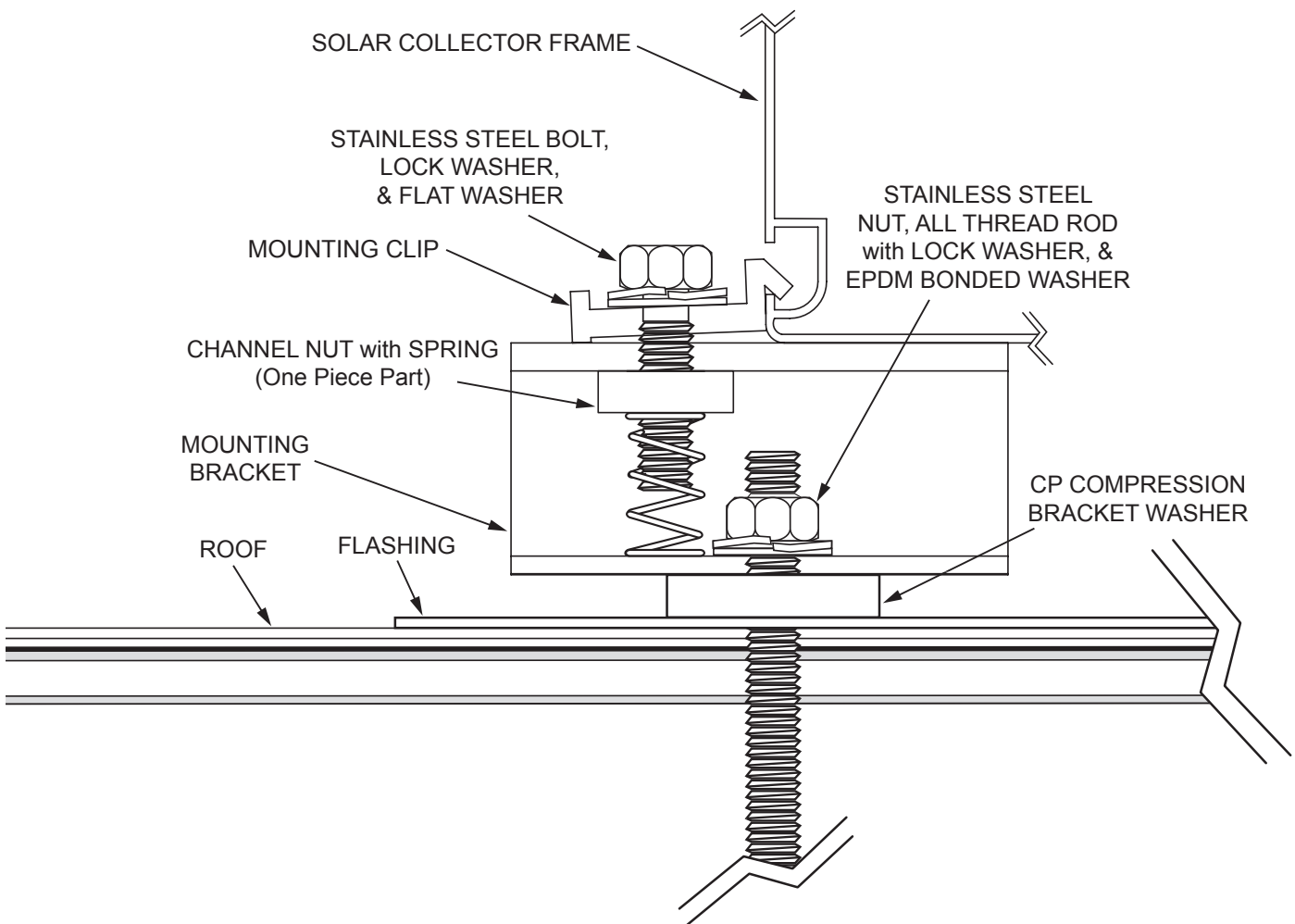


Figure 5.