



# Bubbling Springs Solar

## Installation Guidelines

### Rules for Mounting

- You must have 4 points of support.
  - Ideally these points are near each corner of collector but can be up to 2 feet from corners along the side rails and one foot from corner along the end rails.
- All mounting hardware and racking structures must be designed and built to be of sufficient strength to withstand all anticipated loads including the weight of the charged collector plus wind, snow loads, etc.
- Anchor points must be bolted directly into wall or roof framing by through bolts or lag screws.
  - Lag screws must have a minimum of 3 inches of "bite."
  - Or, when ground mounting, they can be bolted to frost footings.

### Collector Orientation

- Collectors should face due South +/- 10 degrees and tilt back to an angle equal to your latitude +/- 10 degrees, providing optimal year-round gain.
- For maximum **winter** gain, the collector should tilt back to an angle equal to the latitude of your site + 15-20 degrees.
- The angle of tilt is measured from the horizontal plane to the body of the collector viewed from the side.

### System Connection

- Up to 4 collectors with ¾ inch headers (8 with 1 inch headers) can be connected in parallel (side-by-side, header-to-header).
- Arrays larger than those listed above require an additional manifold pipe arrangement.
- Collectors are typically connected using straight sweat fittings or soldered-on unions.
- **Be careful not to overheat the pipe when soldering fittings onto header pipes.**
- Several layers of aluminum foil or a pie tin should be cut to fit tightly around the header pipe. This should be used to shield the EPDM rubber gaskets where the pipe enters the collector frame.
- The absorber assembly can be gently pushed into the frame in order to extend the pipes out farther on the side where soldering is being performed.
- System piping should be connected to the collector or bank of collectors so that the heat transfer fluid enters at a lower corner and exits at the opposite upper corner.
- The two remaining ends of the pipe should be capped.
- **All closed-loop systems must include an expansion tank and pressure relief valve to protect the panels from damage.**