

Guidelines and Considerations in Shopping for a Solar Thermal System Contractor

Part I. Household Characteristics

Inform the contractors of your household's hot water usage, taking into consideration any hot water conservation strategies you intend to employ, and infrastructure characteristics that pertain to the design of the solar thermal system.

Example

- 2,200 sq. ft. passive solar house that has insulated slab with in-floor radiant heating and small 36k BTU wood stove. In-floor system is rarely used; therefore, owner dropped earlier plans to scale up solar thermal system to supply in-floor loops also. Design heat load of house is 25,000 BTU/hr.
- 2 people reside in house and use 10-20 gallons of hot water on an average day, mostly for showering. Household has consumed 50 gallons of propane for cooking, hot water and space heating during six-month period from 7-1-08 to 12-31-08.
- Current domestic hot water is provided by a Takagi TK-Jr. tankless unit
- Two 3" diameter PVC pipe elbows are encased in the house's concrete foundation for routing the glycol supply and return lines. A 40' 6" PVC pipe is laid about 3-4" beneath the surface of the bare ground backyard within which the glycol supply and return lines would be routed. The 6" conduit ends about six feet short and about four feet below where the solar panel would be located.
- The storage tank will be located in the house's mechanical room in a space about six feet long, 30 inches wide and eight feet high. The Takagi water heater is on the opposite wall about five feet from the floor. Therefore, the line from the storage tank supplying the Takagi would need to run near the ceiling to permit easy access to other things in the small mechanical room.

Part II. Envisioned System Characteristics

If you envision some or all of the your solar thermal system's characteristics, lay them out for the contractor to consider.

Example

- Purpose of solar thermal system would be to preheat domestic household hot water only; no space heating application. Owner has performance expectations that panel would heat water in storage tank to at least 125 degrees F. from about early spring through late Fall.
- Closed-loop glycol-based system powered by, preferably, a PV-powered DC pump.
- One selective surface black nickel (or better) flat panel, using low-iron tempered glass, that preferably, can be mounted with its longest side parallel to the ground. Frames of extruded aluminum and stainless steel (non-corrosive) fasteners to assemble the collector.
- Owner could excavate and set concrete for panel's four piers to save costs. Owner could perform other on-site tasks that would save costs.
- 50 to 80 gallon storage tank with an internal or external heat exchanger.
- No shunt anticipated to prevent/mitigate system overheating unless contractor thinks overheating could be a problem.
- Warranty and reputation of all components must be high.

Many of the preceding parameters could be changed if the contractor has a better approach.

Part III. Content of Bids

The RFP should also describe the content of the proposals you want. Otherwise, bids may vary significantly and be hard to compare.

Example

1. A bid that includes the total cost to get the system up and operating and an itemized cost breakdown for equipment, labor and any other costs. Bids should clearly state the quantity, make and model of the equipment, where it will be installed, its maximum generating capacity, an estimate of the system's annual energy production and the SRCC certification rating for the panel. Payment schedule, terms and conditions should be specified. Bid should guarantee that work could be completed by June 10, 2009.

2. Detailed warranty information for both the equipment and the installation.

3. Three references (whom I could contact) from systems installed in the past year that are as close to system specified above.

4. The number of years key employee(s) have worked installing solar systems or the number of systems they've installed.

5. Any certifications, licenses and liability insurance you hold, and, if available, a letter from the system manufacturer you're recommending stating that you have the necessary experience and/or training necessary to install the system properly.