

Event Horizon Solar And Wind

Solar hot water sizing basics.

Sizing your solar water heating system basically involves determining the total solar collector area and the storage volume you'll need to meet 70%–100% of your household's hot water needs during the summer. Although there are many days in the winter where the collectors do perform well, most of the heating is in the spring summer and fall months.

For collector sizing we usually follow a guideline of around 20 square feet (2 square meters) of collector area for each of the first two family members. For every additional person, add 8 square feet (0.7 square meters) if you live in the U.S. Sun Belt area or 12–14 square feet if you live in the northern United States

For storage tank sizing, a small (50- to 60-gallon) storage tank is usually sufficient for one to two people. A medium (80-gallon) storage tank works well for three to four people. A larger 120 gallon tank is appropriate for four to six people.

For active systems, the size of the solar storage tank increases with the size of the collector—typically 1.5 gallons per square foot of collector. This helps prevent the system from overheating when the demand for hot water is low. In very warm, sunny climates, some experts suggest that the ratio should be increased to as much as 2 gallons of storage to 1 square foot of collector area.

Collector tilt angle. Today, most solar water heating collectors are mounted flat on the roof. This is more aesthetically pleasing than rack-mounted collectors, which stick up from the roof at odd angles. Thus, most collectors have the same tilt as the roof.

Although the optimal tilt angle for your collector is an angle equal to your latitude, fixing your collector flat on an angled roof will not result in a big decrease in system performance. You will, however, want to take roof angle into account when sizing your system.

Solar pool heat sizing basics.

Basically, the surface area of your solar collector should equal 50%–100% of the surface area of your pool. In cooler and cloudier areas, you may need to increase the ratio between the collector area and the pool surface area. Adding collector square footage also lengthens the swimming season.

For example, a 15-by-30-foot outdoor swimming pool in Florida typically requires a collector that equals 100% of the pool's square footage to accommodate year-round use. This equals 450 square feet of collectors. In northern California, most people use outdoor pools 6–8 months per year, so they typically size their systems at 60%–70% of the pool's surface area.

In any climate, you can usually decrease the required collector area by using a pool cover.

Evacuated tube solar collectors operate at much higher temperatures than the typical flat plate solar collectors so for sizing these systems, you should contact us through email with your sizing questions. They can work very well for space heating and there are many factors involved with sizing these systems and we recommend you fill out the questionnaire on the Thermomax page.