Solar Hot Water 101

The descriptions and pictures below are designed to foster a basic understanding of the parts of your ***solar hot water*** system. When you call for service, we hope they will help you to identify those parts of your system that may need service. When you receive an invoice from us, we hope the information below will help clarify which parts and systems we worked on during our service visit.

A Solar hot water system uses the Sun's rays to heat water for domestic hot water and space heating. For more details on the various approaches to solar hot water, please visit our page on solar hot water. Here we will discuss the particular components of the typical solar hot water system.

The **drain back solar collector** is constructed with an aluminum frame and glass front. It has a special absorber plate that is bonded to copper tubes in which water flows to and from the solar tanks in the house below. The collector and piping are pitched to ensure that when there is no solar energy available to collect, the water can "drain back" to the inside of the building.

The **glycol antifreeze solar collector** is similar in construction at the drain back variety but it may be placed in any orientation on the roof because it doesn't need to drain back.

The **solar piping** on the roof is almost always in copper tubing because temperatures up to 230 F may be encountered and plastic tubing will not hold up. The piping should be insulated as well to maximize the solar energy collection. This pipe insulation is covered with a **foil jacket** to prevent damage from the Sun's UV rays.

The solar fluid (water in a drainback system and glycol/water mix in a glycol system) is circulated from the solar collectors on the roof to the storage tank in the house by a **solar circulator**. Modern designs have variable speed circulation to optimize the solar energy collection.

The solar **storage tank** in its most common form has a coil of copper tubing inside to heat domestic hot water in the tank. Because solar energy is so variable, it makes sense to install the largest capacity tank possible to maximize the ability to collect solar energy.

The brain of the system is the **solar control** that senses the storage tank temperature and the solar collector temperature and turns on the circulator when solar energy is available. This control can also sense when the storage tank is too hot – then it can turn on the circulator at night to release some of the collected solar energy back out to the night sky.

Our goal is to be **Martha's Vineyard's premier plumbing and HVAC shop** – we appreciate the opportunity to service, install, and "rescue" your ***solar hot water*** system!