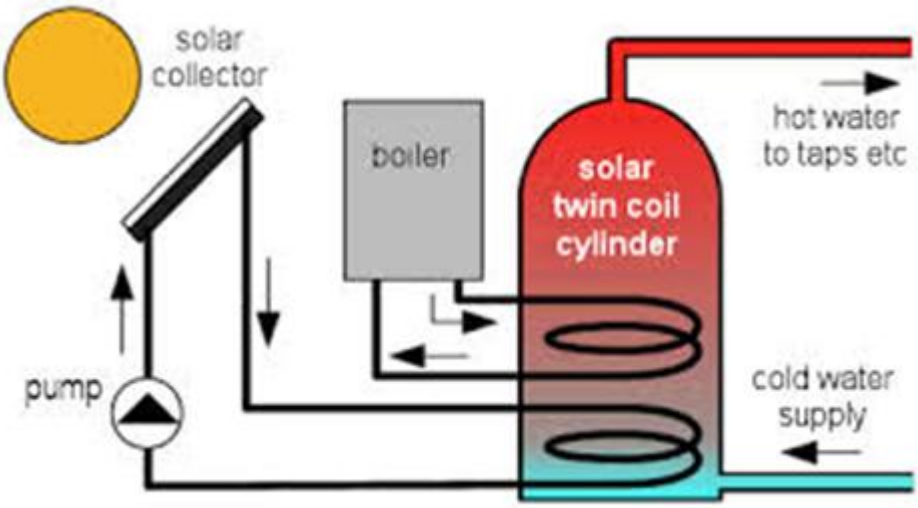
How to Make Solar Water Heater and Its Working

Introduction to solar water heater:

A solar water heater is a device that helps in boiling the water or making it warm. Solar water heaters make use of the solar energy which is derived from the sun absolutely free. Also the solar energy is one which is available in abundance. The solar water heater can provide hot water for more than 605 of the household chores. Solar heaters are very cheap and it can help you save energy by 20%. Depending on the climate the heater helps in water warming. There are basically two types of solar water heaters, i.e. active and passive.

The active system makes use of pumps to move the water and also require a secondary source of power. You can place these systems anywhere you want, also these systems help in providing warm water when the temperature is freezing cold. A passive system is one that does not use pump. It works in a different panel initials heats the water which rises to the top of the current at the location of the water tank. Cold water is relatively pushed down to the solar panel for heating. This system is cheaper and one thing that has to be noted while using it is, it should be always placed above the solar panel.



Heating water with the help of solar water history is indeed a cost effective and is used not only for residential purposes, but also industries for generating electricity.

Working of Solar Water Heater:

Solar water heater helps in heating water with the help of solar energy for residential, commercial, and industrial purposes. Basically a solar water collector that is placed in a wall facing the sun helps in heating the cold water with the help of the rays of the sun. The heater is available in two types i.e. active and passive. The collectors consist of a box that is insulated and has a black painted glass cover, a solar metal absorber that is flat and is fastened to wires made of copper. Heat is stored in a separate water tank with an outlet and inlet which is attached out to the collector. Passive collectors make use of

electricity to produce hot water where there is no access to sunlight and the temperature is too cold. Now ltts talk in brief about both these systems.

Passive system:

There are two kinds of primary systems namely

Batch: it is a tank inside a solar collector without any tubes. The water heats inside and either the gravity or the tendency of the hot water to rise, moves the water upwards and the water reaches the home pipes.

Thermosiphon: In this the water collector and solar system both are separate. Cold water moves through the solar collector tubes and then natural convection pumps which results in hot water in the storage tank. That water then travels to home pipes.

Active system:

Direct: This system makes use of pumps. The water moves from solar collectors to storage tank with the help of electrical pumps.

Indirect: In this system the solar collectors heat the heat transfer fluid and not the water. The fluid then flows through a sealed piping of a heat exchanger which is full of water. The water absorbs the heat from the fluid and then is pumped inside the storage tank.

Drainback: This is similar to the indirect method. The only difference here however is that it uses distilled water as the heat transfer fluid. It has a separate tank for the distilled water. Pumping out the heat transfer liquid into a separate tank makes it perfect for use during cool climates.

On the whole the working of a solar water heater is not very complicated. If you find it costly then you can cut down costs and make one of your own.

How to make a solar water heater?

Solar water heaters help in warming the cold water with the help of sun's energy. If you do not wish to buy a soar water heater then you can make one of your won. Basically it consists of heat collector and water storage tanks. The heat collector is placed in a place where there is abundant sunlight. The heat collectors are generally black sheet metal that is attached to the tube. Black color helps in absorbing heat faster. A concave mirror too can be used in order to collect heat. The mirror can be focused on the water collector to heat the water stored in it. For the purpose of pumping the heated water to the house for general purposes try heating less amount of water at intervals once the eater inside the heat collector is hot it is pumped inside a large storage tank. This pumping can be done with the help of active and passive methods. The passive method makes use of convection while active method uses pumps.

You can very easily make a solar water heater for your home, especially if you are living in an independent apartment. You can set the heat collector up on the terrace as it is one place where lots of sunlight is expected to come.

Solar Water Heater Advantages:

Solar water heater is very advantageous and is a cost effective way to heat water. Now that you know what a solar water heater is, let's have a look at its many advantages.

- As there is no requirement of electricity it save energy and can help in reducing your electricity bills.
- It helps in saving the environment as you are suing natural resources and there is no pollution.
- A well built solar heater lasts for many years so you can remain tension free for years. Also you can heat water when there is no power supply
- Although you need not pay huge bills but initially for installing one you do require shelling out some money.
- Countries all over the world offer favorable incentives for installing these solar water heaters.
- To reduce costs you can make a solar water heater of your own.
- They are highly effective in areas where it is sunny all day

Solar Water Heater Disadvantages:

After looking at the advantages of the solar water heater, let's see the disadvantages this device has.

- Initially for installing the solar water heater you need to pay a huge amount which is not affordable for all.
- It can be used only in areas where there is access to large amount of sunlight.
- During winter and rainy seasons they require electrical and fuels back up as the amount of sunlight is very less.
- Passive solar water heater has very low efficiency power.
- The heater should be protected well and for gaining hot weather they need to have good sunlight.
- They are totally useless in places where there is no access of sunlight.
- They can be used to heat water only during the day i.e. when the sun is there.
- Only when the rays of the sun are strong the heat collector can collect the heat in order to heat the water.

These are some disadvantages of the solar water heater. Though in one hand we are utilizing it as it is pollution free and uses the energy of the sun which is available in abundance but on the other is very costly and many people cannot afford buying it. There is nothing wrong in using this device but people who wish to buy one must see to it that it too has its drawbacks.

If you are planning to buy a solar heater for home then make sure you buy the best one. There are some good brands available in the market and before you finalize one, choose between selecting an active and passive solar heater.

Source: http://www.electronicshub.org/solar-water-heater/