



MERCURY SOLAR WATER HEATING SYSTEMS

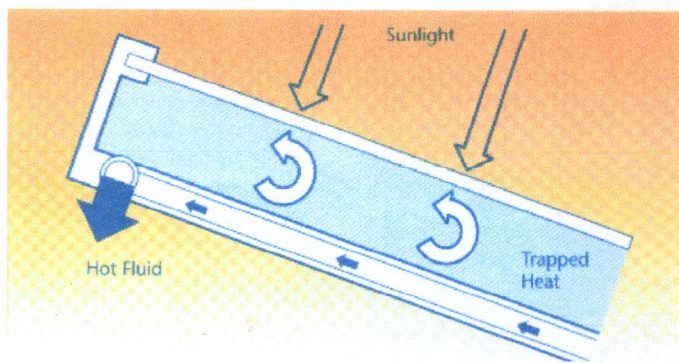
HOW DOES A SOLAR WATER HEATING WORK?

Solar Water Heating is the means by which sunlight radiant heat is collected by solar collectors (media for absorbing heat) and converted to heat energy which is then transferred to water in a jacket. Solar heating systems consists of a hot water (fluid) storage tank and solar energy collectors. Water (fluid) is heated by the direct heating from the sun in the panels and the heat is transferred to the water (fluid) either directly or indirectly through heat exchangers.

We have discussed the particular systems & system components further below.

ENERGY COLLECTION:

As the sun light passes through the collectors grazing, it strikes an absorbing material. This material converts the sunlight into heat, and the grazing prevents, the heat from escaping some-what like leaving a car



parked in the sun with its windows rolled up tight. The temperature inside a grazing solar collector on your roof can easily reach 150^o C when there is no heat transfer fluid flowing through it.

The two most common types of solar collectors used in solar water heaters are grazed flat plate collector, consisting of a shallow rectangular box with a transparent or semi-transparent glass "window" covering a flat black or blue plate. The black or blue plate (normally copper or aluminium) is attached to a series of parallel tubes or one serpentine tube through which air, water, or other heater transfer fluids pass.

An evacuated tube collector consists of several individual glass tubes, each containing a black metal pipe through which the heat transfer fluid passes.

The space between the pipe and the glass tube is "evacuated" so the air is removed. Although uncommon, unglazed plastic collectors can be used as a seasonal solar water heating system. However, they are mostly used for pool heating.

ENERGY TRANSFER:

The heat generated in the panels must be transferred to a storage tank.

This is done in some heaters by pumping hot fluid from the collector to the storage tank. This pumping can be of the siphon type or by actually pumping using an electrical pump powered by electricity from grid, generator or a small photovoltaic module located beside the collector.

Fig(a)

