

SOLAR HEATING SYSTEM

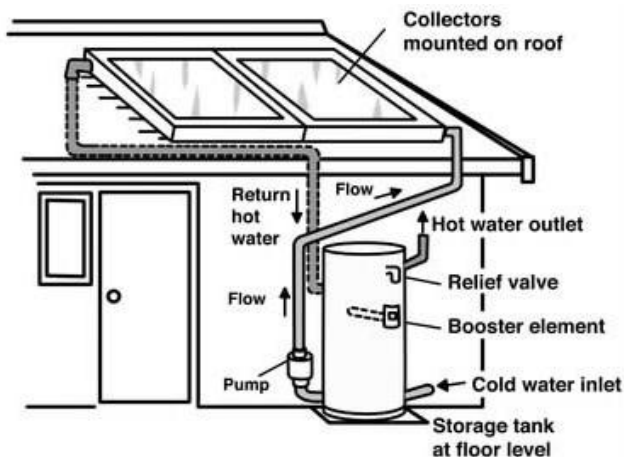
OVERVIEW

A solar installation can also be upgraded to be used as a space heating system. Solar water heating systems use heat exchangers to transfer solar energy absorbed in solar collectors to the liquid or air used to heat water or a space.

There are two kind of technologies :

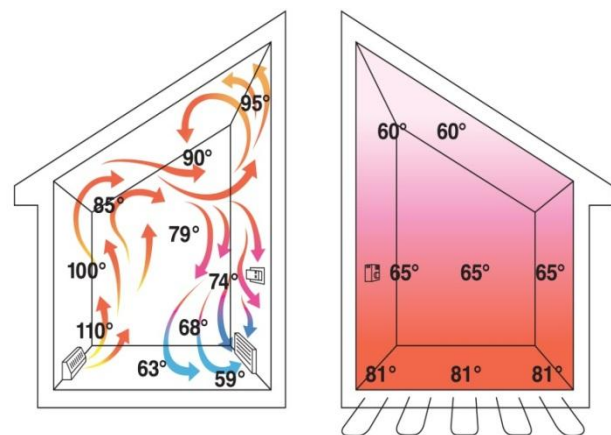
- Liquid-to-liquid : a heat-transfer fluid circulates through the solar collector, absorbs heat, and then flows through a heat exchanger to transfer its heat to water in a storage tank. They are appropriate for central heating.
- Air-to-liquid : Solar air heating systems use air to absorb and transfer solar energy. These system scan heat individual rooms or can potentially pre-heat the air passing into a heat recovery ventilator or through the air coil of an air-source heat pump.

Both of these systems collect and absorb solar radiation, then transfer the solar heat directly to the interior space or to a storage system, from which the heat is distributed. If the system cannot provide adequate space heating, an auxiliary or back-up system provides the additional heat.



SOLAR HEATING SYSTEM WITH STORAGE TANK

Image yourhome.gov.au



FORCED-AIR HEAT VS RADIANT FLOOR HEAT

Image uponor-usa.com

ENERGY BENEFITS

Active solar heating systems are most cost-effective when they are used for most of the year, that is, in cold climates with good solar resources. They are most economical if they replace more expensive heating fuels, such as electricity, propane, and oil. An active system could provide between 40% and 80% of your needs depending the sizing, specific conditions.

FINANCING OPTIONS

Heating your home with an active solar energy system can significantly reduce your energy bills in the winter.

The cost of an active solar heating system will vary. Commercial systems range from \$30 to \$80 per square foot of collector area, installed. Usually, the larger the system is, the less it costs per unit of collector area. Depending of the amount of energy needed (number of occupants) and supplier technology, the sizing of the installation could vary between 60 and 90 square feet.

	\$ Hot Water	\$\$ Space Heating Hot Water	\$\$\$ PV System (5kW)
Average cost (without rebates)	6 000 – 10 000 (4 residents home)		30 000 – 35 000
Return On Investment (after rebates)	3 – 7 years		4 – 8 years
Life	25 years		25 years

Sources : www.eere.energy.gov ; www.greenlivingtips.com ; www.energystar.gov