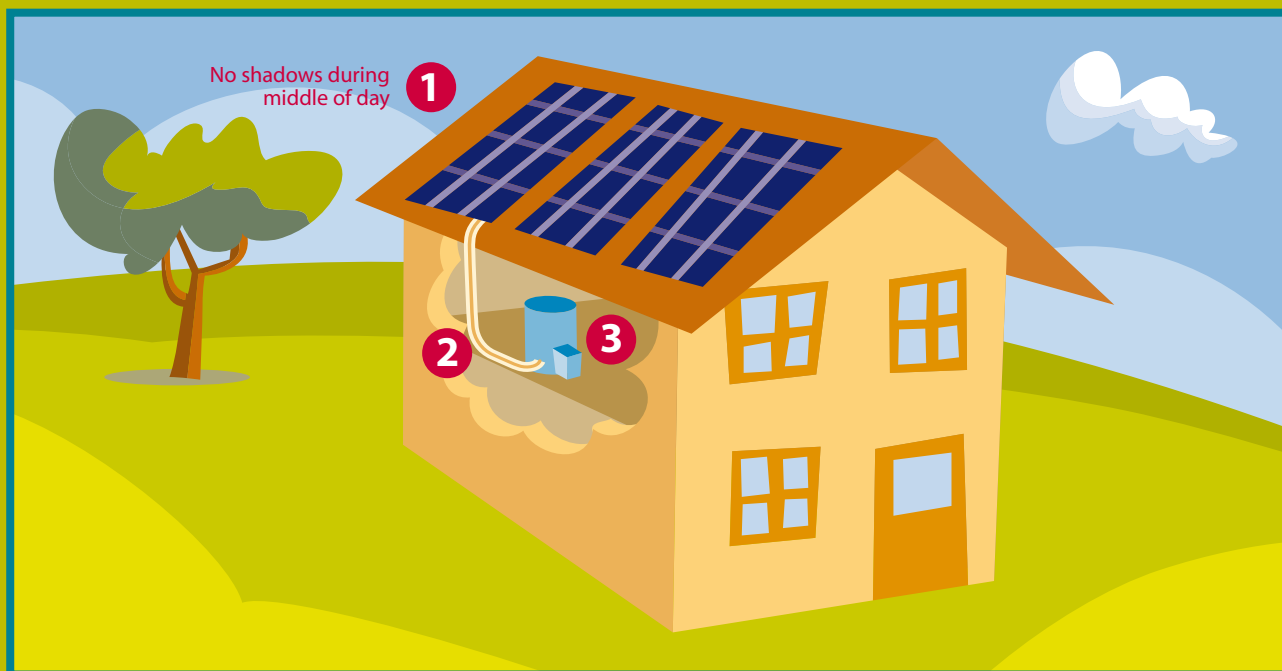


# Solar Thermal Systems

## CONSUMER GUIDELINES



Congratulations on choosing a Solar Thermal System for your home renewable energy system. This leaflet outlines some important points you should be aware of when the unit is installed. For the safe and efficient operation of your appliance it should be installed to current Building Regulations. Please consult with your installer concerning the points below and any other issues regarding the installation and operation of the system.

### Solar Collectors

There are two choices available on the market for solar collectors; flat plate collectors and evacuated tube collectors. A flat plate collector is a large shallow box that is mounted on your roof that heats water using the sun's energy. Solar radiation is absorbed by the absorber plate and is transferred to the circulating liquid or air. An evacuated tube collector consists of parallel rows of glass tubes connected to a header pipe. Air is removed from each tube to eliminate heat loss. Your installer should recommend the correct size and type of collector for your system needs.

#### 1 Location

The optimum location for solar panel collectors for all year round energy collection is roughly south facing and at a tilt angle of 30° - 45° to the horizontal (however angles between 15° and 60° are also acceptable). It is

also important that the collectors are positioned so there are no shadows on them during the middle of the day. Shading can be from the collectors themselves, or from trees, chimneys, part of the building or adjacent buildings.

#### 2 Insulation

Pipe runs are a prime source of heat loss. All pipes and fittings should be appropriately insulated. This will ensure that minimal heat is lost through the pipe work and it is delivered to your living space or through the taps as hot water.

Pipes going through ceilings or walls should be sealed to prevent heat loss, especially from the hot press into attic spaces.

#### 3 Cylinder

An appropriately sized cylinder should be chosen for the house. It is recommended that a cylinder has a minimum capacity of 50 litres per m<sup>2</sup> of solar panel area. Smaller capacities will limit the benefit from the system and may lead to frequent overheating of the solar circuit. In addition, Dual Coil cylinders should be used, having the coils at the top and bottom of the cylinder. The solar collector circuit should be connected to the bottom coil and the auxiliary circuit to the top coil, which will enable the solar system to pre-heat in bad weather. Your installer will be able to help you choose an appropriately sized cylinder.

# Solar Thermal Systems

## CONSUMER GUIDELINES



### 4 Pressure Relief Valves

All heating systems will have pressure relief valves. In the event of high pressure build up due to a malfunction the pressure relief valve will open up to relieve excess pressure and prevent damage to the system. These valves should be routed to the ground/drain/vessel and placed to cause minimal damage if they do vent.

### 5 Thermal Mixing Valve (Anti-Scald Valve)

Best practice calls for the fitting of a thermal mixing (anti-scald) valve. This applies to all hot water systems and not just solar heated water systems. With the current recommendation to store hot water at 60°C to prevent the growth of legionella bacteria it is becoming more of a consideration to install thermal mixing valves. A thermal mixing valve mixes cold and hot water together to ensure the water temperature is safe for people to use.

### Operation & Maintenance

Your installer will supply you with an English language Operation Manual, Maintenance Schedule and provide guidance on the operation of the appliance.

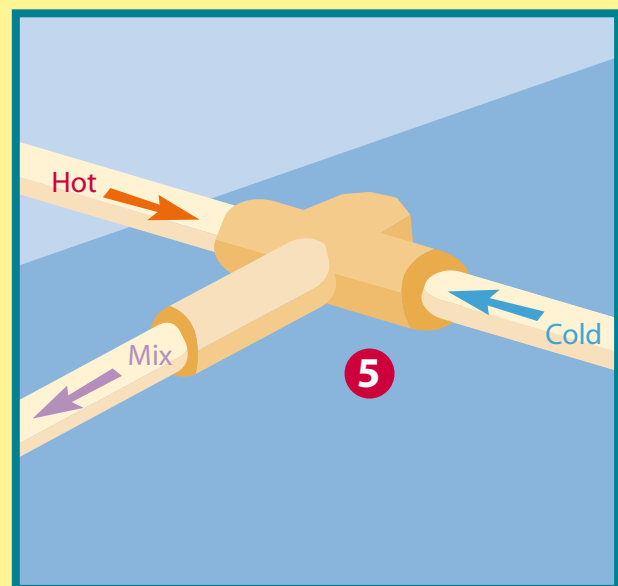
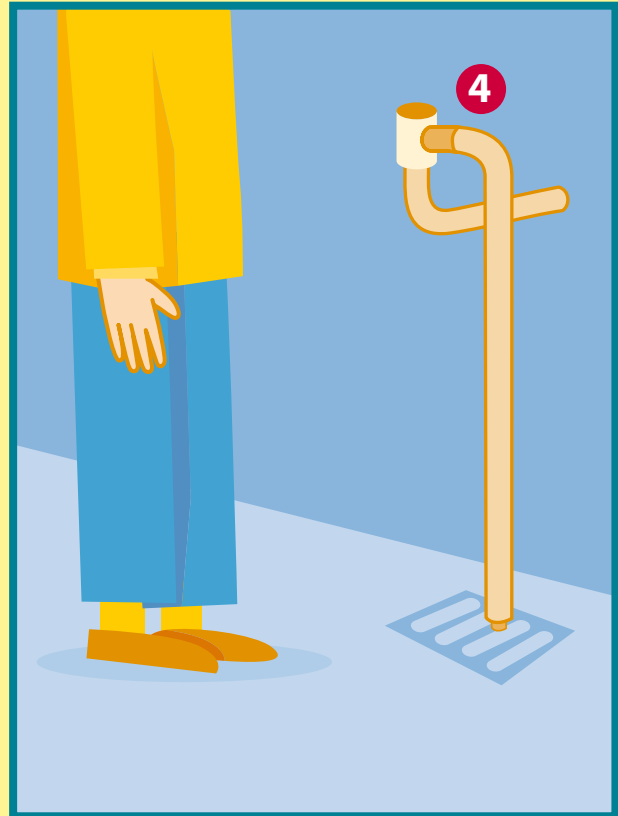
It is important to follow the manufacturer's maintenance instructions to ensure the safe and efficient operation of your appliance.

### Antifreeze

Some systems use antifreeze to prevent the freezing or boiling of fluid in the solar loop. Should the system lose pressure or vent the circulating solution will need to be topped up. Take care that the correct concentration of antifreeze is maintained in the loop. Talk to your installer for advice on antifreeze.

### Controller

After commissioning, a permanent power supply should be provided to the solar controller to ensure circulation in the solar loop.



Sustainable Energy Ireland is funded by the Irish Government under the National Development Plan with programmes part financed by the European Union.

Greener Homes Scheme

Sustainable Energy Ireland, Glasnevin, Dublin 9

T. 1850 734 734

greenerhomes@sei.ie

F. (01) 8082013

www.sei.ie/greenerhomes