

Example

Solar Collector

Solar collectors absorb heat from the sun's rays. They can be used to effectively heat and cool buildings. The most common type of collector for space heating is a flat plate designed to absorb both radiation falling directly on it, as well as radiation scattered by the atmosphere.

Collectors are usually panels of aluminium, copper, or steel. The panels are usually painted black. The black colouring inhibits reflection and encourages absorption. Insulation is placed behind the collector to prevent heat loss.

The collector is covered with glass or plastic. This layer allows short-wave radiation – or light – to enter the collector. As the radiation passes through the glass or plastic, it is transformed from short-wave radiation to long-wave radiation – or heat. Long-wave radiation cannot pass through the glass or plastic back into the atmosphere. Therefore, the heat is trapped within the collector. Collectors are usually placed at an angle to maximise the amount of radiation falling on them.

A transfer agent (air or water) is circulated through the collector and becomes heated. As it leaves the collector and travels through the heating ducts of a house, it warms the air inside the house or brings hot water to sinks, tubs, and appliances. With solar collectors, storage is a problem: great amounts of heat must be stored for nighttime use and for use during cloudy days.

Questions 1-5

Refer to the passage *Solar Collector* and choose from the passage NO MORE THAN THREE WORDS to complete the following sentences.

1. Solar collectors can heat and cool houses with heat absorbed from _____.
2. Collectors are coloured black to prevent _____.
3. Glass and plastic are used to cover the collector so that short-wave radiation can _____.
4. The glass or plastic cover on the collector helps to trap the _____.
5. For nighttime and cloudy days, heat needs to be _____.