



Solar heating system for house

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Although many homeowners use solar panels to power their homes, there are other ways to take advantage of solar energy. One option is solar heating, an alternative to traditional air and water heating systems. Solar heating improves your home's energy efficiency and has a better return on investment (ROI) than traditional heating systems.

Solar heating helps reduce your carbon footprint and improves your home's energy efficiency. These systems are easier to install than traditional options and work with most existing home systems. They also offer a range of other benefits:

Similar to traditional panels, solar heating uses sunlight to generate energy for your home. However, solar heating transforms this energy into heat instead of electricity. Additionally, you can use a solar water heater for hot water. We'll take a closer look at the types of solar heating technology available below.

Once solar radiation is absorbed by a collector, it moves to a heat transfer fluid. This liquid flows directly to a storage system or through a heat exchanger that separates the collected heat from the liquid and uses it to heat your air or water.

You may not need a heat exchanger when using air or a natural liquid, such as water. With other substances, the heat exchanger helps keep the artificial liquid from contaminating your water supply. After passing through the heat exchanger, the heat is moved from the liquid to heat either the air or stored potable water. The heat transfer fluids begin another cycle, flowing back through the system for continued heat generation.

Solar water heaters store warmed water in insulated tanks for your shower, laundry, kitchen, and other areas where hot water is needed. They're cost-effective alternatives to traditional water heater systems, which rely on fossil fuels such as natural gas for power.

Solar water heaters can use either active or passive technology. Active solar water systems use circulation to pump liquids for warming. They typically cost more than passive systems but are more efficient. Passive solar water systems don't use active pumps. Instead, they use convection technology and gravity to circulate liquids through your system. These hot water systems are more affordable but less efficient than active system options.

Solar air heating works by drawing in fresh air and heating it with coated black aluminum panels. The warmed



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air then passes through your home's ductwork using a solar-powered fan. These heating systems reduce carbon emissions and can work along your existing HVAC system. They cost less to install than heat pumps and can significantly reduce your fossil fuel use. As you might expect, they work most efficiently in sunny climates.

Solar pool heating uses solar technology to warm outdoor swimming pools. This heating technology makes your pool usable throughout the year and warms the water more cost-effectively than traditional electric or gas pool heaters. Ground- or roof-mounted solar collectors heat the water and circulate it back to your pool. Solar pool heaters can work automatically and contain sensors that actively regulate the water temperature.

Solar pool heaters differ in the type of collector they use. The best option for your pool depends primarily on climate, budget, and intended use. Here are the typical residential solar pool collector options:

Additional factors, such as pool size and collector efficiency, may also affect your choice. The DOE advises that your solar collector's surface area should equal 50%-100% of your pool's surface area. For example, a 12-by-24-foot pool will need 144-288 feet of solar collectors to provide ample heating. We suggest consulting a professional pool installer to determine the best heating options for your needs.

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