

Cultural Daily

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Designs Featuring Rooftop Solar Panels And Gardens Reduce Home Energy Costs

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Heating and cooling homes creates around 20% of energy-related greenhouse gas emissions in the US. With targets for significant reductions in all emissions by 2050, the design and build of all new homes will need to be significantly more energy efficient. In addition, retrofitting older homes with renewable energy sources and extensive insulation will be necessary. Green architecture advocates the creation of [energy-efficient buildings with low-carbon footprints](#), and just by looking at the top of the house, significant reductions in energy costs can be made. The roof provides the perfect setting for solar panels to provide renewable energy. And while rooftop gardens keep homes cooler, sustainable insulation under the roof deck can prevent heat from escaping.

Producing Energy With Solar Panels

Solar energy is an increasingly popular renewable energy source, and there are now more than [two million solar panel installations](#) in the US. In California, all new buildings are required to have solar panels installed, and a campaign by Environment America hopes to see more states, including some of the sunniest such as Texas and Colorado, follow suit. As well being installed during the building process, solar panels can be easily added to the roof of an existing property to make it more sustainable. The [solar panels Colorado](#) homeowners install will allow them to gain energy independence from fossil fuels, so reducing their carbon footprint and resulting in greater environmental stability.

Cooling Homes With A Green Roof

As well as maximizing green spaces in urban areas, rooftop gardens help to reduce energy costs. A green roof, covered with vegetation over a waterproof membrane, provides natural insulation. Along with shade from the plants, this enables a rooftop garden to regulate temperatures in the building by absorbing and trapping external hot and cold air. As well as saving energy, the plants also filter carbon dioxide from the air, adding to a home's reduction in carbon footprint.

Retaining Heat With Roof Insulation

Looking under the shingles, around 25% of heat is lost through the roof of an uninsulated home. The EPA estimates that the average homeowner can save 15% on heating and cooling costs by adding insulation throughout the house, including in the attic. For builders of new homes, basic guidelines for proper installation are laid out in state building codes. These include using green certified materials to insulate unvented attics below the roof deck, resulting in reduced costs and greater energy efficiency.

By harnessing solar energy for power, and insulating the roof inside and out to regulate temperature, a house can become energy efficient, reducing both costs and carbon footprint.

Photo by [MICHAEL WILSON](#) on [Unsplash](#)

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