



Consumer Energy Center
CALIFORNIA ENERGY COMMISSION

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Passive Solar Design - Windows

What is a home without doors or windows? They allow us to enter and exit a building, but they also let in sunlight, air, heat and cold. How windows and doors - and the house itself - are positioned, in relation to the wind, the landscape and the movement of the sun, can increase a home's comfort and energy efficiency.

Windows in a well-designed passive home are expected to do more than be decorative pieces of glass. They also serve as solar collectors, bringing in light and heat while providing ventilation.

Locate the majority of your home's windows and patio doors on the south side. This will allow them to collect warm solar energy when heat is needed and to let in breezes when you need fresh, cool air. Limit the number of east, west and north facing windows to help insulate against winter cold and reduce summer heat gain.

When it comes to windows, if you think "a little is good, then a lot is better," think again. A common mistake in solar design is to use too much glass on the south side. An overabundance of windows (also called overglazing) for the amount of heat storage capacity (thermal mass) in a design can make your home's temperature uncomfortable, either too hot or too cold. When overheating happens, the home's occupants are forced to open windows to ventilate. In the process, they lose the benefits of both immediate comfort and storage of free heat to be used later.

To decrease nighttime heat loss in winter and to control solar gain in the summer, consider installing insulated window coverings such as drapes or shutters.

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