



Passive Solar Home Saves 60% on Energy Costs

DURHAM, NC

With temperatures rising throughout the country, residential energy bills are going up, up, up as well, and not just due to the heat. Energy prices are rising, reflecting increased consumer demand on utilities, who are facing increased competition to meet this demand. With the heat on, consumers and builders are looking to new technologies for improved energy performance, and meeting with some success, even in the hot, humid climate of the Southeast.



Enertia home in Durham, NC

One particular home- an Enertia Building Systems® Arcadia 3248 model located in the Triangle of North Carolina- is providing its owners a real break this summer compared to their neighbors. The monthly electric bill for this house is \$35 per month, fixed, through a bill-leveling program with a local utility. That means an electric bill of only \$420 per year.

The total energy cost for this home was \$572 for the last year- the home also has a back-up radiant heat system, which uses Natural Gas, for long cloudy stretches or unusually cold weather. According to US DOE¹, this is a savings of just over \$1000 per year at current utility rates (over a comparable home near zip code 27713).

Because of the southerly orientation of passive solar homes, they are perfectly suited for the addition of active and passive solar systems, such as photovoltaic and solar hot water panels. Hot water needs for this home are met with solar hot water panels, contributing additional energy savings.

Though several strategies for passive solar design exist, this home utilizes a double envelope. The interior of the home is surrounded by an air path which is used to distribute solar energy the house receives in the form of sunlight (referred to as passive solar gain).



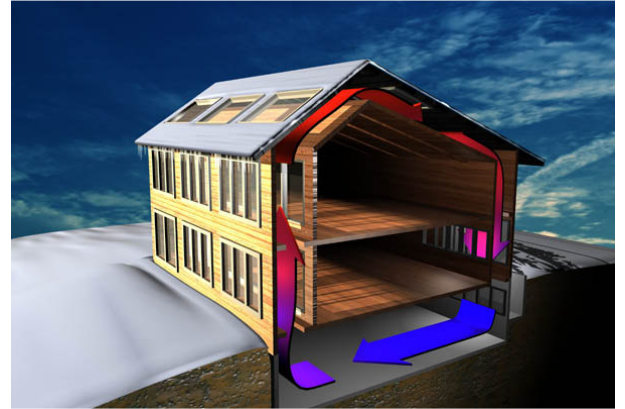
View showing solar hot water panels

¹ <http://hes.lbl.gov/>

EnerTia homes are constructed using pine gluelams. This beautiful lumber is also known for its high resin content. At room temperature- 72 to 80 degrees Fahrenheit- the resin stores latent energy. This property allows an EnerTia house to take in heat and store that heat in its walls.

During the day, the house absorbs energy through south-facing window glass. The warm air rises up through the outer envelope. At the apex of the envelope, it migrates toward the cooler air in the basement, creating a convection loop. This loop distributes the solar energy to the north side of the home. The logs hold this energy, and release it as temperatures drop in the evening.

The end result is a beautiful, new use for indigenous, Southern forest products, that saves money and energy.



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