

Santa Fe REAL ESTATE Guide

Artisan/craftsman/**builder**

JUNE 2008 VOLUME 12, ISSUE 3

Talking about insulation!

by Kurt Faust

With all of the talk about sustainable building practices these days, and especially now that the cost of energy is rising so fast, it is time to think about how much energy your house is using. Energy efficiency is one of the fundamentals of "green building." According to the Web site of Santa Fe architect Ed Mazria (www.architecture2030.org), "Data from the US Energy Information Administration illustrates that buildings are responsible for almost half of all energy consumption and greenhouse-gas emissions annually; globally the percentage is even greater. Seventy-six percent of all power-plant-generated electricity is used just to operate buildings."

The majority of energy consumed for a building is used to heat and cool the inside air temperature, to make hot water, and to light rooms at night. Insulation is the first thing to consider when trying to reduce the energy consumption needed to run the building's systems. Good insulation reduces the amount of energy required to bring the interior to a certain temperature, either hot or cold. It also reduces the rate at which the temperature changes toward the outdoor temperature.

The most common type of insulation is fiberglass-batt insulation. Batts are relatively inexpensive, but leave many air gaps which can cause convecting air currents to carry the indoor air temperature away to the outside. Air infiltration is one of the major components of the "thermal envelope" which is made of the total R-Value of all the components in the envelope, air infiltration due to leakage through holes and gaps in the system, air infiltration due to permeability of the individual components, convective air currents within the cavities, thermal bridging conducting heat or cold across the building envelope, and the thermal mass of the components.

A better form of insulation, which is sprayed or poured, fills the cavities completely enough to control extraneous air flow. Cellulose insulation is made using recycled wood fibers a fire retardant. It is made with approximately eighty percent recovered content, most of which is post-consumer waste. Cellulose insulation also has low embodied energy, which means that the energy requirements for manufacturing and shipping are lower than most forms of insulation. The cellulose is mixed to a wet, sticky consistency and sprayed into all of the wall cavities and around all of the plumbing pipes and electrical boxes.



Kurt Faust is an artist, blacksmith, cabinetmaker, and homebuilder. He owns Tierra Concepts, Inc. and Taos Furniture with his two partners Eric Faust & Keith Gorges.

Open cell foams are also sprayed into the wall cavities to fill in all the holes and gaps. These do not absorb moisture and have a similar R-Value as cellulose. The R-Factor is measured by placing a material between two plates and measuring heat flow through the material. If insulation has an R-Factor of 3.5, and there are 6 inches of insulation between the warm side and the cool side of the wall, the R-Value of the insulation in the system is 21.

Closed cell foams are generally used as a roofing system and have around R-6 per inch. They are rigid and dense and can add structural stability to a building. These foams should not be confused with the urea-formaldehyde variety that was used during the 1970s.

It is important to remember that the foundation needs to be well insulated, especially when using radiant floor heat. An insulating material used under the slab will help keep the heat in the home. With today's super-tight building methods, it is important to provide adequate ventilation to keep the indoor air quality high.

Contact Kurt Faust:

Cell: 505.780.1157

www.tierraconceptssantafe.com