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Green features cut household bills

By Jeanne Mooney | The Virginian-Pilot

Here are some of the green features Skip Stiles and Margie Mulholland added to their home:

Atrium

To brighten the interior of the home, the couple added a pair of remote-operated skylights in a rear stairwell to complement one at the front of the house. When open, the skylights will create an updraft, allowing warm air to rise and escape.

Contractor Nick Shawyer called it an atrium ventilation system and a likely energy saver.

"I'm hoping when other people are running their air conditioning, (they've) got the windows open," he said.

Cabinetry and flooring

They are using bamboo. And though it grows in China and requires considerable energy to bring it stateside, it gets high marks in green building.

Bamboo is a rapidly renewable resource because it grows to maturity in 5½ to six years of age, well within the 10 years needed to receive a U.S. Green Building Council blessing.

The bamboo to be used in the couple's home also will help preserve indoor air quality there. Some has no urea-formaldehyde added to the adhesives, according to its importer, Teragren of Bainbridge Island, Wash.

Insulation

Insulation is the unsung hero of green living.

Stiles and Mulholland encapsulated their home with it to stop outdoor air from blowing in and conditioned air from seeping out.

They used tiny bubbles of foam, shredded newspaper and rigid foam boards that outperform similar thicknesses of batts of fiberglass insulation, a less costly product, said Steve Tetreault, owner of The Drying Co. in Williamsburg, Va.

Tetreault sprayed a half-inch of dense, impermeable foam on the interior of the couple's gutted walls. He then applied 3 inches of cellulose, a mix of recycled newspapers and new wood fiber. Together they achieved an R-value of about R-15, he said. (R-value represents resistance to heat loss.) A similar thickness of fiberglass batts provides a value of R-13, Shawyer said.

Tetreault also insulated wide band boards between floors with foam to prevent air leaks. He attached rigid foam boards with a value of R-10 to the exterior basement walls to stop humidity. Under the attic rafters, he sprayed a half-inch of foam and 10 inches of cellulose for a value that exceeds R-30, Sawyer said.

Geo-thermal heat pump

If Stiles and Mulholland want to make heads swivel at holiday parties, they need utter one sum: \$28.

That's how much they'll spend per month, on average, to heat and cool their 3,700-square-foot home, said Ed Battelle with Virginia Service Co. in Virginia Beach.

Stiles and Mulholland have their geo-thermal heat pump to thank. When running, it will harness ground temperature to control indoor air temperatures. It works by piping water in and out of five wells, each 200 feet deep, in the couple's backyard, Battelle said.

In the winter, the Earth's stable temperatures warm the water in the pipe, which transfers heat to the home. In the summer, the home's heat is absorbed by the water and piped into the wells, where the heat dissipates.

The system also will pre-heat the home's hot water, lessening the load of a planned solar hot water system, Stiles said.

A tax savings of at least \$2,000 is possible for the geo-thermal system, Battelle said. That would reduce the difference in cost for a geo-thermal heat pump and a new air-to-air heat pump in the home to about \$8,000, he said.

Disposal

Sawyer has tried to cut waste by using materials more efficiently.

For instance, his crews used two studs instead of three when framing corners. The California-corner technique eliminates dead space that is hard to insulate.

Sawyer also separates his trash. Crews dump brick, block, glass, metals, porcelain, tile and untreated wood in a bin bound for Waterway Recycling in Chesapeake, Va.

There, woods are ground into mulch. Brick and block are recycled. Drywall and insulation go to a landfill.

So far, Sawyer's crews have recycled 8½ tons of material and trashed 7¾ tons.

"Who knew there was this big recycling place?" Sawyer said.

One of his roofing crew did and passed the word.