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Building Green

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- In the past, it was a rare and strange occurrence to hear abou someone who was having an energy-efficient "green" home built.

What it means to be 'green'
Here are just a few of the numerous features that Folino and Kozo incorporated into their green-built homes

Exterior:

Instead of oriented strand board, Folino used structural insulated sheathing made by the Dow Chemical Co. combines structural, insulative and weather barrier properties in one product by attaching a structural sheat material to a polyisocyanurate foam insulation, according to the Dow Web site. The SIS board provided an R value. The more R-value, or insulation value, the more energy efficient the home.

Folino also used "GreenFiber" insulation, a blown-in insulation made from 85 percent recycled paper fiber. B insulation allows cracks and crevices to be filled that typical insulation would miss.

Advanced framing techniques were also used by the builders to allow for more insulation and therefore more value.

"The less lumber we can get in there and the more insulation, the better," said Folino.

Both builders framed on a 24-inch center (framed every two feet instead of every foot and a half - typically are on a 16-inch center), which are just as good structurally, but allows more insulation to get into the walls explained Kozo.

Kozo upgraded the R-19 in a 2-by-6 wall to an R-23 by using a blown-in insulation called SpiderSpray.

Kozo also used an Energy Star superseal package, sealing any areas where there is no insulation with caulk two studs join together, joints, between top and bottom plates, etc.).

To provide ventilation and clean, controlled air flow throughout the home (because the homes are very tight and need proper ventilation), the builders incorporated an energy recovery ventilator, which measures the a of humidity outside and will only open based on different humidity levels and also pulls fresh air into the hor That fresh air mixes with the air inside the house and the ERV then pumps fresh, oxygenated air into the ho said Kozo.

Kozo's home's ridge vents, the vents that go along the top of the roof to allow for air flow in the attic space, made from a material made from coconut husk, mixed with resin. This product allows air to pass through bu not allow snow to blow up inside, or for bees or insects to get inside. The cost of this product is comparable typical rolled ridge vents, said Kozo.

Windows and Doors:

When it comes to windows and doors, the lower the U-factor, the better. So, the builders went with windows low U-factor, that were appropriate for the climate of this area. Also, the windows have a low-e coating on t help block dangerous UV rays from entering the home.

Flooring:

The builders used flooring made from renewable materials. Folino went with bamboo hardwood flooring whil went with Lyptus, an eco-friendly hardwood hybrid derived from a Eucalyptus tree, which will grow to matur harvesting in about 15 years and can regrow out of the same stump - much like bamboo.

Folino also used a green carpeting made from recycled materials.

Paint:

Low or no volatile organic compounds paint was used in the homes.

Before painting, Kozo added a vapor barrier as a primer, since there is no vapor barrier with blown-in insula This allows air to transfer but not as much condensation.

Kitchen:

Both builders used certified green cabinetry in the kitchen.

Bathroom:

Kozo's home included dual flush toilets, which utilize different flushes for different types of waste - .8 gallon flushes that don't require much as much water versus 1.6 for those that require more water.

Plumbing:

The builders used a Pex water system in their homes.

"The real beauty of (the Pex water system) it is no longer using copper," said Kozo.

Also, the Pex system reduces leaks because there are no joints throughout the system.

"Whenever you would have a leak with a copper pipe, it would typically be at a joint," said Kozo. "With the F system, you have a manifold (in the basement) and the next termination point is at your fixture. So it is one continuous loop that goes up there with no joints in the middle."

Low-flow faucets and showerheads, which use less water, were utilized throughout Folino's homes.

Heating:

Folino's heating system is 92 percent efficient, with all return ductwork sealed, preventing air leakage from t duct system.

Folino also incorporated a tankless water heater, which works by directly heating water on demand, as it is needed, rather than using a storage tank that needs to continuously reheat water as it sits in the tank.

Kozo's home has a geothermal heating system with a DE Superheater. The DE Superheater, part of the geot system, preheats domestic hot water by pulling the heat out of the air and cooling it through the geotherma system, bringing it halfway up to temperature, making less work for the hot water heater.

Appliances and lighting:

All appliances are Energy Star approved and lighting is flourescent in the homes.

- Compiled by Amelia A. Lowe

Some of the concepts involved with building such a home seemed like science fiction; space-age, even. Speak space, the cost of creating such a home was astronomical.

Not only that, but the green homes of the past often weren't considered aesthetically pleasing to most - the n often conjured up images of awkward shapes, dome-like or boxy, half-underground perhaps, functional but no pretty.

But those days are long gone, thanks in large part to growing awareness of the importance of preserving valu resources and energy and reducing monthly energy bills.

Today, advances in green building have allowed homes to be built in such a way that it would be difficult to te apart from a home that wasn't built to such standards.

And while the initial cost of building the home may still be slightly higher than the typical home, the long-term savings can be huge, in many cases returning your investment in a relatively short period of time.

Take a look at some of the homes that have been built by local builders Folino Homes of Spring Township and Turnberry Custom Homes of Cumru Township, for instance.

At first glance, one may have no idea that these homes were built green.

But from the ground up, various methods and materials used in the process have made them just that.

Kevin Kozo, owner of Turnberry Custom Homes, who recently received his designation as a certified green professional through the National Association of Homebuilders, has strived to educate home builders and homeowners on the many ways they can incorporate green building techniques into new home construction, a with low-cost ways to upgrade features in existing homes that can save energy and reduce costs.

While Kozo has been incorporating various green build elements into many of his homes over the last few yea recently completed an energy-efficient home following the NAHB Green Building guidelines. After completion, built according to these guidelines can be inspected and certified as a "Green Built Home" by a third-party inspector, said Kozo. Unfortunately, the home missed the certification by an extremely small margin, due to a percentage of air leakage in his ductwork.

"We had a 9-percent air leakage in the return, the maximum to be certified would be 6 percent," said Kozo. "(inspectors) said most new homes when they first go in to inspect are between 30 and 40 percent, so it is a re tight home."

Regardless, the Brecknock Township home, which took home several awards at this year's Home Builders Association of Berks County Parade of Homes in Division IV ($395,000 to $425,000) and was recently sold, is extremely energy efficient and was created using environmentally friendly materials and methods, explained I

Marco Folino, owner of Folino Homes, is currently going through the process of becoming a certified green professional through the NAHB.

Two of his Maidencreek Township homes that are in various stages of the building process are being construct according to the NAHB Green Building guidelines, as well, and will be inspected and certified when they are completed. The homes are on the market for $267,900 and $277,900.

"I really liked the idea of building a tighter, more energy-efficient home," said Folino.

Additional cost is about $10,000 in the sale of the home, which should be recovered in about five years of hor ownership due to energy savings, said Folino. Savings can be about $2,000 per year after that, he added. Oth benefits of a green-built home include a higher resale value and numerous tax benefits.

While there are a huge number of considerations that can be taken into account during every phase of the bui process, Folino and Kozo went through the guidelines and tried to choose those that would make the most im and value.

The NAHB green home building program offers three levels of green building for builders to rate their projects bronze, silver and gold - based on a point system. At each level, there is a minimum number of points require each of the seven principles of green building established by the NAHB, according to the association's green h building guidelines, which can be viewed at www.nahbgreen.org. Those seven areas include lot design, prepar and development; resource efficiency; energy efficiency; water efficiency; indoor environmental quality; oper maintenance and homeowner education and global impact.

For many, having a home built to "gold" standards or higher may not be cost effective; that is, it might take r too long for the home's energy savings to pay off.

How much payoff there will be really depends on the homeowner's situation and how long they plan to be in t home, explained Kozo.

"The average upcharge will be about 7 percent," said Kozo.

But it really depends on the options that the homeowner goes with and what level of certification they are loo at, if they are looking to be certified.

But no matter what, there is a broad spectrum of options available for someone looking to go green in varyin levels.

For more information on the NAHB Green Building Program, visit www.nahbgreen.org.

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