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Builder Calls Spray Foam One of Top Emerging Technologies

A tighter envelope, better thermal performance and increased indoor air quality (IAQ) are just a few of the reasons builders are embracing spray foam insulation as an emerging technology.

To find out why it has become so popular, TecHome Builder decided to talk with members of the Spray Polyurethane Foam Alliance, insulation manufacturers and a major production builder that's adopted the tech as standard. You probably already know that spray foam insulation is an alternative to traditional building insulation (fiberglass), but let's explore the options on the market and why they could be beneficial to your homebuyers.

There are two types of spray foam: open-cell and closed-cell. And both of them are being targeted as alternatives to fiberglass for a range of benefits. The tech is commonly being used, today, to insulate homes and improve structural rigidity, but that wasn't always the case.

Sparking Spray Foam's Popularity

"Everyone that got into the [spray foam] business, got into it for roofing. From about 1966 to 1992, roofing was the predominate, nearly exclusive use of spray foam," says Joe Stockdale, industry relations expert at **Covestro (http://www.polyurethanes.covestro.com/en/Products/Spray-Foam-Systems/Overview.aspx)**, which is a manufacturer of spray foam technologies.

According to Stockdale, who boasts more than 40 years in the industry, the national spray foam distribution network became established in 1992, which allowed manufacturers to send truckloads of foam to residential contractors. Previously, it was difficult to send shipments of foam to construction sites, because it wasn't cost effective for the builder.

Meritage Homes Talks

Spray Foam as Standard

The network has continued to grow and attract new members, including the seventh largest production builder in the U.S.—Meritage Homes.

“We quickly recognized that conventional insulation was innately prone to a lot of air movement and more importantly to failures due to installation,” says CR Herro, VP of energy-efficiency and sustainability. The company also found that cut-and-place insulation has a significant reduction in performance—50 percent of its rated R-Value.

That ineffectiveness of fiberglass insulation contributed to Meritage Homes’s decision to standardize spray foam, six years ago, which forced the production homebuilder to get creative in order to overcome some challenges when it comes to cost.

“When we standardized spray foam, we were building 7,000 homes a year, and spray foam was easily 3 to 5 times more expensive per square-foot than traditional insulation,” says Herro. “For Meritage, the exercise was in reducing failures while achieving cost competiveness.”

Industry experts agree that while the upfront prices are elevated, long-term costs actually balance out. “After you add up all the components, spray foam is more cost-effective,” says Covestro’s Stockdale.

It's really about balance. For example, Meritage has been able to reduce HVAC equipment costs while investing more in the envelope and thermal performance of the home. The result is that the homebuilder has been able to enter a new market of green-minded homebuyers.

> **"We have been able to talk to consumers about cutting their utility bills in half, which can be $80 to $140,000 of financial benefit over a 30-year mortgage. That makes the value of our homes significantly better than a conventionally built home," says Herro.**

In response, Herro has called spray foam one of the top emerging technologies in the TecHome industry.

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Benefits and Choosing the Right Spray Foam

Choosing to reap these energy efficiency benefits by using spray foam on your next project is just the first step.

You also have to decide which type works best. Open-cell is inexpensive and serves as a better sound barrier, while closed-cell is denser, has a much higher R-Value and is a

water and air barrier. Closed-cell spray foam has a range of benefits that could encourage builders to make the switch. Structure rigidity, energy efficiency, improved IAQ and thermal performance are just a few of the benefits.

"Because spray foam provides such a good air seal, it blocks out noise, pollutants and moisture from getting into the building which can make the inside of the building less comfortable," says Richard Duncan, technical director for the Spray Polyurethane Foam Alliance (**SPFA (http://www.sprayfoam.org/)**).

The SPFA is a major, national organization that works with contractors, builders, suppliers and manufacturers to inform the industry about the benefits of spray foam.

Aside from comfort control, spray foam also impacts the home's structural rigidity. According to Duncan, the use of foam underneath the roof deck can, essentially, hurricane-proof a home. "We have data that shows that you can go from a class one hurricane all the way up to class three without having the plywood roof deck pulled from the framing," he says.

And because spray foam is used to fill cracks, no water is able to seep into the home through the framing. This means that during a storm, even if the roof is ripped off, water will not be able to permeate the drywall and attic. Builders in hurricane-prone areas are encouraged to use spray foam, because FEMA guidelines mandate that when building in a flood area, builders must include water-resistant installation such as closed-cell spray foam.

> **"Aside from the structural improvements, with wind resistance and as a water barrier, we find that by using spray foam (open-cell or closed-cell) to create a conditioned attic space, it saves the builder in a number of ways," says Duncan.**

The conditioned or unvented attic enables builders, such as Meritage, to install HVAC equipment and ductwork in the attic. This cuts costs while also standardizing spray foam.

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