

Airtight seal

Panels with built-in insulation slow to catch on here but might as green movement strengthens
Sunday, November 15, 2009 4:40 AM

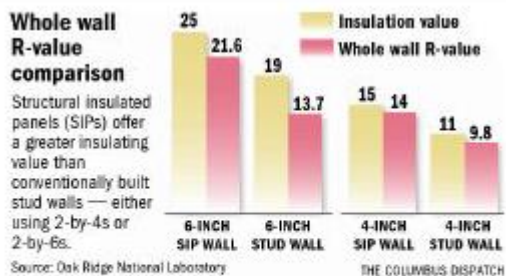
By [Jim Weiker](#)

THE COLUMBUS DISPATCH



ERIC ALBRECHT | Dispatch

Lamit Industries employees Donald Blystone, left, and David Harrison cut structural insulated panels at the company's South Side factory. These panels were used for the renovation of Teresa and Peter Wray's Northwest Side home.



[Click here to enlarge](#)
Image 2 of 4

CLOSE X



TOM DODGE | Dispatch

Construction workers lift a panel onto the Wrays' roof, while another panel rests on the ground.



ERIC ALBRECHT | Dispatch

David Harrison, left, and Donald Blystone arrange a piece of foam insulation to create a structural insulated panel for a customer of Lamit Industries.

Peter and Teresa Wray own an unconventional home. So it made sense that when they expanded it, they would do it unconventionally.

The couple chose to use structural insulated panels instead of studs to expand their 1970 Northwest Side home, which hovers over a drainage creek.

"The only reason I knew about them was because my daughter is a green architect in Chicago," said Peter Wray, communications director with the American Ceramic Society. "She said they use them a lot up there."

The panels, often referred to with the shorthand SIPs, consist of a dense insulating foam sandwiched between two sheets of composite wood. They arrive at the building site in sheets up to 8 by 24 feet and in 4- to 12-inch thicknesses. The panels can be used for walls, roofs and, occasionally, floors.

Structural insulated panels have been around for decades, but they have never gone mainstream. According to some industry estimates, they are used in 3 percent to 4 percent of new homes, although in central Ohio the figure is probably lower.

One reason is cost: The panels can add more than \$10,000 to the price of a new home, according to some estimates.

Panel proponents, however, think today's emphasis on energy efficiency could make the time finally right for the panels and other alternative construction materials.

"I think we'll see big changes in the industry, given the cultural wave of what everyone calls green," said Bexley architect Eric Elizondo, a big fan of the panels who designed the Wrays' addition.

Elizondo and others note that although some methods of home construction have changed dramatically during the past 50 years, such as poured concrete for basement walls, most homes are framed the way they were a century and a half ago: with 2-by-4 or 2-by-6 stud walls.

Wood, however, is a poor insulator, so every stud forms a "thermal bridge" that transfers energy between the inside and outside. Even with exterior insulation, energy is lost.

Made of foam, structural insulated panels largely eliminate thermal bridges, greatly improving the insulation value of the home. They also reduce air leaks.

In addition, structural insulated panel walls can be quicker to install because they include insulation and sheathing, window and door holes, and cable and electrical channels.

So why haven't they taken off?

A South Side company, Lamit Industries -- which has been building the panels for 20 years for its sister company, Tectum -- acknowledges the panels haven't been an easy sell.

"The SIP panels are a wonderful tool for a builder, and the concept is not new," said company owner Steve Mihaly. "But it's new to the building people who are used to the stick-type construction."

Mihaly and others say they think structural insulated panels could become common once builders become comfortable using them.

"I think it could take off," Mihaly said. "There just needs to be more and more jobs out there that have been completed where you can show it to an architect and builder and say, 'This is what we've done.' "

Don Zeis, owner of Zeis Contracting in Pickerington, said he was "sold" on structural insulated panels after using them for the first time on the Wrays' addition.

"I would love to try to set a new house with these," he said. "In two days, we'd have the whole house framed -- and insulated, too."

But, he acknowledged, the roof panels were more challenging than the wall panels, especially because they had to match an odd pitch on an existing roof. Zeis' four-man crew struggled one recent afternoon to set the 8-by-12-foot roof panels, each of which weighs 336 pounds.

"I wouldn't hesitate with a new build or a simpler addition," he said.

Others aren't so sure.

Gary Libertini, senior vice president of American Heritage Homes, said he was big on structural insulated panels after seeing a presentation at a 2006 conference.

"We got convinced that was a good way to go," Libertini said. "They are strong, airtight, have a great R-value, and we like that they are panelized and have less weight. But . . . they were just too expensive.

"I would use it in a heartbeat if I could get it down to the same cost."

Comparing the price of structural insulated panels with conventional walls is tricky because the panels include insulation and sheathing, and can be installed much more quickly.

A study by BASF, which makes the insulation used in some panels, showed a construction crew saved 130 hours building a Cape Cod house with insulated wall and roof panels, compared with conventional framing.

Chris Dolan, Lamit's sales manager, said he estimates that the panels add up to 7 percent to initial costs.

Elizondo estimated that the panels added less than \$1,000 to the cost of the Wrays' addition.

Elizondo and Dolan also note that savings will be realized through years of reduced energy costs.

ToolBase Services, a housing industry research center based outside Washington, D.C., agrees that structural insulated panels initially cost more but that energy savings make the panels "more affordable in the long run" than conventional construction.

According to ToolBase, a Dallas builder found that energy bills were halved in a home with insulated panels compared with a home with conventional walls. Another builder in Minneapolis who used structural insulated panels on a 5,000-square-foot home found that annual heating costs for the home were less than \$600.

Besides energy efficiency, insulated panels add strength to a house, making it resistant to strong winds, according to ToolBase.

But, said ToolBase, structural insulated panels can make remodeling more difficult because door, window and utility channels are cut at the manufacturing site, not the building site.

Because the panels are solid on the outside, though, work can be easier for drywallers, cabinet hangers and other workers because they don't have to hunt for studs.

"We've used them for a couple homes and had one complete house built out of them," said Mike Boso, the chief building official in Grove City. "Running wires can create a challenge, but they're solid and very airtight, and they go up very quickly."

Eight years after building a home with panels, Jim and Kathy Mayhorn remain convinced that they're the way to go.

"I'm so glad we built with this. I can't understand why others don't," said Kathy Mayhorn.

She also knows from experience that it can be a challenge for a homeowner.

The Mayhorns were determined to use the panels when they built their Delaware County home, but they could find no contractor in central Ohio willing to use them and ended up serving as their own general contractor. A builder from Brunswick, Ohio, did the construction.

"It didn't cost much more than conventional construction, and we've certainly gained that back in energy savings," Kathy said. "And people can't believe how quiet the house is."

Convinced that structural insulated panels are at a tipping point of popularity, Elizondo plans to continue promoting them to his clients. Homeowner Wray also thinks the panels could be on the verge of going big.

"It's a matter of getting a critical mass on the consumer side and the installation side," Wray said.

"Given where the world is going, I think any contractor is crazy not to get some experience using these." jweiker@dispatch.com