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SIPs the Way of the Future, SIPs User for 20 Years Says

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Architect Alden Dow reportedly created the first foam core structural insulated panels (SIPs) - structural framing, insulation and exterior sheathing in a one-piece component - in the 1950s by gluing plywood skins to both sides of an extruded foam core. But it took until the 1980s for SIPs to make inroads into the construction industry and their use has been spreading ever since.

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In May, the International Code Council voted to adopt SIPs into the International Residential Code.

PATH partner and NAHB Building Systems Councils member Shirey Contracting, based in Issaquah, Wash., has been using SIPs since 1988. Recently, PATH talked to Donna Shirey, president of Shirey Contracting, about the company's 20 years of experience using SIPs.



Donna Shirey, Shirey Construction

PATH: Why does Shirey Contracting use SIPs?

Donna Shirey: We feel it's the best way to build. We can give our clients a strong, energy-efficient structure that goes up quickly and eliminates job-site waste.

SIPs are a building system, where everything is custom-cut in the plant and delivered to the job site. It's virtually built by numbers.

When we build a second-story addition, for example, we can get the house covered up in a matter of days instead of weeks.

PATH: Have there been a lot of changes in the way SIPs are used today compared to when you started?

Shirey: When we first started out, we had to cut the panels on the job site, which we did not like. Now, almost all of the panel manufacturers custom cut their panels in their factories.

I have not noticed significant changes in the product. But I think that's because panels have to undergo a lot of testing.

Manufacturers can't change anything. They can't even move their plant, or they have to have everything re-tested.

PATH: After so many years, SIPs still are used in only about 1% of residential and light commercial construction projects. What do you think it will take for more builders to use SIPs?

Shirey: The smart builders are waking up and realizing that this is the way to build • and I commend them for that. But it's not right for everybody. It's important to be open to new techniques.

It's all about attitude. I've talked to builders for 20 years about SIPs and they say, "Well, this is how we build, and the subs won't understand it." And the subs say, "Well, the builders think it's too expensive, and they won't spend the money on it." It's a catch-22!

PATH: What are some of the challenges of using SIPs?

Shirey: One of the biggest challenges is finding subs who are open to new techniques and understand what an airtight house is all about.

We're building a SIPs house in Florida, and we had such a difficult time with our HVAC guys. We wanted everything to go into our heat recovery system. They just wanted to slap in a great big huge system and be done with it.

If the system is too big, it'll never turn on because these houses don't lose their heat • but you do have to change the air in them. The flap over the HVAC system delayed us about two months. With SIPs, there's a lot of education involved.

PATH: I hear you're working on your own zero-energy house in Washington.

Shirey: The site is steep - a 40% grade • so it's going to be on pilings drilled into the ground. Floors, walls and roof will be SIPs. It's going to have a green roof, solar panels and some wind power.

It's only 1,700 square feet and has two bedrooms. It's perfect for what's happening to my generation where people are downsizing. We just want to have a great, well-designed, beautiful little jewel of a house.

PATH: There have been some cases that got a lot of press of poorly built SIPs homes. How does Shirey Contracting avoid that?

Shirey: It is really a shame, because it does give the industry a black eye.

We generally do not have problems because we understand the importance of planning.

You have to have the shop drawings correct. If you have, for example, a window that is not the correct height off the floor on the drawing, it's not going to be right when they produce the panel.

You can shift openings in a panel wall, but as with stick-built walls, shifting window openings will cost you time and money.

We also plan ahead to have the correct personnel on-site to encourage efficiency of movement.

With SIPs, you don't need all the carpenters to be journeymen. Apprentices and laborers are really valuable when we're putting these things together. But having a few journeymen carpenters on-site means that they can make changes if, for example, a

window opening is in the wrong place, without additional supervision.

PATH: How do you find good carpenters?

Shirey: If you interview a carpenter, he's going to say, "I know how to do everything." We actually give a written test, because we want to know what they know. On the other hand, if we find someone who is interested in construction and has a good attitude, good personal habits, can get to work on time and has a vehicle, we're glad to train him or her.

Labor is in short supply. We don't have as many people going into the physical trades.

There are a lot of people who want to go into project management. SIPs are a great place to get into construction management.

To be able to order those panels correctly off their panel layout is a great thing for a project manager. Think how wonderful it is to have everything custom cut in the plant and delivered to the job site that you simply assemble.

PATH: What are your recommendations to builders just getting started with SIPs?

Shirey: It's a simple learning process. I would recommend that they have a company like ours consult with them - a company that knows panels and can walk them through the first project.

People who are involved with panels are really willing to teach others because all of us want to build the market.

But my best advice? Have a good attitude. Don't be afraid. SIPs are the way of the future.

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