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SIPs technology - Energy efficient alternative to stick framing

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Structural Insulated Panels (SIPs) and their ability to reduce commercial fuel costs have been the "sleeping giant" of our building industry for 20 years.

Now, after years of skyrocketing fuel prices in the U.S. and associated movements to conserve the same, the giant is awake. Structural insulated panels - SIPs, as they're known to builders - are coming into their own and causing some who knew nothing more than conventional stick-framing to give the alternative building method a look.

SIP wall and roof systems eliminate the need for wood studs which are poor insulators.

In a SIP wall, the R-value is continuous across the entire plane of the wall with little-to-no breaks. In an R-value battle of between panels and stick frame, SIPs win.

"Structural insulated panel construction, when properly executed, can result in lower air leakage rates than often seen in conventional frame construction." says Jeff Gephart, a certified energy rater in the state of Vermont.

Foard Panel Inc. of W. Chesterfield New Hampshire has been manufacturing and installing SIPs throughout the northeast for 15 years. Many of their projects demonstrate how SIPs actually reduce a building's heat loss by 50% compared to a conventionally framed system with fiberglass.

For instance, Foard's own 12,000-square-foot warehouse building in New Hampshire, built with R-30 structural panel walls, costs \$3,000 a year for heating fuel. A timber frame home enclosed with SIPs in Brattleboro VT received a Home Energy Rating of 46 - meaning the home performs 54-percent better than the energy standards set in 2006.

SIPs have the flexibility of being used for both structural and non-structural applications. They can be used to enclose steel frame or timber frame buildings where loads are being carried by the timber or steel.

Take away the timber or steel and SIPs can be complemented by engineered lumber and 2x lumber to take on the loads. Referred to as "SIP structural" buildings, the panels are used in place of conventional stick frame construction, thus eliminating 16-inch-on-center studs.

The building world is going the way of SIPs for the obvious energy savings, but speed of install is also a biggie. Less time on site for any trade is always less money. SIP systems install twice as fast as stick framing, reducing labor costs.

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