

# Resources

## Building With SIPs

by Paul Fiset

In *Building With Structural Insulated Panels* (Taunton Press, 2000, \$34.95), author Michael Morley likens stick-built construction to the folk hero John Henry and structural insulated panels (SIPs) to the steam drill. You may recall that John Henry hammered his fool self to death trying to compete with the steam drill. Morley predicts that the days of conventionally framed homes are likewise numbered.

He reminds us that SIPs are faster to install and structurally superior, that they are more energy conserving, environmentally friendly, and cost competitive, and he says they are about to take the light-frame construction industry by storm. Despite his admission that SIPs have been around for 50 years and hold a meager 0.05% of the market, he believes that a building revolution is underway. There is no doubt that SIPs are a nice building option, but Morley's mantra is overdone.

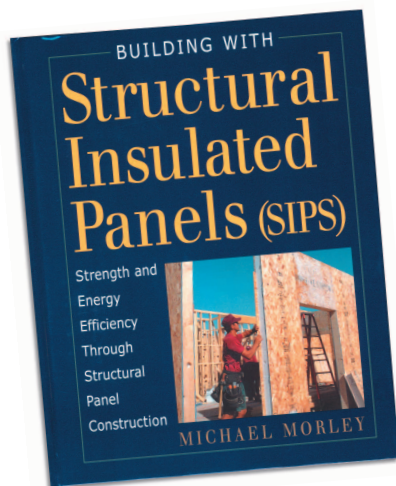
The book is well organized. It has nine logically arranged chapters beginning with a neat history of the development and use of SIPs, followed by chapters on technical matters and performance analysis, design, tools and fabrication, and the actual construction process.

### Technical Details Lacking

Unfortunately, curious readers will be left wanting by much of the technical discussion. For example, in one passage, Morley says that "polystyrene beads are heated beyond the glass transition temperature" but neglects to explain what that means. Elsewhere we are told that some blowing agents have "ozone depleting potential in the range of 1.0," but 1.0 is not a "range," and again the author does not explain the concept or say what level is acceptable. We are told that urethane cores "break down" but not whether that failure is significant or what causes it (exposure during trans-

port?). After reading the explanation of axial loads several times, I still could not tell whether the load on the wall was "compressive" (downward), as the text indicates, or wind driven (side-ways), as the table suggests — even though I teach a course in structures. Most disturbing is the author's failure to conduct a fundamental analysis of the characteristics critical to performance.

The author mentions that carpenter ants are known to nest in foam, but he provides little information about the



consequences of an infestation in the panels. For example, do ant nests affect the structural performance of SIPs? If so, at what point does a nest become a structural concern? Morley explains that the interior surface temperature of a SIP wall is more uniform than that of a conventionally framed wall, making the SIP wall more comfortable. Yet his chart shows less than half a degree of difference between the hot and cold spots on a conventionally framed wall compared to a SIPs wall. He also doesn't give the outside temperature for that comparison.

In the chapter on design, Morley does not discuss how climate affects the specification, performance, or viability of this technology. He tells us that SIPs are more environmentally


friendly but does not evaluate the environmental cost of this nonrenewable petroleum sandwich. He barely scratches the surface of the issue of air leakage through panel joints, which has been proven to be a major factor in panel edge-swell failures.

Chapters 4 and 5 represent a turning point. Here Morley discusses tools and fabrication; his language is a bit confusing, but the overall good advice and collection of valuable tips outweigh the bad points.

### Good How-To

The book is finally launched in the last three chapters, where Morley discusses the actual construction process. He leads us step by step through the process of handling, moving, connecting, and finishing the components in a SIPs structure. I have followed SIPs technology for two decades, and his description of the process is perhaps the best I have read. He explains details clearly, revealing his expertise as a builder.

The book is well illustrated with an abundance of high-quality photographs and drawings that appropriately (for the most part) support the text. It includes a thoughtful index and a useful list of architects, builders, fabricators, manufacturers, testing agencies, and tool suppliers. Associated Foam Manufacturers, a SIPs trade association (Excelsior, Minn., 800/255-0176, [www.r-control.com](http://www.r-control.com)) produces a video and CD that would serve as worthwhile supplements to this book.

Even though the book lacks authority and fails to deliver a consistently clear message, builders looking for SIPs construction advice may find some useful information here. 

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