

ZEBRAlliance Project

Oak Ridge, Tennessee, USA



Working towards affordable zero-energy homes

Jeff Christian is definitely not a construction day laborer. But that did not stop the director of the Building Technologies Center at Oak Ridge National Laboratory from strapping on a tool belt and helping install **Insulspan Structural Insulated Panels (SIPs)** on the first of four zero-energy research homes in Knoxville, Tennessee.

The homes are being constructed by the **ZEBRAlliance**, a collaborative including local companies, the U.S. Department of Energy and Tennessee Valley Authority, whose goal is to use the four research homes to determine the best combination of technologies for affordable zero-energy homes. All four homes share similar designs but will be constructed using different envelope and mechanical systems.

Insulspan Authorized Dealer **MM&I Construction and Design** provided the **ready-to-assemble** SIPs for the walls and roof for the first of the four homes. Insulspan supplies quality above-grade SIPs with a superior level of thermal resistance and air tightness that is crucial in a zero-energy home.

"With SIPs you get inherent air tightness," said Christian. "The effort to reach that level of air tightness with stick construction is

not trivial and, in my opinion, more vulnerable to installation error." Affordability is equally as important as energy performance for the ZEBRAlliance. Christian is counting every man-hour and carefully tracking the cost of materials.

Using Insulspan's **ready-to-assemble** system proved to be a major time-saver for the construction crews. Having never used SIPs before, the crew was able to close in the 2,800 sq. ft. house in just four days. Christian noted that although the crew expressed some initial skepticism about SIP construction, they quickly changed their opinions.

"Once those panels popped into place it was one of those 'wow' moments," he said. "They were like, 'I'm a SIP guy now. This has made me a believer'."

The ZEBRAlliance also includes BarberMcMurry architects, Schaad Companies, and a rapidly growing list of suppliers devoted to energy-efficient construction.