



## ABOUT STRUCTURAL INSULATED PANEL (SIP)

❖ According to the Structural Insulated Panel Association, a properly trained SIP installation crew can reduce labor costs by more than 50 percent compared to traditional stick framing.

❖ The investment of a SIP-manufactured house will be returned by the reduction in labor and site costs: Builders can save money through decreased construction and labor costs; the whole wall R-values and building tightness capable with SIPs allow HVAC equipment to be downsized and ductwork to be minimized; and builders can also significantly reduce job-site waste disposal and temporary heat during construction.

❖ The environmentally friendly composition of a SIP is seen in the insulation, a lightweight rigid foam plastic composed of 98 percent air requiring only a small amount of petroleum to produce. The foam insulation in the panel cores is made using a non-CFC blowing agent that does not threaten the earth's ozone layer, according to the Association.

# Panels help reduce carbon footprint

By Sarah Cox

Joe Fortier, owner of Acme Panel in Radford, pointed out that the carbon footprint of a newly built house is around for 100 years. The carbon footprint is the measure of the impact of our activities on climate change.

Fortier said his company offers a solution that reduces that footprint. Acme Panel manufactures structural insulated panels (SIPs) used to build homes in a more efficient, greener way. It is also used in renovations and commercial building.

The business is a family effort that has come together since last May. Fortier's brother-in-law, Kevin Dipietro, for 14 years ran a panel manufacturing operation in Vermont and knew that panels offered a good alternative to traditional framing.

Because of our milder winters, Fortier said, these building products hadn't caught on the way they have in the Northeast, but with the recession hitting, that is changing.

Panels such as these first were used by Frank Lloyd Wright in his Usonian houses in the 1930s. The first structural insulated panel in its current form, with high insulation, was developed in 1950 by Alden B. Dow, an architecture student of Wright's and brother of the founder of Dow Chemical Company, according to Fortier.

Fortier and Dipietro, Acme Panel's director of operations, started their business "in the teeth of the recession," Fortier said. However, he added, they expect to be ready for it to take off when building picks up.

Meanwhile, the two are walking the walk. In 2009 they purchased, cleaned up and renovated the old Goodyear tire plant in Radford. Fortier said it took nine months to clean out the building, remodel the office and install the equipment for their SIPs.

Acme Panel is also the first solar-powered SIP manufacturer in the country. In July 2010, it began producing SIPs powered by 60-watt photovoltaic panels that produce 21,700 watts of electricity from the sun, said Fortier.

"This is the majority of our plant needs. Yesterday alone, it saved 145 pounds of carbon dioxide emissions and is on schedule to displace over 60,000 pounds of CO2 this year," he said.

SIPs are more energy-efficient than traditionally stick-built and Fiberglas-insulated houses, said Fortier. A study by Oak Ridge National Laboratories showed that a 2,600-square-foot house with SIPs was five times more airtight than an identical house made with traditional framing and Fiberglas. SIP homes also are superior in the fields of sheer resistance and tensile strength, are



*Acme (America's Cleaner More Efficient) Panel company is owned by Joe Fortier of Taylor Hollow Construction. The panels (top right) are energy-efficient, strong and have reduced greenhouse gas emissions. They are used in commercial and residential (left) construction.*

quieter and have reduced air infiltration, he said.

But what about convenience? A SIP-built structure can be erected faster, said Fortier, and produces less job-site waste. The product is like a "big, strong ice-cream sandwich," described Fortier. The product is made of polymer foam pressed between two pieces of oriented strand board and held together by glue. Fortier said they are "big panels that fit together to make the outside of the house."

Acme Panel has been involved in the construction of one of the homes in the Mt. Tabor Meadows "green" community that has been developed by Green Valley Builders.

Acme also has worked on an 8,000-square-foot house in Wytheville and the W.E. Skelton 4-H Educational and Conference Center built at Smith Mountain Lake by Streamline Timberwrights.

Fortier said it costs a bit more money, but a SIP-built house is more energy-efficient, has less greenhouse gas emissions, is stronger and reduces the carbon footprint.

"A 3,000-square-foot house built with structural insulated panels will save about \$600 a year in heating and cooling bills, and over 500,000 pounds of CO2 over a 30-year period," he said.

He is betting that it will become the most common way to build a greener house.