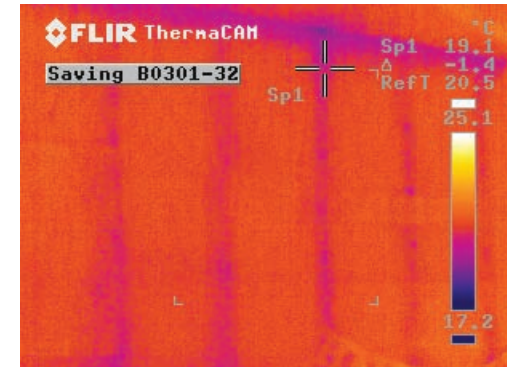
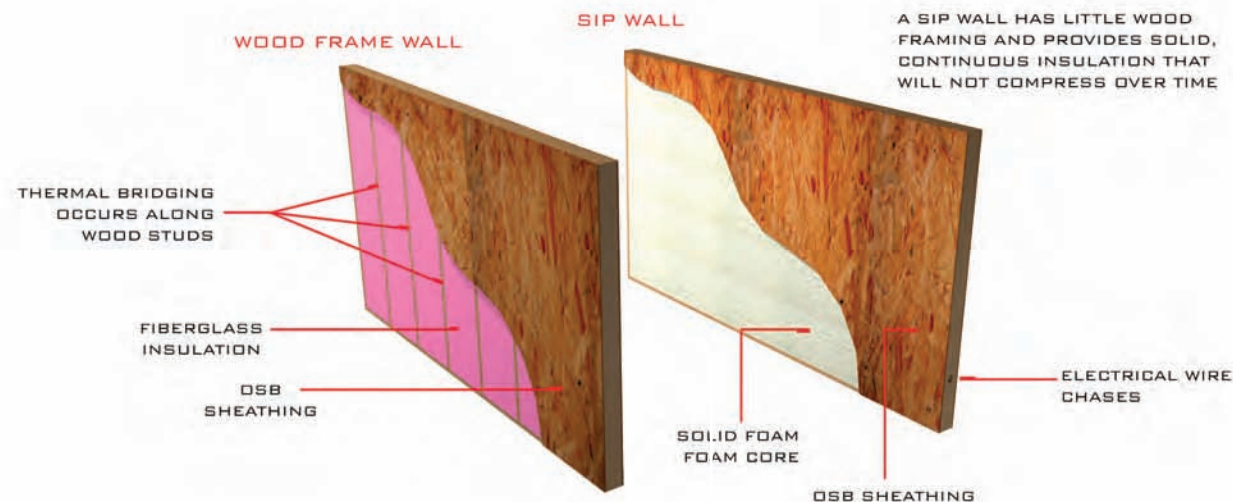


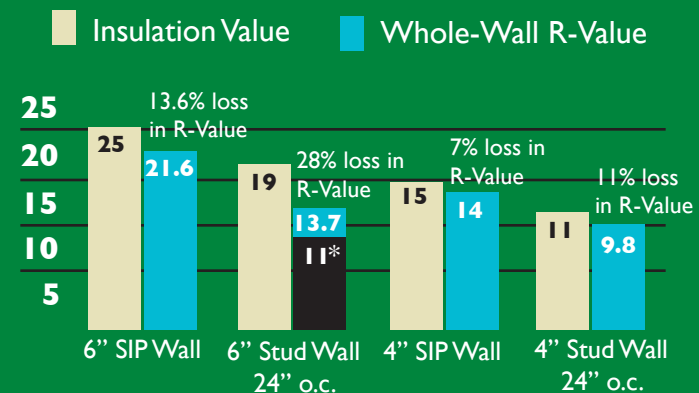
# SIP Walls are Engineered to Minimize Thermal Bridging



Thermal imaging of wood-framed wall shows heat escaping along studs.

Photo courtesy of Thermapan Structural Insulated Panels.

## WHOLE -WALL R-VALUE COMPARISON



\* Study shows how typical installation imperfections such as batts with rounded shoulders, 2% cavity voids, no compression around wiring, and paper facer stapled to inside of studs, change the whole-wall R-value of fiberglass rated at R-19 to R-11 in a 2 x 6 wall with studs spaced 24" o.c.

Source: Oak Ridge National Laboratory

## SIPs Conserve Energy

The foam insulation used in SIPs is extremely effective because it is solid and consistent throughout the home. In addition, SIPs are made in large sections, up to 8'x24', meaning there are fewer gaps and heat or cooling loss due to air infiltration.

SIP homes have repeatedly demonstrated annual energy savings of 50-60% when combined with other high performance systems. SIP test homes monitored by the Department of Energy's Oak Ridge National Laboratory had heating and cooling costs as low as 45 cents per day.

Home energy use has a sizable impact on the environment. Homes account for 15% of energy use nationwide, and release on average 22,000 lbs of CO<sub>2</sub> into the atmosphere annually, roughly twice as much as the average car. Building a SIP home that uses half the energy will be the same as removing one car from America's highways.



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Form No. I-208

# SCIENCE + ENGINEERING

= lower energy bills + comfort

+ improved indoor air quality +

“green” building benefits

+ disaster resistance +

higher assessed home value

= SIPs



## SIPs Conserve Resources

The OSB used in SIPs is an engineered wood product made from small, plantation grown trees that can be sustainably harvested. Engineered wood products use wood more efficiently than sawn lumber and it requires less forest acreage to build a SIP home than a conventional wood frame house.

The insulating foam cores used in SIPs are made of 98% air, and require only a small amount of petroleum byproduct to produce. All SIP foam core materials are made using non-CFC blowing agents.

Jobsite waste is almost eliminated when building with SIPs because the majority of fabrication takes place in the SIP manufacturing plant. Clean waste generated in the plant can be recycled to make other foam products.



## Healthy Indoor Environment

Recent studies indicate that the indoor air quality (IAQ) in homes can have significant effects on respiratory illness, particularly childhood asthma. The degree of tightness capable in a SIP home allows greater control over IAQ by limiting incoming air to mechanical ventilation systems that can filter air for allergens or remove humidity.

The inside of a SIP panel is solid, continuous insulation, absent of cavity voids often prone to mold growth in wood frame houses. Mold growth can also lead to serious respiratory problems and allergic reactions.

## Economics of Energy Efficiency

Owners concerned with the "payback" on a SIP home often find that the utility savings of a SIP home are so great they surpass any incremental mortgage payments. SIP homes qualify for many Energy Efficient Mortgages (EEMs) that allow income-to-loan ratios to be stretched if an energy-efficient home is purchased. In addition, SIP homes have a higher appraised value, as much as \$25 or more for every dollar of annual energy savings.



## Durability and Safety

Structural insulated panels function like a steel I-beam. This web and flange design delivers engineered structural performance. Resistance to air infiltration and moisture intrusion increases the life of a home, and building longevity is a key component in environmentally sustainable building.

SIP homes have withstood hurricane winds and earthquakes with amazing integrity owing to superior transverse load resistance. The solid construction of SIPs makes a SIP home safer and more comfortable for your family.

## Where Can I Find a SIP Home?

To find a SIP manufacturer, dealer/distributor, builder, design professional or remodeler who is a member of the Structural Insulated Panel Association, search our member database at [www.sips.org](http://www.sips.org).

## Experience the Benefits of a "Green" Home with Structural Insulated Panels

Modern science and engineering have drastically changed our lifestyles in the last hundred years. Advanced emerging building materials, such as structural insulated panels, are engineered to provide more durable, energy-efficient homes with less impact on the environment.

## What are SIPs?

Structural insulated panels (SIPs) are custom designed, prefabricated wall, roof and floor panels made of a rigid foam core sandwiched between two structural skins, usually of oriented strand board (OSB). Computer controlled fabrication technology allows SIPs to be cut to the design of your home quickly and accurately, and then delivered to the jobsite for a speedy install.

