SOLID CORE

PRE-ENGINEERED BUILDINGS

Using Structural Insulated Panels

EPS BUILDINGS

EPSBUILDINGS.COM

Solid Core Buildings

USING STRUCTURAL INSULATED PANELS

Structural insulated panels are high-performance building panels used in exterior walls, roofs and floors. EPS manufactures the panels by sandwiching a core of rigid foam insulation between two skins of wood structural panels, typically oriented strand board (OSB).

SIPs Save Energy

The insulating core of a structural insulated panel provides high-density continuous insulation. SIPS are up to 15-times more air-tight and when combined with other energy efficient technology are 50% more energy efficient than stick building.

SIPs Save the Environment

SIPs are both energy efficient and an efficient use of resources, making them an ideal choice for a high-performance green building.

SIPs Save Time and Labor

SIPs are ready to install when they arrive at the job site, eliminating the need to perform the individual operations of framing, sheathing, and insulating stick-framed walls. This saves builders a significant amount of on-site labor.

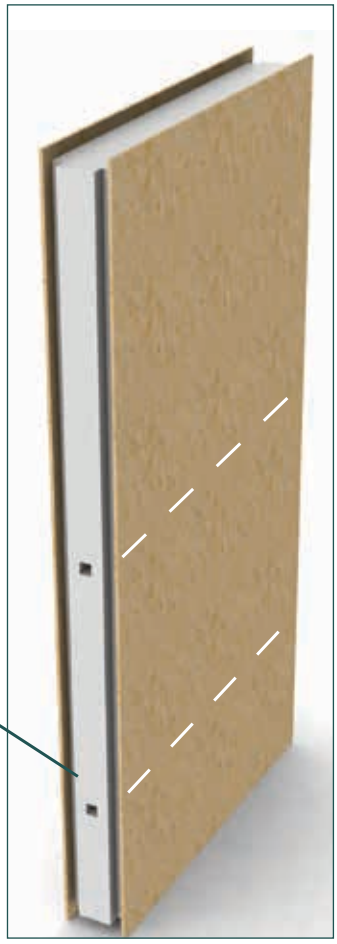
SIPs Save Money

Money is saved by a shorter building cycle of the structure. Quick completion translates to lower loan cost overhead. Job site waste-disposal costs are reduced because SIPs are fabricated off-site.

Three-story, 120-unit assisted living and memory care apartments rated 50% better than conventionally built.

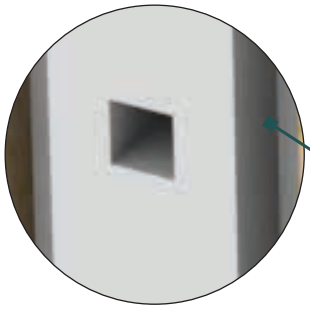
EPS is third-party inspected and certified under NTA Listing Report EPS102108-21.
Visit www.epsbuildings.com/technicalspecs for our construction manual details and current code reports.

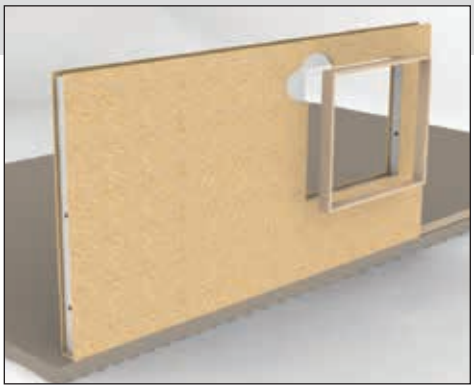
Economical



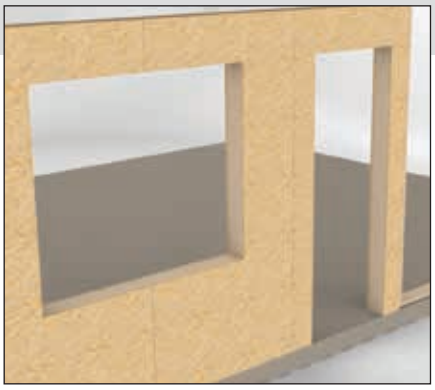
Save time.
Save money.

Electrical wire chases are internal in our panel system. Vertical wire chases are located every four feet between the panel splines and horizontally 16 and 42 inches off the panel floor or custom locations per specifications.



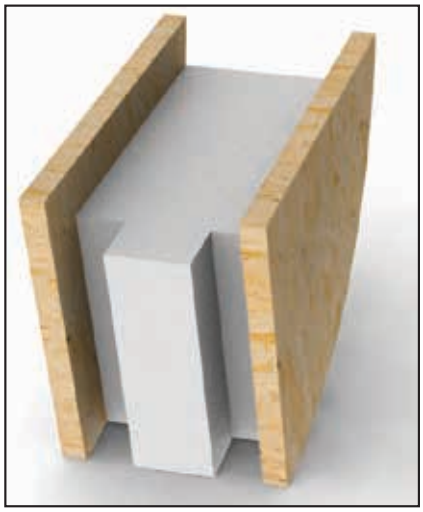


Windows 40 inches or smaller in width do not require headers. Two-by framing is put into the routed panel.



Headers are used for doors and larger openings with vertical studs that lock the top header in place.

Efficient



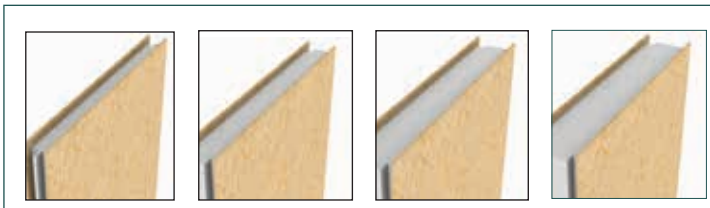
Our Solid Core system starts with high performance rigid foam insulation chemically bonded to oriented strand board or plywood.

Depending on the size and needs of the structure, the thickness of the foam is adjusted to increase R-value and strength. In addition, the thickness of the OSB or plywood is also adjusted for larger clear spans and taller buildings.

Energy savings is measured in whole wall R-Value not just insulation values.

Our 6-inch core walls outperform standard steel or stick built walls by over 50% when combined with other energy efficient technologies.

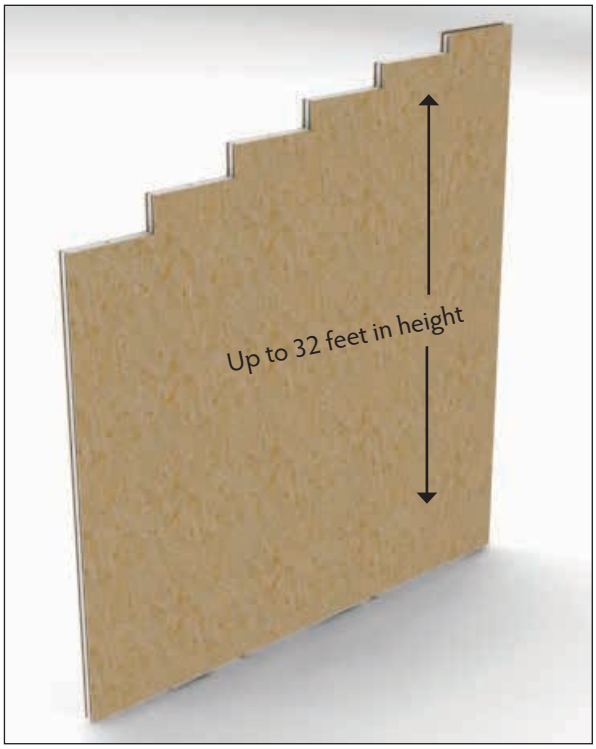
Choose from the standard R-18, R-26, R-33 or R-40 walls. All types of commercial buildings can be engineered in just about any dimension.

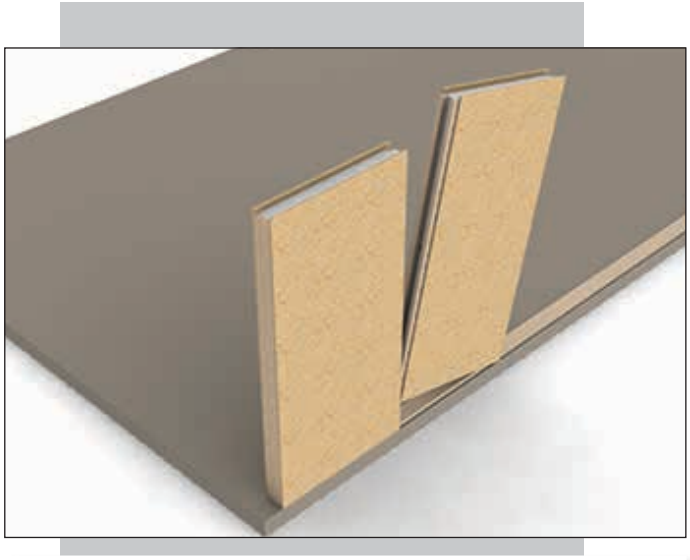


Flexible

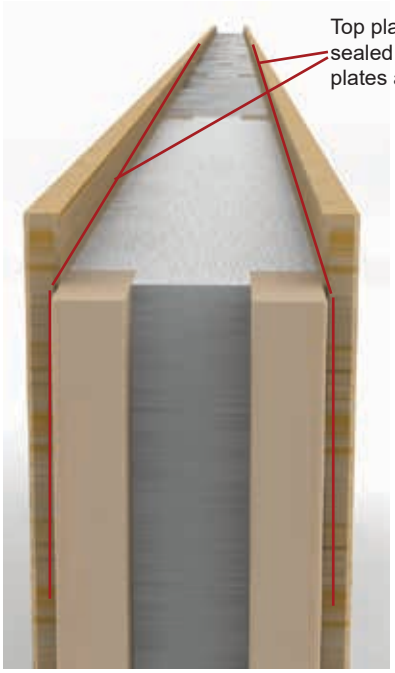
If your project calls for walls up to three stories high, no problem. A major advantage of our panel system over stick built structures is that the EPS panels can be manufactured up to 32 feet. (See EPS load charts for required spans.)

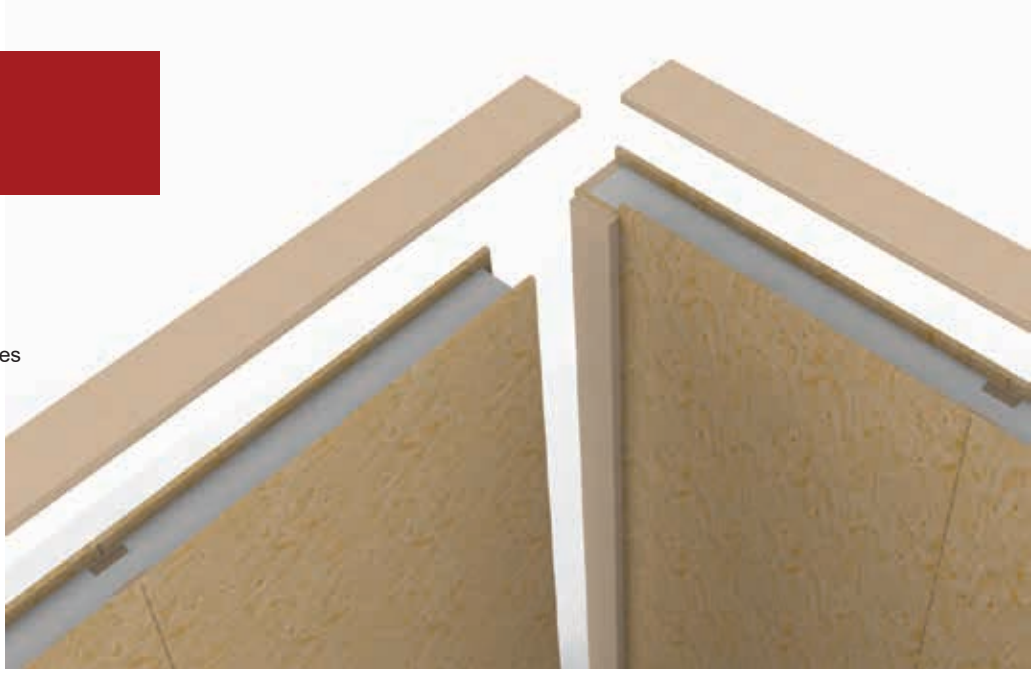
The panel system goes together amazingly fast. All panels are labeled with location and type.





Quality





The wall panels are typically joined using two 2”x 4” spline studs cut to size and then inserted vertically between the panel assembly every four feet.

The panels are routed top and bottom to lock the sill and top plates to the panel system.

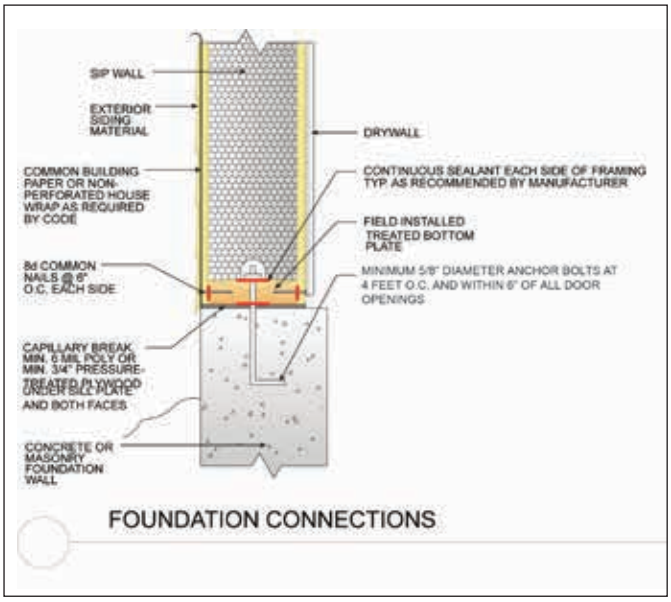
Engineered

Roof trusses are set 4 feet or 2 feet on center.

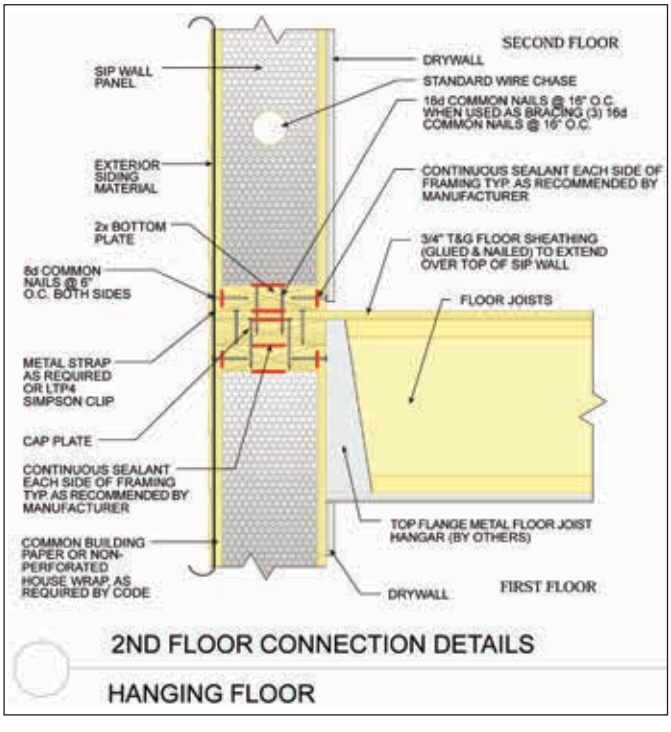
Purlins and roof sheeting can be used or panels can be customized for vaulted ceilings.

Ridge beams used along with EPS panels can eliminate trusses and open your vaulted great room with extremely high R-values and air-tight panel systems.

Panels are set perpendicular to the ridge beam offering speed and high R-values.

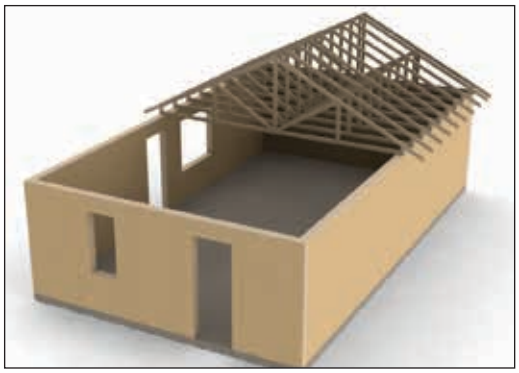


FOUNDATION CONNECTIONS



2ND FLOOR CONNECTION DETAILS

HANGING FLOOR

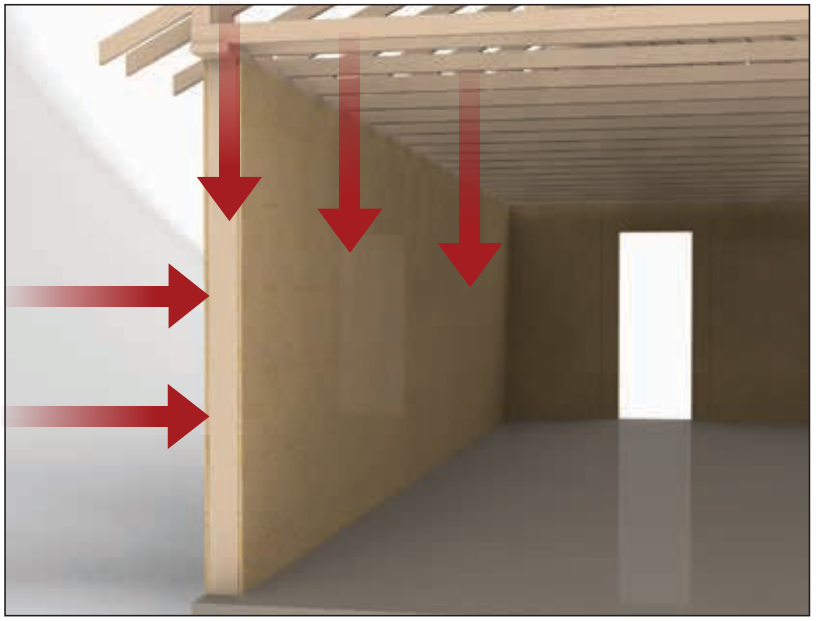


Find complete detail drawings on our web site: epsbuildings.com

Stronger

Impact resistance is another standard feature of structural insulated panels. The continuous bonding of EPS insulation to the OSB or plywood offers incredible strength and resistance to impact.

Vertical and horizontal stress loads are tested two times stronger than conventional stud walls. EPS walls resist up to 7,000 pounds per foot which results in structures that are stronger, straighter, taller and wider.



Versatile

EPS panel systems offer complete customization of roof materials. The most popular are trusses with purlins or structural insulated panels over the top of trusses which offer open attic designs.

Shingles, standing seam roofs or virtually any roofing material can also be used.

As with the roofing, siding options are also limitless. Brick, vinyl, cement board siding or just about any material is easily attached to our core panel surface.

EPS buildings are engineered with IBC codes to your wind and snow loads and can be stamped in 50 states.
EPS has state-of-the-art production facilities and four truss lines to give you cost-effective solutions.

Value

Multiple finish options

EPS offers several main types of finishes:

R-33 pop up panels with interior glass board or embossed aluminum finish; corrugated steel panels with blown in insulation or drywall with blown-in insulation.

Laminated glass board, Fiber-Reinforced Plastic (FRP) or aluminum can be used for durability and power washing and USDA finishes.

You can choose from several cost effective, energy efficient, options to fit your needs.

Windows

We are an OEM distributor for Andersen® and SilverLine® windows. All custom sizes and colors with ENERGY STAR qualified R-Values.

Silver Line WINDOWS·DOORS™

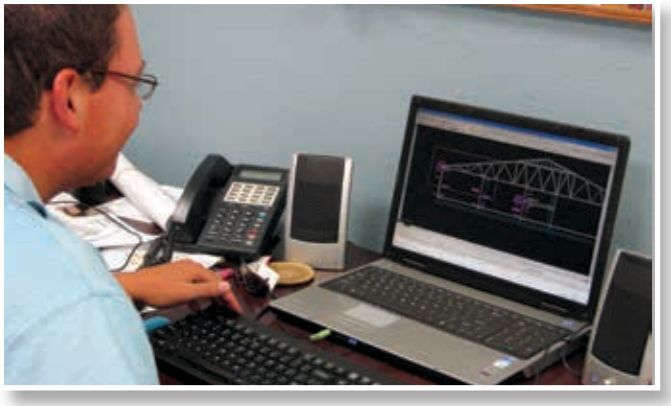
Andersen WINDOWS·DOORS AW

Experience

EPS Headquarters is located on two tracts and 15 acres in Graettinger, Iowa with over 160,000 square feet of manufacturing and warehouse space.

Clyde, New York

Perryville, Missouri



Our engineering staff can solve your building needs using state-of-the-art design software. All EPS buildings are reviewed and detailed by on-staff engineers. EPS has registered engineering for 50 states and can custom engineer your design loads as needed.

EPS utilizes six state-of-the-art truss manufacturing lines at the Graettinger location.

The Weinmann CNC uses adaptive technology for more complex panels and cuts angles, bevels, windows, and doors.

EPS Manufactures:

- SIP Panels
- Energy Lok Panels
- Automated Truss Production
- Roll-form Steel and Trim
- Laminated Columns
- Dura-Doors
- Fibervents
- Glass Board Panels
- Floor & Roof Trusses
- Pre-assembled Stud Walls

Dependable

Our promise

EPS considers these basic elements in our buildings unique to the industry:

- Cost effective design
- Local Independent dealers
- Engineered value

Energy Panel Structures, Inc. has been in the business of manufacturing cost-effective pre-engineered buildings since 1981.

EPS was established in 1981 and is an employee-owned division of the Mac Arthur Company, St. Paul, MN, (founded in 1913).

One mainstay of our success has been our pre-engineered Solid Core Buildings that are built with Structural Insulated Panels.

From commercial to residential, the versatility of buildings by EPS is limitless.

Employee-owners

Our commitment to cost-effective pre-engineered building systems has led to unprecedented growth. The EPS family of companies does over $800 million in sales annually. EPS is known for a diverse market of products including agricultural, commercial, residential and industrial building systems.

With locations in Graettinger, Iowa, Perryville, Missouri, and Clyde, New York, EPS serves 22 states with a local dealer network of more than 400 independent authorized dealers. EPS will completely engineer and manufacture each building to meet our customer's demands.

Local Dealer/Builders

Your Solid Core building is constructed by a local builder you know and trust. EPS has over 400 local builders operating as independent authorized EPS dealers to give you the complete service and attention to detail you deserve.

Versatile

Solid Core

Versatile building systems:

- Office buildings
- Storage buildings and mini-storage
- Churches & fellowship halls
- Community centers
- Assisted living & elderly housing
- Meat processing facilities
- Residential
- Recreation facilities and gymnasiums
- Convenience stores
- School buildings
- Freezers and coolers

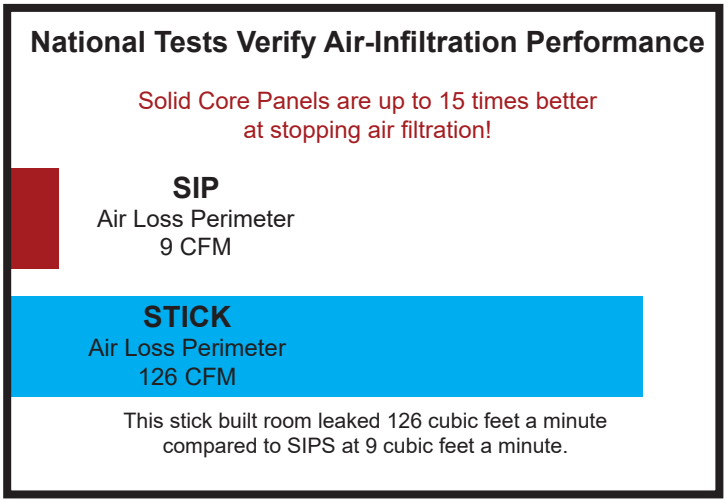
Proven

A study by the Oak Ridge National Labs (ORNL) proves that a 4-inch structural insulated panel wall outperforms 2"x 4" stick and batt construction, and even edges out 2"x 6" construction in terms of thermal performance. Structural insulated panels are the structural elements, there are no studs or braces to cause breaks in the insulation. The end result is a more comfortable, energy efficient structure that performs up to spec in real world conditions.

Stick and batt construction can be subject to poorly installed or even missing insulation. The nature of structural insulated panels combines the structural and insulation elements joined as one. There are no hidden gaps, because a solid layer of foam insulation is integral to panel construction.

State-of-the-art technical analysis of whole wall performance indicates that the losses in a stud wall are much greater than expected. On average, the other standard components in stick and batt construction can reduce R-values in as much as 30% of the wall area.

That is not the case with structural insulated panels. The ORNL study found that structural insulated panels perform at approximately 97% of their stated R-value overall, losing only 3% to nail holes, seams, and splines. Wiring chases are precut or preformed into the foam core, providing a continuous layer of insulation keeping the elements at bay and the interior free of drafts and cold spots.



Source: Oak Ridge National Laboratory, Heating and Blower Door Tests, P.7

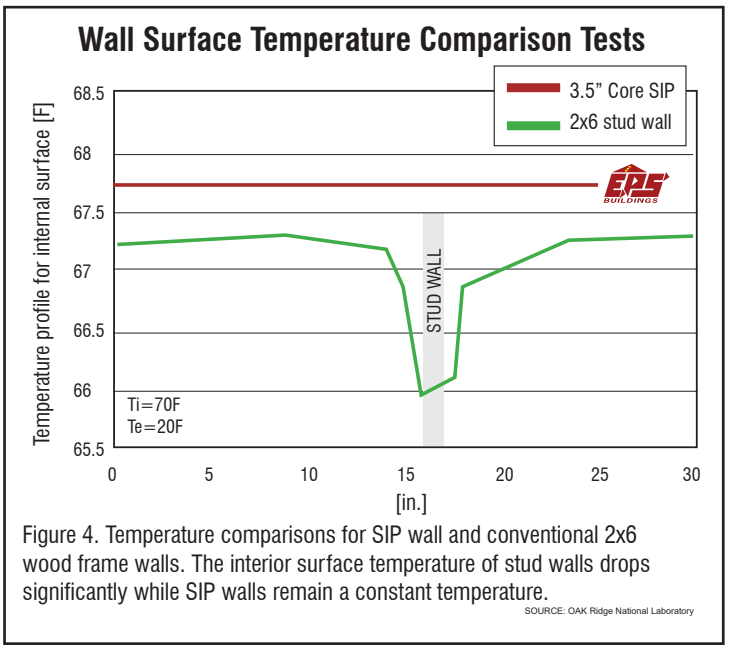


Figure 4. Temperature comparisons for SIP wall and conventional 2x6 wood frame walls. The interior surface temperature of stud walls drops significantly while SIP walls remain a constant temperature.

SOURCE: OAK Ridge National Laboratory

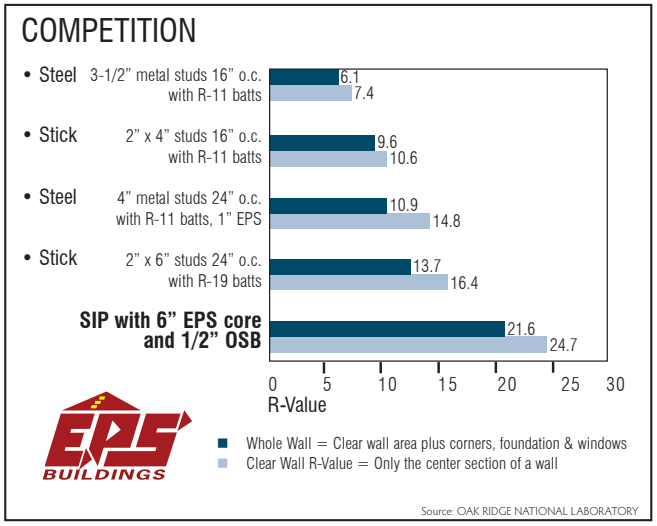
A structural insulated panel wall also outperform stick and batt when it comes to maintaining consistent interior temperatures, and that translates to improved occupant comfort. As shown in the graph, the interior surface temperature of frame construction drops precipitously at every stud, while the SIP wall remains consistent across its entire surface. No temperature dips mean improved occupant comfort, regardless of where you are in the room. That's a big part of what people are talking about when they say they can immediately "feel the difference" in a SIP-built residential or commercial space.

With a SIP system, thermal efficiency and comfort are built in at the factory, and the lab results prove it.

Comfortable

Interior wall temperatures are much improved over stick or steel walls. Solid Core walls have no sagging insulation, no compressed insulation, no air movement, only solid cores. With no thermal shortcuts to external walls, they simply translate to large savings on your utility bills.

The results speak for themselves. Our core panel system is up to 15-times better at stopping air infiltration. This offers you a comfortable building by virtually eliminating drafts.



Wall Type	Plate Thickness	Panel Thickness	Panel Make Up	Whole Wall R-Value EPS FOAM 75º	40º	Whole Wall R-Value NEOPOR® 75º	40º	Weight (PSF)
R-18	3 5/8	4 1/2	7/16 OSB, 3 5/8 EPS, 7/16 OSB	18.0	20.6	20.25	22	3.3
R-26	5 5/8	6 1/2	7/16 OSB, 5 5/8 EPS, 7/16 OSB	22.8	24.1	29.25	31.5	3.5
R-33	7 3/8	8 1/4	7/16 OSB, 7 3/8 EPS, 7/16 OSB	30.1	31.8	37.00	40.0	3.6
R-40	9 1/4	10 1/8	7/16 OSB, 9 1/4 EPS, 7/16 OSB	38.5	40.0	46.0	50.0	3.9

*R-26: Exterior skin is 3/4" at 16' or taller wall panels. R-33: Exterior skin is 3/4" for 18' and 20' or taller wall panels. If drywall or Blazeguard Thermal Barrier is used, then 7/16" OSB can be used. Consult your local building inspector. OSB and plywood increase in thickness depending on loads and spans. (See the EPS Solid Core detail brochure)

Solid Core

- Designed to your needs
- Cost-effective
- Flexible
- Energy-efficient
- High-performance
- Stronger and straighter
- Simplified construction

EPS buildings are "Simply Better Buildings."

Contact us today and see how a Solid Core panelized system can work for you.

INDEPENDENT AUTHORIZED DEALER:

EPS BUILDINGS
EPSBUILDINGS.COM

Energy Panel Structures
603 N. Van Gordon Ave., Graettinger, IA 51342

ADDITIONAL MANUFACTURING PLANTS
Perryville, MO **Clyde, NY**

Phone: 712-859-3219

100% Employee Owned–100% Committed to Quality

R08.19