



PechaKucha



Jack Armstrong
Housing Innovation PechaKucha Sponsor





Structural Insulated Panel Association

The Structural Insulated Panel Association (SIPA) is a nonprofit association representing manufacturers, suppliers, dealer/distributors, design professionals and builders committed to providing quality structural insulated panels (SIPs) for all segments of the construction industry.

WHAT ARE SIPS?



SIP = Structural Insulated Panel

- **Composite structural panel**
- **Rigid foam core - EPS, XPS, or PU**
- **Structural facings - usually 7/16" OSB**
- **Structural adhesive**

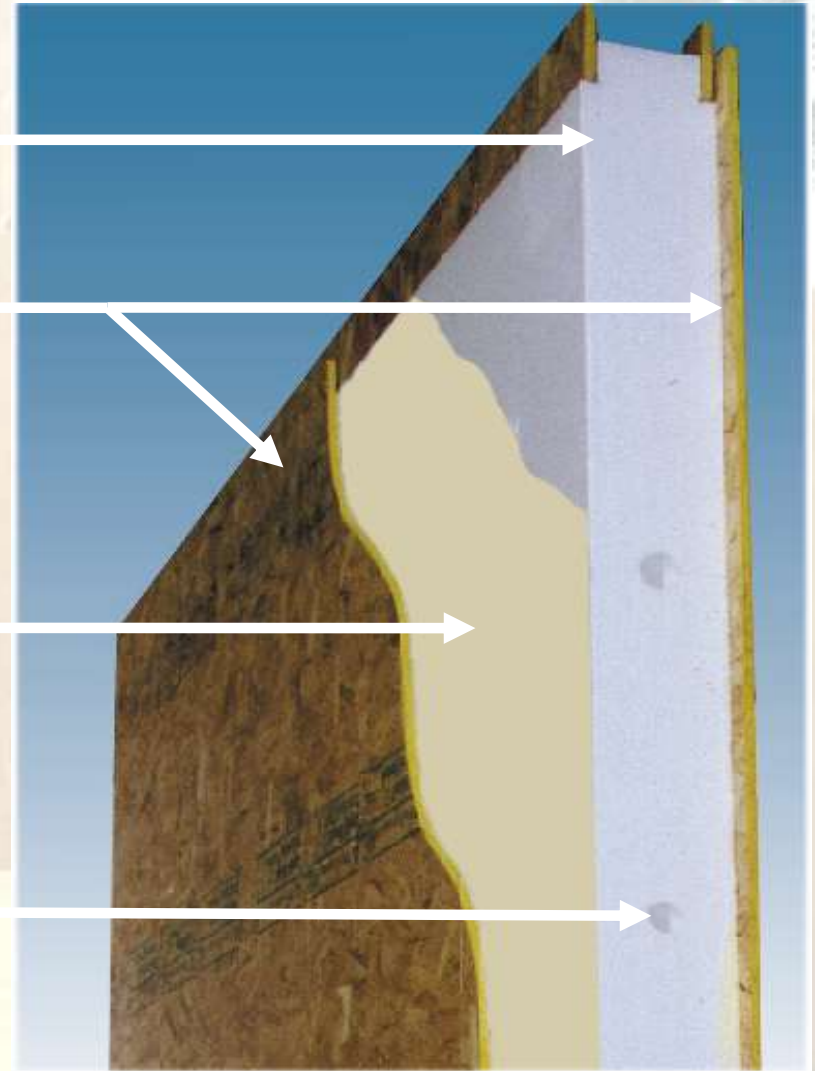
WHAT ARE SIPS?

Rigid Foam Insulation

Structural Facings

Structural Adhesive

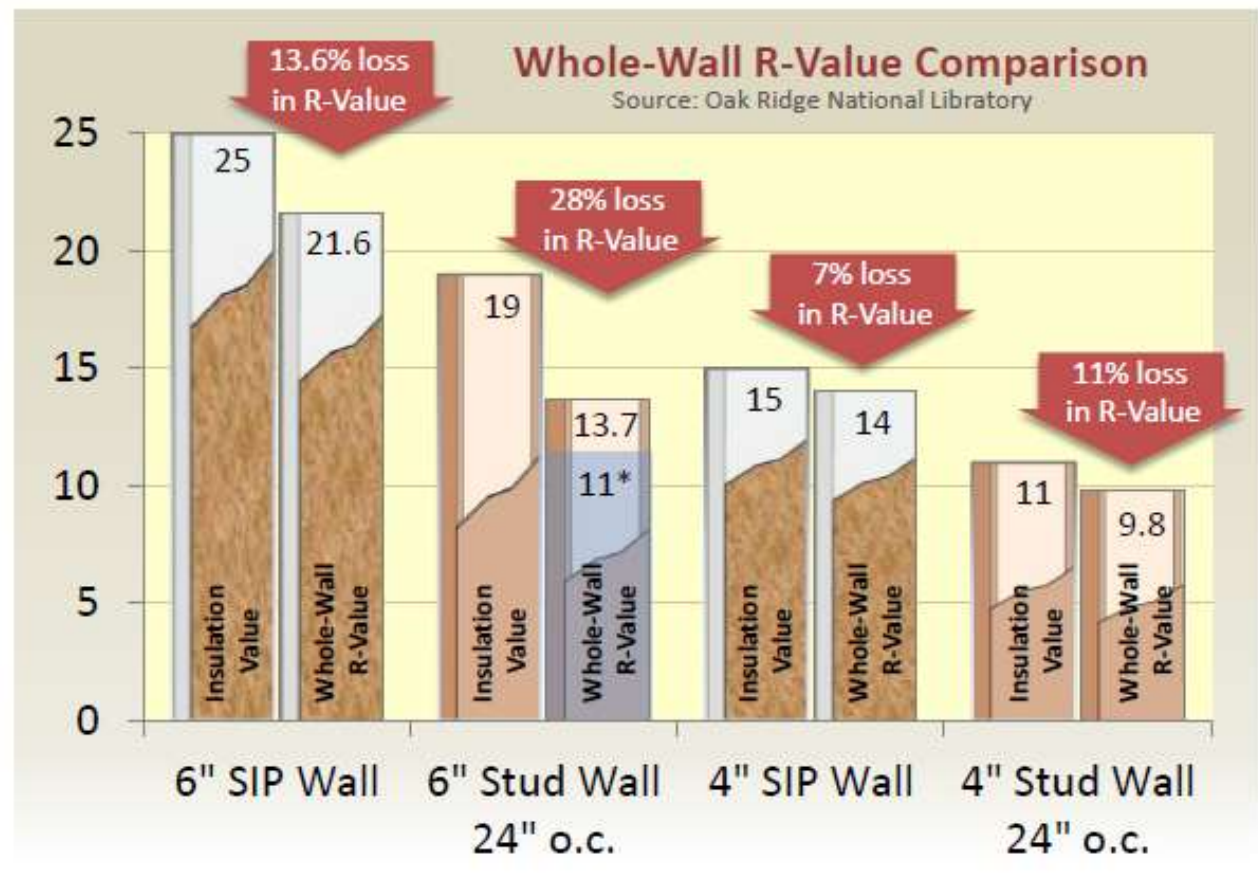
Optional Electrical Chase



CHARACTERISTICS OF SIPS

Oak Ridge National Laboratory Studies

**4" SIP wall
outperforms
2x6 stud wall
with R-19
fiberglass**



* 2X6 @ 24" o.c. with batts with rounded shoulders, 2% cavity voids, no compression around wiring, paper facer stapled to inside of stud

SIP DESIGN

Residential energy code compliance (2012 IRC, 2012 IECC, 2015 and 2018 IECC)

- Avoid prescriptive requirements for exterior insulation
- Total UA Alternative method using ResCheck

- OR -

- Performance method (HERS rating in 2015/18 IECC)

SIP DESIGN

Structural code compliance - code reports



CSI 06 12 16

Listing Report: **SIPA120908-10**

PRODUCT: Structural Insulated Panels (SIP)
DIVISION: Wood and Plastics (06)
SECTION: Structural Panels (06 12 16)

Report Holder
SIPA
 Structural Insulated Panel Association
 Box 1699
 Gig Harbor, WA 98335

Manufacturing Locations
EH Systems
 710 FM 306
 New Braunfels, TX 78130

Energy Panel Structures, Inc.
 102 East Industrial Park
 Graettinger, IA 51342

FischerSIPS, LLC
 1800 Northwestern Parkway

1. SUBJECT
SIPA Wall and Roof Structural Insulated Panels.
Wall and Roof Panels 8-ft to 24-ft, 4-5/8-in. to 12-3/8-



ESR-1882*

Issued August 1, 2008

This report is subject to re-examination in one year.

ICC Evaluation Service, Inc.
www.icc-es.org

Business/Regional Office • 5300 Workman Mill Road, Whittier, California 90601 • (562) 699-0543
 Regional Office • 900 Montclair Road, Suite A, Birmingham, Alabama 35213 • (205) 999-6000
 Regional Office • 4051 West Florence Road, Country Club Hills, Illinois 60478 • (708) 799-2305

DIVISION: 06—WOOD AND PLASTICS
Section: 06120—Structural Panels

REPORT HOLDER:

Type I and Type L panels are produced in maximum 4 foot (1219 mm) widths and lengths up to 24 feet (7315 mm).

3.1.1 Type S Panel: The core for the Type S panel is recessed along the panel sides to receive nominal 3-inch-wide (76 mm) OSB splines and recessed on the ends to receive solid sawn dimensional lumber sized to match the core thickness. See Figure 1 and Tables 2, 5 and 7.

3.1.2 Type I Panel: The Type I panel is recessed along the panel's sides to receive 1-joint splines and recessed on the ends to receive nominal 2-by solid sawn lumber sized to match the core thickness. See Figure 2 and Table 3.

3.1.3 Type L Panel: The Type L panel is recessed along the panel sides and ends to receive nominal 2-by solid sawn dimensional lumber sized to match the core thickness. See Figure 3 and Tables 4, 6 and 7.

3.2 Materials:

3.2.1 Core: The core material is Insulfoam Type I expanded polystyrene (EPS) foam plastic (ESR-1788) with a nominal thickness ranging from 3 1/2 inches (89 mm) to 11 1/4 inches (285 mm). The EPS is a Type I expanded polystyrene with a nominal density of 1 pcf (16 kg/m³) complying with ASTM C 578. The EPS has a flame spread index of not more than 75 and a smoked developed index of not more than 450 when tested in accordance with ASTM E 84.

3.2.2 Facing: Panel facing material is 7/8, 1 1/2, 3/4 or 3/8-inch (11.1, 12.7, 15.9 or 19.1 mm) thick Exposure 1, oriented strand board (OSB) with span ratings of 24/0, 24/16, 24/20, and 24/32, respectively, and complying with the performance-rated panel specifications provided in United States Manufacture

PANELS: TYPE S,

C)
(IRC)
(BNBC)



Most Widely Accepted and Trusted

ICC-ES Evaluation Report

ESR-2233*

Issued October 1, 2007

This report is subject to re-examination in two years.

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DIVISION: 06—WOOD AND PLASTICS
Section: 06120—Structural Panels

expanded polystyrene (EPS) foam plastic core material. The panels vary in size from 4 feet by 8 feet to 8 feet by 24 feet (1.2 m by 2.4 m to 2.4 m by 7.2 m). Panel thicknesses are from 4 1/2 inches (114 mm) to 12 1/4 inches (286 mm).

3.2 Materials:

3.2.1 Expanded Polystyrene: The EPS core thicknesses are 3 1/2 inches, 5 1/2 inches, 7 1/4 inches, 9 1/4 inches, or 11 1/4 inches (89 mm, 140 mm, 184 mm, 236 mm, or 290 mm).

REPORT HOLDER:

AFM CORPORATION
 17645 JUNIPER PATH, SUITE 260
 LAKEVILLE, MINNESOTA 55044
www.afm.com

SIP APPLICATIONS

- SIP walls and roof
- SIP walls with truss roof
- SIPs over timber frame
- SIPs and ICF
- Hybrid construction of any kind



SIP APPLICATIONS

Affordable, effective renovation applications



Historic home built in 1872 - 4,467 sqft conditioned space including basement, 1st and 2nd floor
SIPs ready to assemble with all window and door openings pre-cut made for smooth installation

Beineke Residence, Marion, OH – HERS 47

SIP APPLICATIONS

Affordable, sustainable, cost-effective housing



South Chicago Work Force housing, Chicago, IL

SIP APPLICATIONS

Affordable, disaster-resistant, LEED Certified housing



Make it Right, New Orleans, LA

SIP APPLICATIONS

Modern, sustainable



Evoked Quadrant Model Home, Issaquah, WA



Ellmann Residence, Grand Haven, MI

SIP APPLICATIONS

Timber frame



Christensen Residence, Chaska, MN



Twin Mountain Home, Carroll, NH

HERS 32; 0.37 ACH

SIP APPLICATIONS

Engineering poss



Ward Home, Sioux Falls, SD



C Sharp, Oak Island, NC

SIP APPLICATIONS

Craftsman de



Kenilworth Bungalow, Minneapolis, MN



Inspiration Home, Olympia, WA

SIP APPLICATIONS

Long roof spans



SIP APPLICATIONS

Air sealing and head



SIP APPLICATIONS

Complex designs





Structural Insulated Panel Association

www.SIPs.org