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2010 International
Builders' Show



Award Winning STYROFOAM SIS™ from Dow
More than Just a Structural Insulated Sheathing
Dean DeWildt, PE

Much More than the Industry's First

Structural
Insulated
Sheathing



14 Awards for Innovation and Counting



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Also the Industry's

- **Tightest Fitting**
- **Most Water Resistant**
- **Easiest to Install**
- **“Green”est**

light-framed wall sheathing.

STYROFOAM SIS™ Brand Structural Insulated Sheathing

Winning Raves
Across the Industry

Building Products
"One of the 21 grand-slam products that will leave you cheering?"

JLC Construction
"An innovative product that helps you work smarter, faster and better"

Professional Builder
"One of the 100 best new products"

Remodeling 100

GreenBuilder "An innovation worth watching"

PCBC 2008 "One of this year's coolest home-building products"

ecohome Editor's Choice Award

LBM Editors Choice - Hot Products

GreenBuilder TOP 50

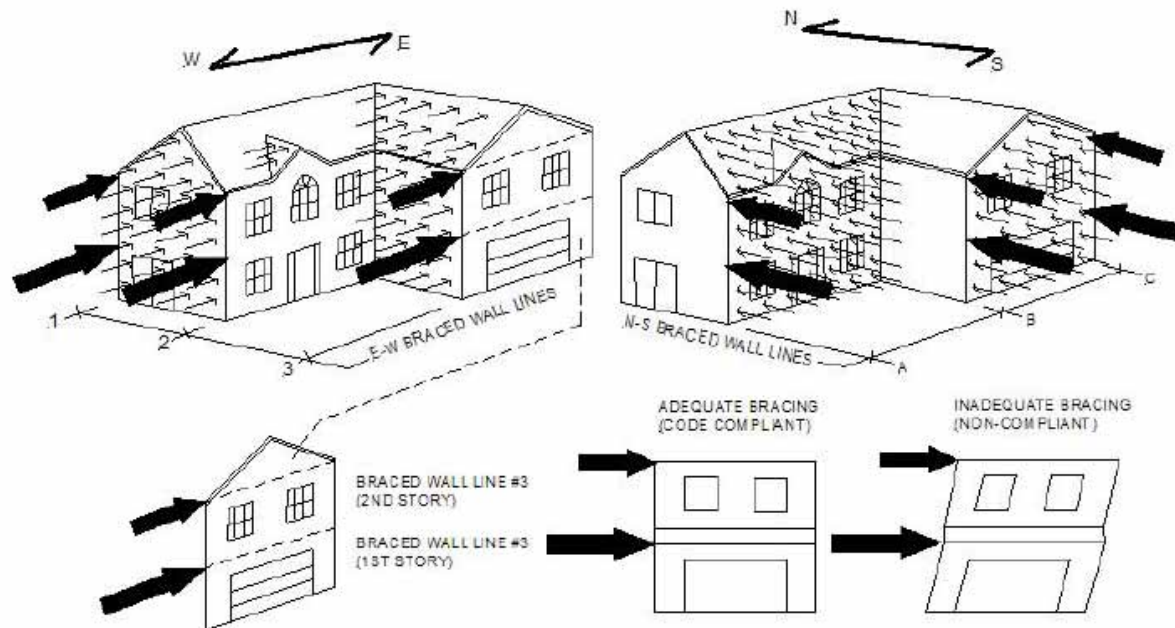
Home Builder Executive 2009 Green Building Product Awards

Styrofoam SIS
Structural Insulated Sheathing
Patent Pending

Structurally Equivalent to IRC Method 3 (OSB) Wall Bracing



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- IRC R602.10.1 IBC 2308.3 – Wall Bracing
- ICC-ES Acceptance Criteria 269 – Racking Shear Evaluation

5x the “R” value of Wood Structural Sheathings, To Reduce Conductive Heat Loss



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***Conductive
heat loss***

Most Cavity Insulation Holds Moisture, Which Can Lead to Mold and Wood Rot



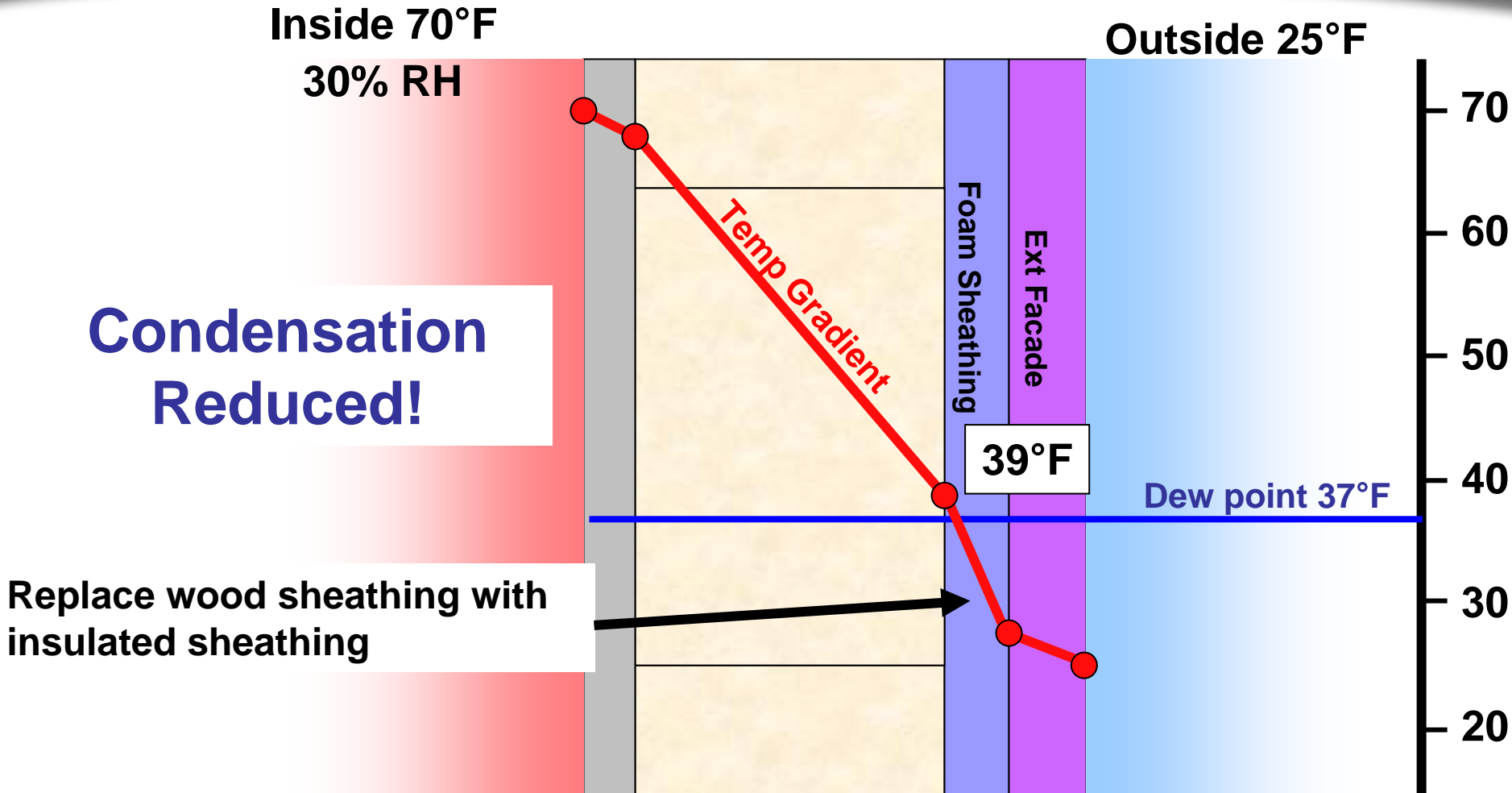
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And Reduce Condensation Potential in Wall Cavity



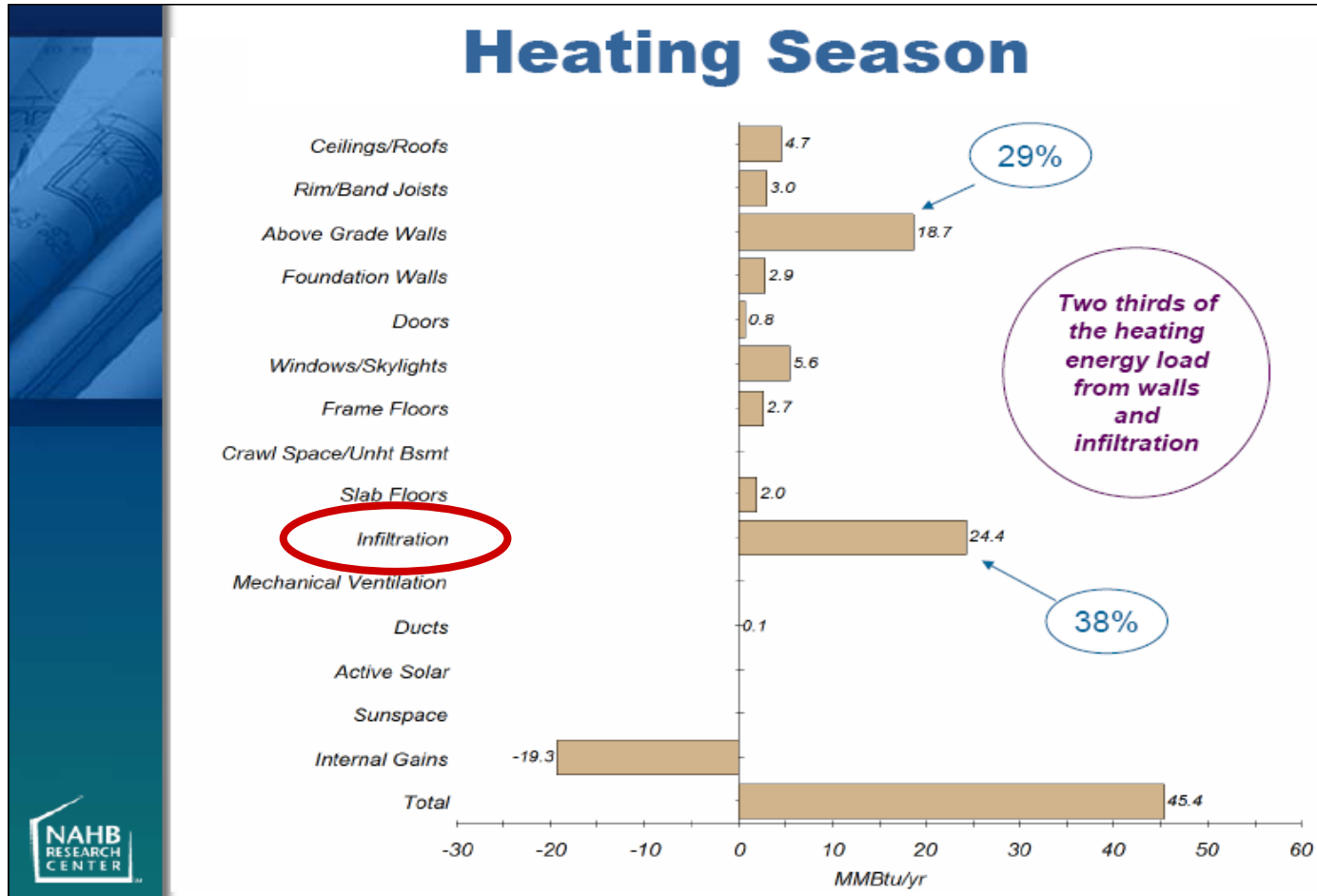
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2/3 of Heat Loss Is Through Above Grade Walls. 1/3 due to Infiltration (Convection)



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Source: High Performing Wall Systems, NAHB-RC

Air Infiltration - Convection Heat Loss



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- **Typical 2,500 sq. ft. home has $\frac{1}{2}$ mile of cracks and gaps that allow air infiltration. (Air Barrier Association of America)**
- **Enough air escapes from a typical house every day to fill two Goodyear blimps.** Sealing air leaks is the first step in a program to improve the energy efficiency of your home.**



***(source: DOE)*

Does SIS™ Seal as Well as OSB + House wrap?



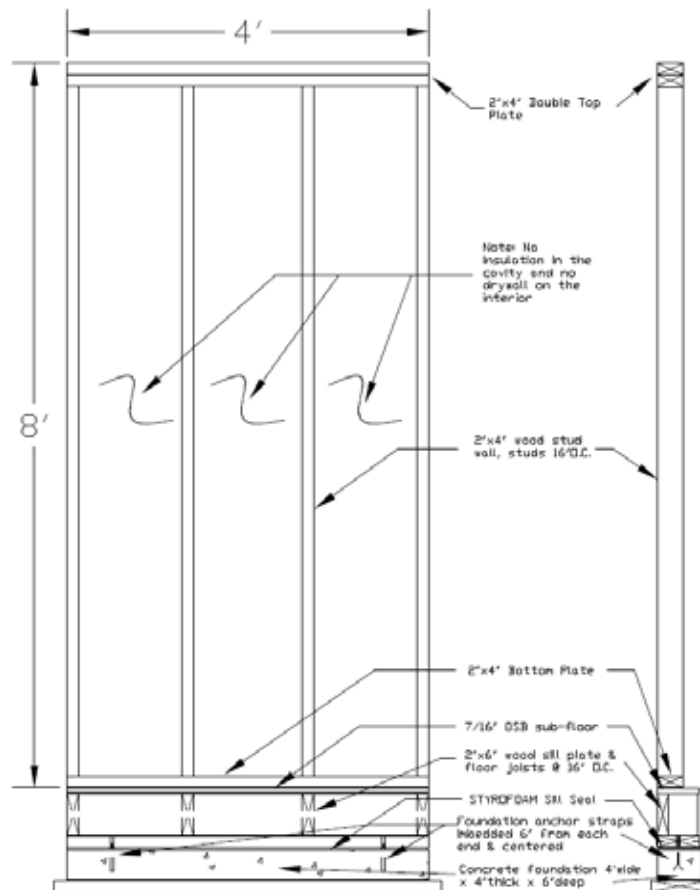
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ASTM E283 - 3rd Party Air Infiltration Testing Wall Assembly



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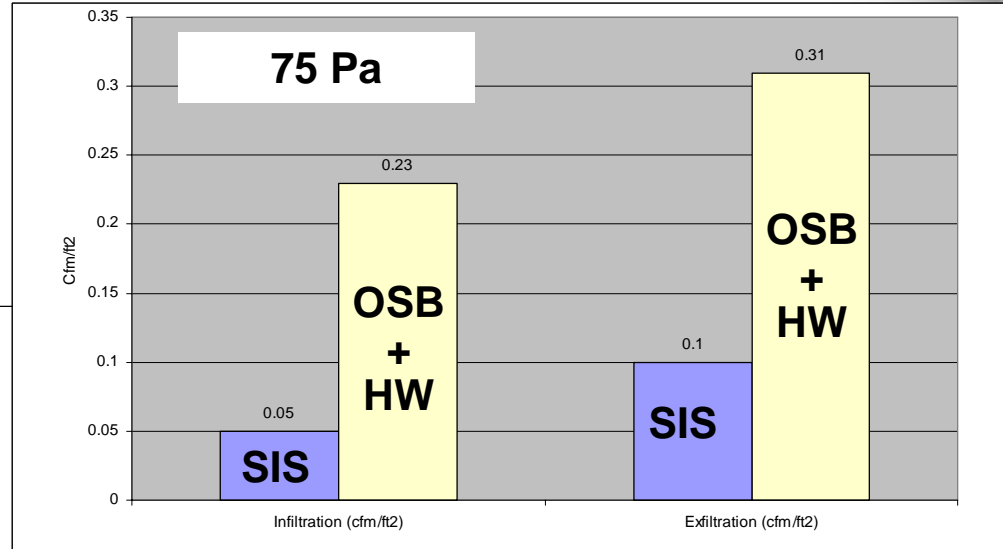
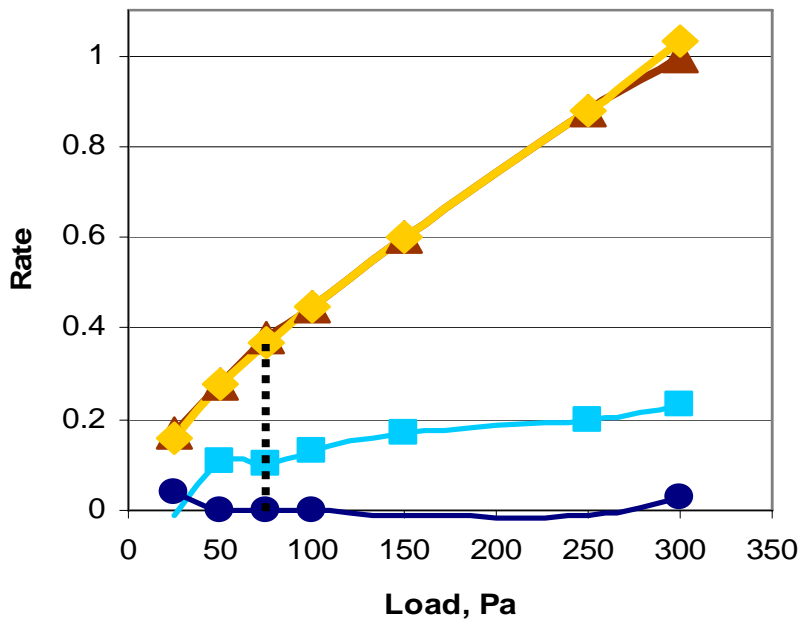


SIS™ Seals 3x tighter than OSB+HW



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Negative Air Infiltration



- ▲— OSB/HW
 - ◆— OSB/HW-tp
 - SIS-tp
 - SIS-tp + SPF
- tp: seams taped

With 1/2" of Closed-Cell Poly Iso Foam Outboard, SIS™ meets the industry's most stringent water testing.



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Test	STYROFOAM SIS™ AC 382	"House wraps" AC 38
Freeze Thaw	X	
Water-resistance (Humidity/Heat)	X	
UV Exposure, Accelerated Aging, Hydrostatic	X	X
Water Absorption	X	
Water Vapor	X	X
Structural, Racking, Restrained Environmental, Water Penetration	X	
Environmental, Racking	X	

SIS™ Water Resistant Barrier Testing AC 382 - Test #3 (6"x10" Hand Scale)



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3) Freeze Thaw – 10 Cycles

- Heating” **120° F**, 8hr
- **Submerge** H₂O: 70° F, 8hr
- Freeze: **-20° F**, 16hr



Freeze Thaw “after” Picture



PHOTO 4: Small specimens after freeze-thaw testing in accordance with AC212 Section 4.2.

Conditions of Acceptance

No surface changes or delamination.

SIS™ Water Resistant Barrier Testing AC 382 - Test #5 (8'x8' Wall Scale)



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5) Environmental, Racking, Water Penetration

Transverse Load

- 10 load cycles

Environmental – 5 cycles

- H2O Spray, 24hr
- Heating 120F, 24 hr

Racking

- 10 load cycles

Water Penetration

- ASTM E331
- 2.86 PSF suction
- 320 gallons/hr spray rate



PHOTO 2: Transverse load test setup

SIS™ Water Resistant Barrier Testing AC 382 - Test #5 (8'x8' Wall Scale)



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5) Environmental, Racking, Water Penetration

Transverse Load

- 10 load cycles

Environmental – 5 cycles

- H2O Spray, 24hr
- Heating 120F, 24 hr

Racking

- 10 load cycles

Water Penetration

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- 2.86 PSF suction
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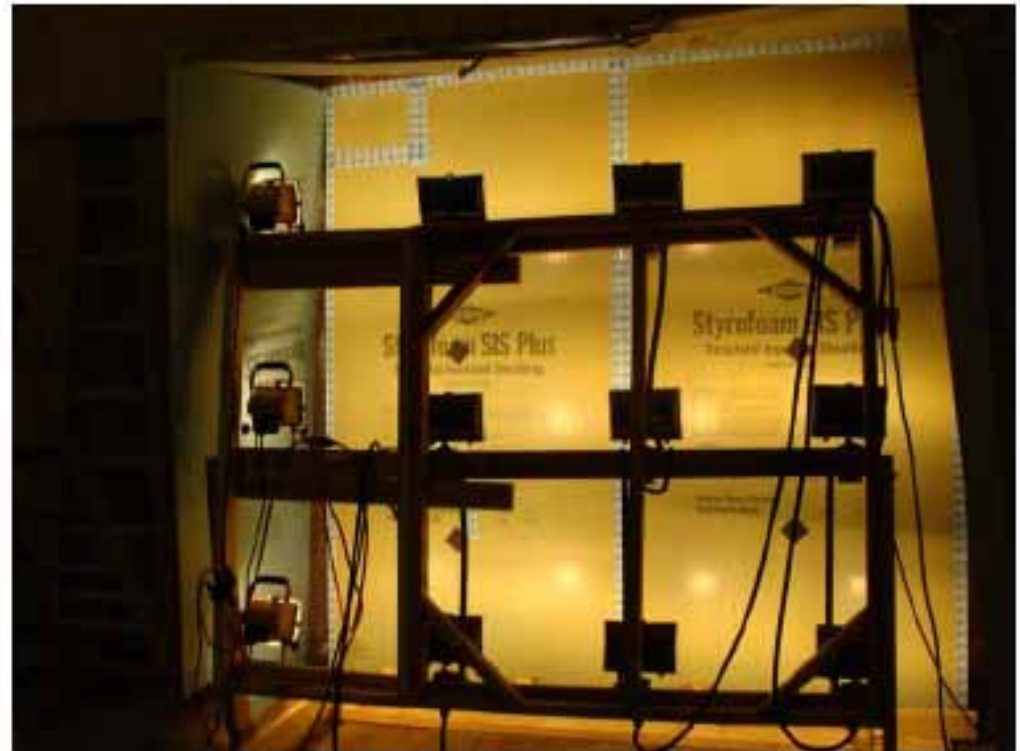


PHOTO 3: Restrained environmental cycling test setup – radiant heating

SIS™ Water Resistant Barrier Testing AC 382 - Test #5 (8'x8' Wall Scale)



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5) Environmental, Racking, Water Penetration

Transverse Load

- 10 load cycles

Environmental – 5 cycles

- H₂O Spray, 24hr
- Heating 120F, 24 hr

Racking

- 10 load cycles

Water Penetration

- ASTM E331
- 2.86 PSF suction
- 320 gallons/hr spray rate



PHOTO 11: General test setup for racking load testing in accordance with ASTM E 72.

SIS™ Water Resistant Barrier Testing AC 382 - Test #5 (8'x8' Wall Scale)



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5) Environmental, Racking, Water Penetration

Transverse Load

- 10 load cycles

Environmental – 5 cycles

- H₂O Spray, 24hr
- Heating 120F, 24 hr

Racking

- 10 load cycles

Water Penetration

- **ASTM E331**
- **2.86 PSF suction**
- **320 gallons/hr spray rate**



PHOTO 12: Specimen with spray rack for water penetration testing in accordance with ASTM E 331.

Conditions of Acceptance

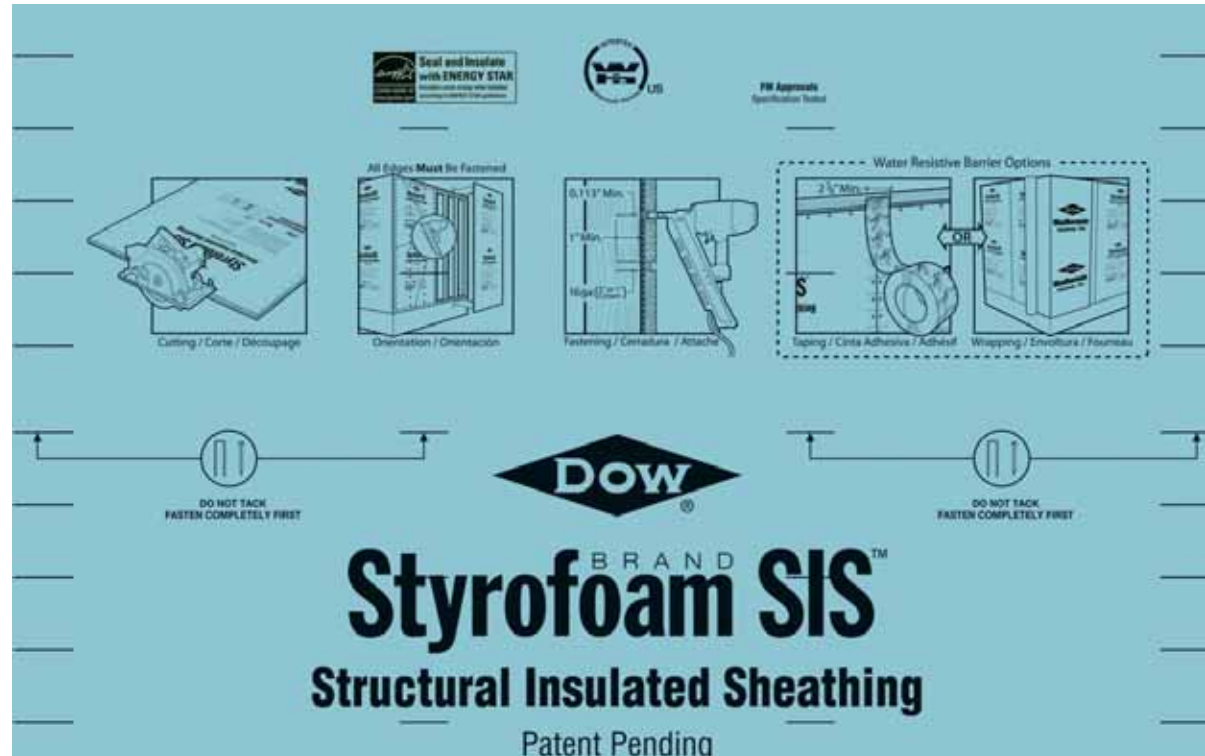
Zero water penetration after 15 min.

Ease of Installation Light Weight & Instructions On Every Sheet



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- ✓ 1/3 Weight of OSB*
- ✓ Circular Saws
- ✓ Orient foam side out.
Fasten all edges
- ✓ Use 16 ga 1/2" or 1" crown staples or 0.113 shank nails at 3/6 or 3/3 spacing. Countersinking into foam is allowed.
- ✓ For WRB: Tape sheathing joints with 2-7/8" construction tape or use house wrap



*Based on 1/2" STYROFOAM SIS™

High Recycled Content + Energy Savings = **GREEN**



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- ✦ **Up to 80% Post Consumer Recycle Content**
- ✦ **\$200 - \$500 Energy Savings****
- ✦ **Light Weight**
- ✦ **Manuf. in Lower Midwestern US**
- ✦ **Excellent for Panelization**



**Savings will vary depending on heating/cooling system, geographical location, energy cost, wall assembly configuration, and thickness of insulation installed.

STYROFOAM SIS™

Don't You Deserve More?



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1. Structural

- ✓ Lateral Bracing
- ✓ Transverse Loads

2. Water Barrier

- ✓ Eliminates House Wrap

3. Insulation

- ✓ Conductive loss
- ✓ Air Infiltration

4. Sustainability

- ✓ High Recycle Content (80% PCRC)
- ✓ Light Weight (1/3 x OSB)
- ✓ Easy to Install
- ✓ Saves Energy





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