



### System A: 3/4" STYROFOAM™ Brand Insulation and WEATHERMATE™ Plus Housewrap



Features	Benefits
Premium system, competitively priced	<ul style="list-style-type: none"> <li>Best overall value from a price and long-term performance standpoint</li> </ul>
<b>R-value up to R-4*</b> (insulation only)	<ul style="list-style-type: none"> <li>Currently the highest warranted R-value for this system type, providing exceptional energy efficiency</li> <li>Provides a consistent R-value throughout wall profile</li> </ul>
Water-resistive secondary barrier	<ul style="list-style-type: none"> <li>Allows bulk water to drain away from exterior wall, facilitating drying between wall and siding</li> <li>Does not trap moisture, helping prevent moisture damage</li> <li>Allows wall assembly to "breathe"</li> <li>Qualifies as water-resistive barrier (WRB) per IRC (see product literature for details)</li> </ul>
Reduces thermal bridging	<ul style="list-style-type: none"> <li>Prevents significant energy loss through wood framing</li> </ul>
Reduces air infiltration	<ul style="list-style-type: none"> <li>Reduces energy loss, enhancing energy efficiency</li> </ul>
15 year limited thermal warranty	

### System B: 1/2" STYROFOAM™ Brand Insulation and WEATHERMATE™ Plus Housewrap



Features	Benefits
Upgraded system, competitively priced	<ul style="list-style-type: none"> <li>Provides twice the insulation value as 3/8" (System C)</li> </ul>
<b>R-value up to R-3</b> (insulation only)	<ul style="list-style-type: none"> <li>Higher R-value provides greater energy savings</li> </ul>
Water-resistive secondary barrier	<ul style="list-style-type: none"> <li>Same as System A</li> </ul>
Reduces thermal bridging	<ul style="list-style-type: none"> <li>Same as System A</li> </ul>
Reduces air infiltration	<ul style="list-style-type: none"> <li>Same as System A</li> </ul>
15 year limited thermal warranty	

### System C: 3/8" DOW™ HPU Insulation and WEATHERMATE™ Plus Housewrap



Features	Benefits
Economical, but effective system	<ul style="list-style-type: none"> <li>Good system performance at a fraction of the cost</li> </ul>
Fanfold seams	<ul style="list-style-type: none"> <li>Wraps easily around corners</li> <li>Provides level surface for siding</li> </ul>
<b>R-value of 1.5</b> (insulation only)	<ul style="list-style-type: none"> <li>50% higher R-value than 1/4" fanfold</li> </ul>
Water-resistive secondary barrier	<ul style="list-style-type: none"> <li>Same as System A</li> </ul>
Reduces thermal bridging	<ul style="list-style-type: none"> <li>Same as System A</li> </ul>
Reduces air infiltration	<ul style="list-style-type: none"> <li>Same as System A</li> </ul>

### Energy Savings

Annual energy savings from installing insulation can add up quickly. **For example, adding STYROFOAM™ Brand Tongue and Groove (3/4") to a home in Chicago can yield an estimated yearly savings of \$454.\*\***

To estimate annual energy savings based on your choice of insulation and geographical location, visit [www.dowonyourside.com](http://www.dowonyourside.com) and click on "Tools" and "Calculate Your Energy Savings." It's quick and easy to see why "thicker pays quicker."

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\*R means resistance to heat flow. The higher the R-value, the greater the insulating power.

\*\*Information calculated using the Architectural Energy Corporation's REM/Design software program. Based on a 2,500 ft<sup>2</sup> home with no cavity insulation using 3/4" STYROFOAM™ Brand Tongue and Groove (R-3.8). Based on standard efficiency cooling system and gas heating system. Calculation based on assumed energy costs of \$1.55 for gas (\$/Therm) and \$0.11 for electricity (\$/kWh). Savings will vary depending on heating/cooling system, energy costs, amount of existing insulation and thickness of insulation installed.

## The High Cost of Energy Loss

- Energy costs have **doubled** since 2004.
- According to the U.S. Department of Energy, home heating oil prices increased nearly 432% between 1996 and 2007.
- During the same period, natural gas prices increased 492%.

### Insulation: A Simple Solution and a Smart Investment

- Lowers energy bills by as much as 40%, saving money and global fuel resources
- Increases comfort and value of home
- Can pay for itself in **two years**

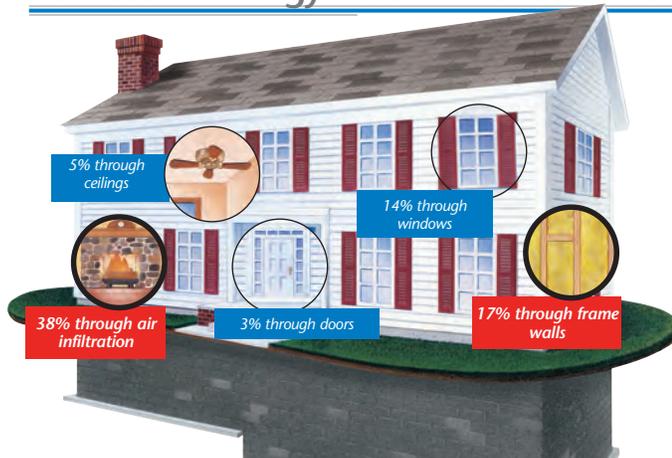


Thermal energy is lost through uninsulated framing. This is a graphic depiction of heat loss in a typical home. Yellow areas indicate the greatest energy loss.



Full coverage with insulated sheathing insulates the whole wall including framing.

## Sources of Energy Loss – Above Grade

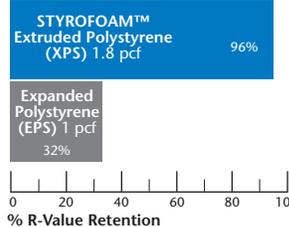


Air infiltration (38%) and thermal bridging through studs (17%) account for 55% of a home's energy loss.

## STYROFOAM™ XPS VS. EPS

Extruded Polystyrene Foam (XPS) 1.8 pcf	Expanded Polystyrene (EPS) (Type I) 1.0 pcf
R-value per 1" (5.0)	R-value per 1" (3.6)
Strong, durable	Less durable
Closed cell for lower moisture absorption (0.1%)	Open voids creates higher moisture absorption (3% to 4%)
Higher retained R-value	Lower retained R-value
Water-resistive barrier (WRB)	Does not qualify as WRB unless low-permeance plastic facer is used

### R-Value Retention

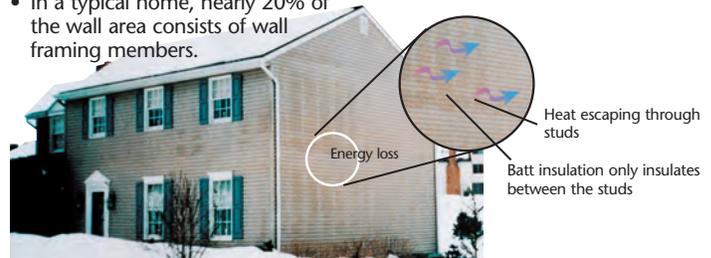


In a freeze-thaw cycle test of 414 cycles, STYROFOAM™ Brand XPS Foam insulation retained 96% of its R-value, while the EPS insulation decreased to 32%.

(Test method ASTM C666, Procedure B. Not all climates experience freeze-thaw conditions and not all applications are affected in the same manner.)

## Energy Loss Through Wood Framing

- In a wall insulated with cavity insulation alone, **the wood framing members are left uninsulated.**
- Whether heating or cooling your home, leaving studs uninsulated results in significant energy loss.
- In a typical home, nearly 20% of the wall area consists of wall framing members.



This wall assembly consists of 2x6 studs, OSB sheathing and housewrap. Using housewrap alone does not offer the best solution for both energy efficiency and air infiltration protection. The right solution: Use insulated sheathings from Dow to cover the entire wall assembly, including the wood framing.

## The Problems With Moisture

Moisture can come from many sources, including:

- Roof leaks
- Wind-driven rain

- Humidity in the structure
- Vapor diffusion
- Foundation leaks
- HVAC systems
- Condensation

Moisture destroys a wall system's R-value. And it only takes a small amount of consistent moisture to create problems in a wall, such as wood rot and the growth of mold and mildew.



Maximize your energy savings experience with Dow. Visit [www.dowbuildingsolutions.com](http://www.dowbuildingsolutions.com) to learn more.

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NOTICE: Changes to the International Residential Code require the installation of a water-resistive barrier (WRB) within most exterior wall assemblies in residential construction. The following Dow insulated sheathing products qualify as a WRB when installed according to the installation instructions developed for "Installation of foam sheathing as a weather-resistive barrier": STYROFOAM™ DURAMATE™ Plus, STYROFOAM™ Residential Sheathing, STYROFOAM™ Tongue and Groove, STYROFOAM™ SIS™, STYROFOAM™ Square Edge, STYROFOAM™ Residing Board, DOW™ High Performance Underlayment, THERMAX™ Sheathing, TUFF-R™ and Super TUFF-R™ and therefore do not require the use of a building paper or a housewrap as a WRB. When a WRB is not needed, these Dow foam sheathings may be installed according to standard installation instructions for foam sheathing from Dow. Be sure products and installation instructions meet code requirements for your particular location. Note: WEATHERMATE™ and WEATHERMATE™ Plus Housewraps have already qualified as water-resistive alternatives to the prescribed felt (see Evaluation Reports NER-593 and NER-640 for approved alternative).

### STYROFOAM™ Brand Extruded Polystyrene Foam Insulation

CAUTION: This product is combustible. Protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400.

Building and/or construction practices unrelated to building materials could greatly affect moisture and the potential for mold formation. No material supplier including Dow can give assurance that mold will not develop in any specific system.

THE DOW CHEMICAL COMPANY • Dow Building Solutions • 200 Larkin • Midland, MI 48674 • 1-866-583-BLUE (2583) • [www.dowbuildingsolutions.com](http://www.dowbuildingsolutions.com)

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