



INNOVATIONS FOR LIVING®

FOAMULAR®

Energy-Saving, Moisture-Resistant XPS Insulation



GIVE YOUR CUSTOMERS
WHAT THEY WANT:
MAXIMUM
ENERGY EFFICIENCY.

**COVERS THE HOME
FROM TOP TO
BELOW GRADE.**



INNOVATIONS FOR LIVING®

SAVING ENERGY

BY PREVENTING ENERGY LOSS.

Give your customers the energy-efficient homes they want. Help grow your sales. And help protect the planet with **FOAMULAR® Extruded Polystyrene (XPS) Insulation** from Owens Corning. It provides the highest level of defense against energy loss in residential designs.

Created by our team of building science experts, our complete line of products works everywhere from underslab to the roof to deliver:

Excellent insulating properties

Exceptional moisture resistance

Incredible ease of use

With energy costs so volatile, FOAMULAR® insulation is an advanced building solution that's right for your business, right for your customers and right for making a more energy-efficient world.



BENEFITS

ADVANTAGES OVER THE LIFE OF THE HOME.

4

PERFORMANCE

BUILT FOR PEACE OF MIND.

8

APPLICATIONS

FROM TOP TO BOTTOM, WE'VE GOT YOU COVERED.

10

SUSTAINABILITY

GREENER HOMES FOR A GREENER PLANET.

14





INNOVATIONS FOR LIVING®

BENEFITS

ADVANTAGES OVER THE
LIFE OF THE HOME.



Almost all construction materials, at some time in the building construction or life cycle, are exposed to water in the form of a liquid, vapor or solid ice.

FOAMULAR® Extruded Polystyrene (XPS) Insulation has a combination of characteristics that result in very low water absorption when compared to other types of insulation, which results in long-term thermal performance.

BENEFITS



A critical factor affecting long-term building performance is the ability of an insulating material to resist moisture.

Not all foam insulations provide adequate water resistance necessary to meet real-world construction applications. Insulation that absorbs water loses R-value and other important properties, resulting in a loss in long-term thermal performance.

Extremely low water absorption



Significant differences in water absorption occur when different test methods are used to measure the same property. Compared with other types of foam insulation, FOAMULAR® insulation absorbs a minimal amount of water due to its hydrophobic polymer and uniform closed-cell structure.

Higher R-values over time



R-value—the measure of a material's resistance to heat flow—is a critical component of any building design. The higher the R-value, the better the building insulation's effectiveness and energy-saving potential.

The thermal properties of insulation materials are measured in R-value per inch of thickness.

FOAMULAR® insulation products—tested under real-life conditions—maintain their R-value even in the presence of moisture and are warranted to maintain 90% of the advertised R-value for 20 years.

Many other types of foam insulation cite high R-values. However, many of these R-value claims are often inflated when performance over the life of the foam insulation is considered.

The R-value of foamed plastic insulation products is dependent on many factors—the type of polymer and blowing agent that are used in its manufacture and whether it is open- or closed-cell. FOAMULAR® insulation is manufactured with materials that have

low thermal conductivity and produce a consistent and uniform network of closed cells. Insulation that is manufactured using other foamed plastic materials such as Polyisocyanurate (ISO) or Expanded Polystyrene (EPS) produce products that have irregular cell structures or voids in the material. The voids in the EPS products provide an opportunity for air or water to penetrate into the product and reduce the ability to insulate effectively. The irregular cell structure in the ISO products causes the product to be brittle and friable.

Warranted to maintain R-value



Unlike competing types of rigid insulation, FOAMULAR® insulation is warranted to maintain 90% of its R-value for 20 years with no caveats for exposure to moisture or facer delamination.*

Compressive strength

The cellular structure of FOAMULAR® insulation gives it exceptional strength and durability. Manufactured to comply with ASTM C 578; FOAMULAR® insulation is available in a wide range of compressive strengths—from 15 psi to 100 psi (minimum)—to suit a variety of application requirements.

Ease of use

FOAMULAR® insulation products are lightweight and easy to handle. They cut and trim easily and don't require the use of special power tools for installing.

Available scored in 16" or 24" widths or more common 24" or 48" widths, FOAMULAR® insulation products are easily sized at the job site, and compatible with most common exterior finishes. See the Product Selection Guide on page 7.

1. ASTM C 578-06, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation, ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

*See actual warranty for details.

BENEFITS

Mold protection

Unwanted moisture in building assemblies robs insulation of its effectiveness and can damage building envelope components. It can also lead to the formation of mold—and its associated problems can be costly to remediate.

Mold requires three things to develop:

1. Moisture
2. Food source
3. Certain temperature range

FOAMULAR® insulation will not corrode, rot or support the growth of mold and mildew.

FOAMULAR® insulation is made from inert plastic and other raw materials that do not contain a natural food source to support mold growth. It has been tested by an independent, third-party laboratory per ASTM C 1338² Standard Test Method for determining the Fungi Resistance of Insulation Materials and Facings, and found not to support fungi growth. When properly installed

on exterior framing, it will provide a continuous layer of insulation helping maintain higher temperatures within the wall cavity, which reduces the potential for condensation to occur.

FOAMULAR® insulation's low water absorption rate ensures that exposure to any moisture source won't affect the product's long-term durability and performance.

2. ASTM C 1338, Fungi Resistance of Insulation Materials and Facings, ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

FOAMULAR® Insulation Physical Properties

PROPERTIES	FOAMULAR® INSULATION PRODUCTS				INSULPINK®	INSUL-DRAIN®
	150	250	Insulating Sheathing	PROPINK® Sheathing		
R-Value Per Inch (hr x ft ² x °F / Btu)	5.0	5.0	5.0	5.0	5.0	4.4*
Compressive Strength (psi)	15	25	15	15	15	25**
Water Absorption, % Volume	0.10	0.10	0.10	0.10	0.10	0.10
ASTM C 578 Type	X	IV	X	X	X	IV

R-values listed are representative values for 1"-thick material.

Nominal half-inch FOAMULAR® Insulating Sheathing product R-value is 3.0; ¾" R-value is 4.0.

* Based on configuration of board after channels are cut. R-value before channels are cut is 5.0 per inch.

** Minimum foam core value. The bearing surface of the product should be considered when designing for specific applications.

BENEFITS

FOAMULAR® INSULATION Product Selection Guide

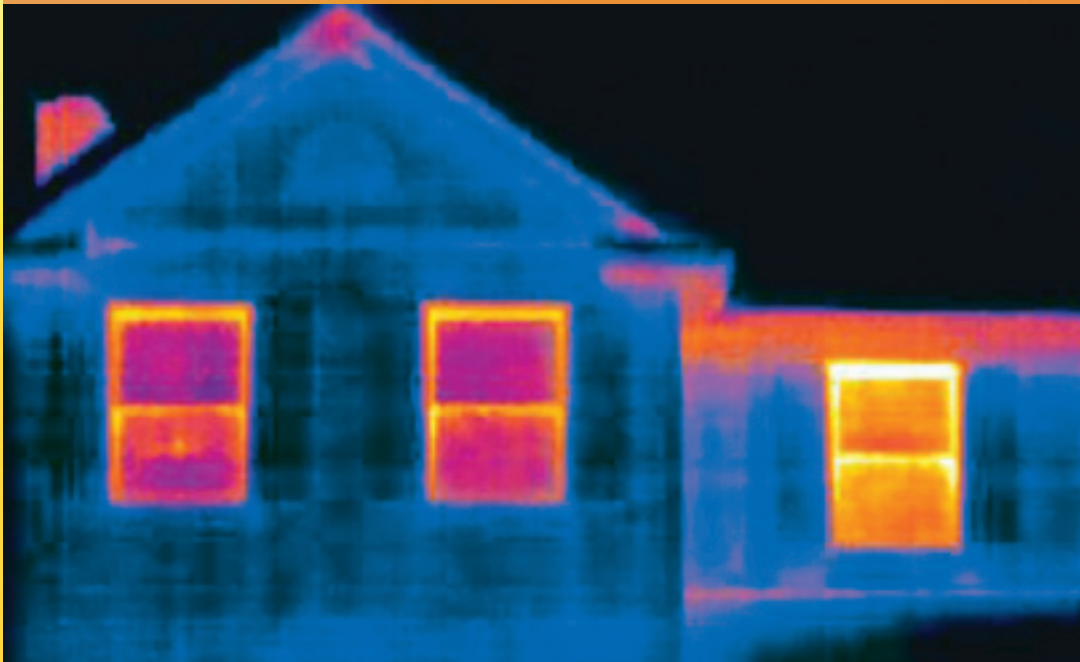
Construction Application	FOAMULAR® Insulation	SCS	GG	ASTM C578 Type	
General Purpose	150			X	Slab edge, foundation, under light slab, steel stud sheathing, masonry cavity wall, concrete tilt-wall, etc.
	250			IV	
Wall					
Sheathing	Insulating Sheathing			X	Laminated film on both sides for added strength
	PRO PINK®			X	Reinforced laminated film on both sides for extra added strength
Masonry Cavity Wall	CW15			X	15 and 25 psi, 16" wide, fits between wall ties
	CW25			IV	
	High-R CW Plus			IV	25 psi, 16" wide, fits between wall ties. Higher R per inch.
Z-Furring	InsulPink® Z			X	Fits between Z-furring on inside surface of unit masonry or concrete walls
Insulated Concrete Sandwich Panels	PinkCore®			IV	Connector ties also available as part of structural wall system
Roof					
Low-Slope Commercial Roofing, Architectural Metal Roofing	ThermaPink® 18			X	18, 25, 40 psi, used in a variety of roofing systems over a variety of deck types
	ThermaPink® 25			IV	
	ThermaPink® 40			VI	
Recover Roofing	DuraPink®			IV	Used over existing membrane and under new mechanically attached single-ply
	DuraPink® Plus			IV	Fabric facer to separate XPS from new PVC membrane
PRMA, Plaza Deck, Waterproofing	404			VI	Bottom side drainage channels on 4 edges for PRMA
	604			VII	
	404RB			VI	Bottom side drainage channels and top side ribbed surface for use under pavers in PRMA
	604RB			VII	
	600			V	High load, vehicular traffic
	1000			V	Higher load, vehicular traffic
Underslab					
Load Bearing, High Strength, Under Industrial Slabs	400			VI	40, 60, 100 psi compressive strength. Engineer to match FOAMULAR® insulation compressive strength needed to load on slab and slab design. Ranges from light pedestrian to heavy equipment and storage.
	600			VII	
	1000			V	
Under-Slab, Low Temperature Storage	LT 30			IV	30 psi, light to medium loads
	LT40			VI	40 psi, heavier loads
Foundation					
Foundation	Insul-Drain®			IV	Filtration fabric faced with drainage channels in foam



INNOVATIONS FOR LIVING®

PERFORMANCE

BUILT FOR PEACE OF MIND.



Not every rigid insulation board is built the same. Differences in the base chemistry and types of manufacturing processes create dramatically different board structures and performance.

Three types of rigid foam plastic insulation dominate the industry today. They look, feel and deliver dramatically different performance.

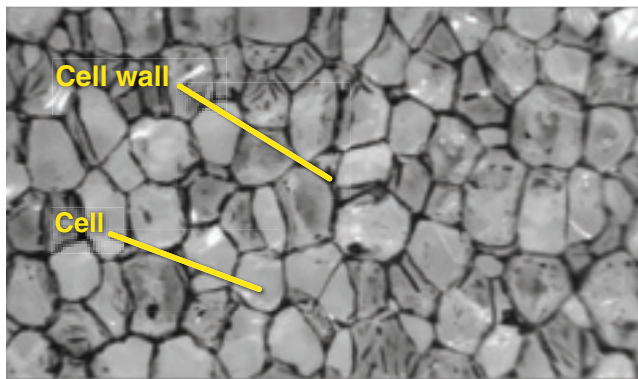
PERFORMANCE

XPS—closed cells keep moisture out

XPS—manufactured with homogenous, closed cells (see Figure 1)—stays together, while foams made using other processes may fall apart.

Our patented Hydrovac® manufacturing process guarantees long-term product strength and performance through an extrusion process that creates a uniform, void-free, closed-cell board structure that withstands moisture penetration and loss of R-value.

Figure 1: XPS Cell Structure

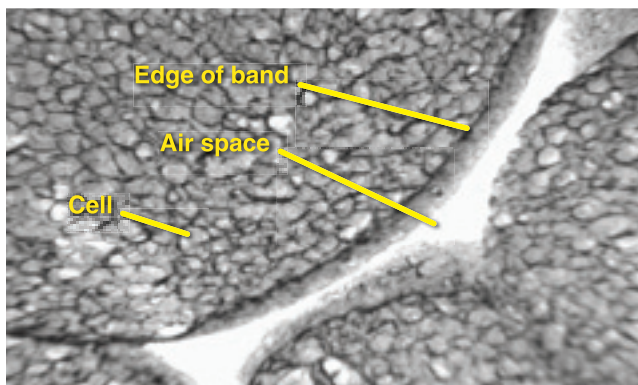


EPS—open cells let water seep in

EPS—manufactured by molding polystyrene beads together under heat and pressure—can easily come apart. (See Figure 2.)

The molded EPS has voids within the foam structure which allow moisture and air penetration, thus reducing its R-value and long-term performance.

Figure 2: EPS Cell Structure



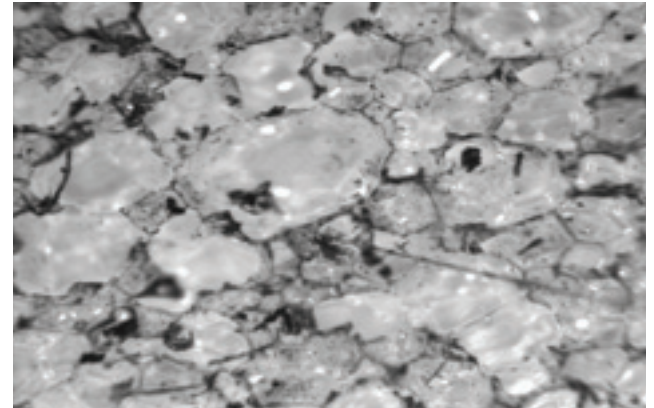
ISO—brittle cells absorb moisture

ISO—manufactured in a continuous lamination process using liquid raw materials that expand between a variety

of facing materials—is brittle and can easily break up or crumble (i.e., friable). (See Figure 3.)

ISO is a thermoset plastic. The manufacturing process creates an irregular cell structure that, combined with the raw material's hydrophilic chemistry, results in higher water absorption capability compared to other rigid board insulations, like FOAMULAR® insulation.

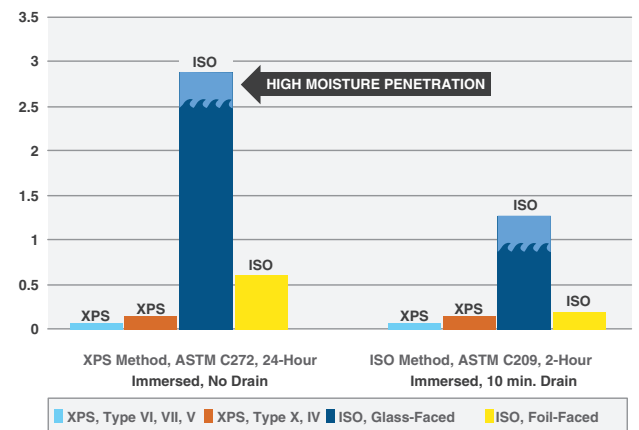
Figure 3: ISO Cell Structure



Not all test methods are the same

Published foam plastic insulation properties are not always directly comparable. Different test methods may be used to measure the same properties for different types of insulation. To fully understand how materials compare, investigate and ask questions. The type of test method used can dramatically alter results and conceal significant differences in properties such as water absorption. Although the products featured in Figure 4 claim comparable performance using the respective test methods cited, tests using comparable immersion times and conditions reveal significant performance differences.

Figure 4: Water Absorption





INNOVATIONS FOR LIVING®

APPLICATIONS

FROM TOP TO BOTTOM,
WE'VE GOT YOU COVERED.



FOAMULAR® insulation is the only choice for below-grade applications where the continuous presence of moisture can rob other products of their performance.

Unlike competitive foam products that absorb moisture, FOAMULAR® insulation's high resistance to water absorption enables it to retain its properties while in constant contact with underground moisture.

APPLICATIONS

XPS is the only insulation allowed by building code in below-grade horizontal applications, such as frost-protected shallow foundations and slabs.

Below grade

FOAMULAR® insulation products protect against energy loss below grade, a significant source of residential energy loss. Its high water resistance makes it the ideal choice to protect against the constant and relentless presence of moisture throughout a home's useful life.

Below-slab radiant heating

FOAMULAR® insulation reduces common sources of heat loss in radiant heating systems. Its high R-value doesn't degrade in the presence of moisture and its compressive strength makes it an ideal insulating solution for horizontal applications.

FOAMULAR® insulation products don't require foil facers, radiant barriers or reflective membranes to provide effective insulating capability in below-slab radiant heating applications. Radiant and reflective materials, like foil, will not improve performance when installed without an air space adjacent to the reflective surface.

Foundation walls

On foundation walls, FOAMULAR® not only provides excellent insulation for the wall, but it also provides protection from backfill damage for damp-proofing or waterproofing membranes.

Foundation drainage

Easy to install, Insul-Drain® incorporates the features of insulation, drainage and protection board in a single product. Covered with a filter fabric to prevent the intrusion of soil particles, a matrix of channels cut into the surface of the foam board help drain water away from the vertical foundation walls while maintaining a continuous thermal envelope around the perimeter of the wall. Its tongue-and-groove edges provide proper sealing at board joints, while its top-edge horizontal channel permits unobstructed water flow between vertical courses of boards.

Under concrete floors

FOAMULAR® insulation is available in a variety of compressive strengths uniquely suitable for use under interior slabs including basement or garage floors. It's even strong enough to walk on during slab reinforcement and concrete placements.

Frost-protected shallow foundations

In cases where local soil conditions make it impractical or uneconomical to install a full-depth foundation, FOAMULAR® insulation provides an efficient insulation option. When used to protect foundations from frost penetration, FOAMULAR® insulation insulates the ground, slowing the rate of heat loss and, thus, depth of frost penetration.

A suitable vapor barrier, such as a 6-mil-thick polyethylene sheet, should be used between the foam and the concrete slab.

Exterior walls

Today's residential building codes require incorporation of a water-resistive barrier in exterior wall construction.

FOAMULAR® Insulating Sheathing products offer both the benefit of providing continuous insulation and a water-resistive barrier when the seams in the boards are taped with an approved seam tape.

Use of FOAMULAR® Insulating Sheathing products under finished cladding can generate significant energy savings. Whether used to replace or supplement oriented strand board (OSB) or similar wood cladding products, FOAMULAR® insulation helps augment those products' scarce insulating properties and increase the R-value of the total assembly.

Structural wall framing

Structural wall framing represents between 20–25% of the entire home wall area in today's homes. Insulating sheathings such as FOAMULAR® Insulating Sheathing (IS) or **PROPIK**® Sheathing create a protective thermal envelope around the entire building perimeter, reducing energy losses due to thermal bridging through wood or metal framing or steel fasteners. This helps reduce energy consumption and increase homeowner comfort.

FOAMULAR® IS is faced to provide the durability needed to withstand the rigors of exterior wall construction.

If additional damage resistance is desired, trust **PROPIK**® Sheathing with reinforced facers to handle the toughest construction conditions.

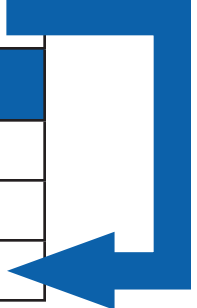
Built to perform, FOAMULAR® sheathing products deliver reduced handling and incidental site damage, which results in improved efficiency and less job site loss for the builder.

APPLICATIONS

OSB Sheathing vs. FOAMULAR® Insulating Sheathing Exterior Wall R-Values*

Traditional OSB Wall Construction	R-Value
Fiber Glass Insulation in Stud Cavity	13.0
OSB Sheathing	0.5
Total System R-Value**	11.3
Owens Corning FOAMULAR® Insulation Thermal Wall	
Fiber Glass Insulation in Stud Cavity	13.0
FOAMULAR® Insulating Sheathing—½" Foam	3.0
Total System R-Value**	14.2

R-Value Jumps!



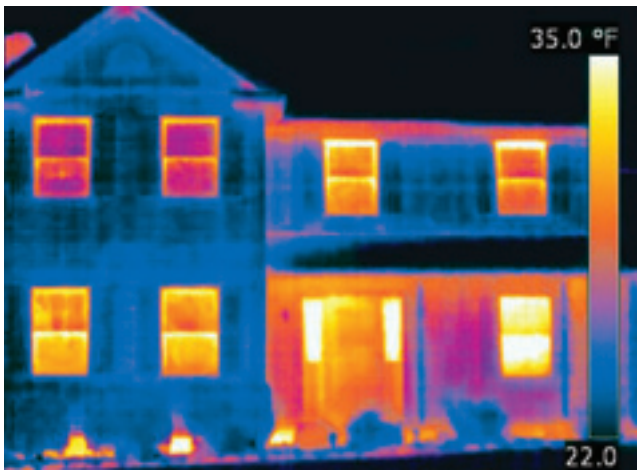
* Table reflects 2" x 4" wood-frame construction, 16" on center with vinyl siding.

** Total system R-value calculated using component R-value and path percentages in 1997 *ASHRAE Handbook of Fundamentals*.

Both FOAMULAR® IS and **PRO**PINK® Sheathing—installed with taped seams or in conjunction with a housewrap product—meet residential building codes that require the use of a water-resistive barrier on exterior wall systems. For additional information on structural wall framing, visit the Extruded Polystyrene Foam Association (XPSA) Web site at www.xpsa.com.

Continuous insulation

Rising energy costs have led to mandated building codes requiring continuous wall insulation in colder climates. Continuous insulation reduces energy loss due to thermal bridging.



Evidenced in the blue areas above, continuous insulation greatly reduces energy loss by preventing it from leaking out of walls.

Interior basement walls

FOAMULAR® insulation's excellent moisture resistance and high R-value make it a great product choice for insulating interior basement walls. It is easy to attach with furring strips or other methods.

Custom-designed InsulPink® panels, designed specifically for use in insulating interior basement walls, combine trusted FOAMULAR® insulation benefits like low water absorption and high R-value with a specially designed edge configuration.



When InsulPink® panels are installed adjacent to each other, the specially designed edge forms a recess that allows a 1" x 3" furring strip to be inlaid into the recess. The furring strip and foam can be mechanically fastened to the wall, leaving a flush surface to install drywall.

This design provides a continuous insulation layer behind the furring strip, thus eliminating thermal short circuits and thereby maintaining thermal efficiency and improving living comfort.

APPLICATIONS

Technical update

Owens Corning recommends that, when installed above-grade, FOAMULAR® insulation be covered with appropriate cladding or coating material to prevent sun damage.

Building code requirements mandate that when used in an inhabited space, all foam plastics including XPS, EPS and ISO be covered with an approved 15-minute thermal barrier, such as drywall or gypsum board.

A FAMILY OF PRODUCTS FOR ANY APPLICATION.



Owens Corning foam accessories work in conjunction with foam insulation products to provide the most complete system for thermal efficiency and moisture resistance. And together with fiber glass insulation and housewrap, FOAMULAR® insulation is part of the Owens Corning portfolio of trusted insulation products.

Raft-R-Mate® Extruded Polystyrene Attic Rafter Vents/AtticMate® Rafter Vents

Can be installed in an attic to prevent insulation from blocking the eave or soffit vents. Allows attics to have unobstructed airflow from the soffit to the eaves to provide adequate attic ventilation.

FoamSealR™ Sill Plate Gasket

¼" sill plate gasket installed on the top of a foundation wall. Fills the gap between the sill plate and the top of the foundation wall for a tight, uniform fit sealing out air moisture and insects.

PinkCap® Attic Stair Insulator

Molded polystyrene one-size-fits-all foam cover for standard attic stair openings. Lightweight for quick-and-easy installation.

Bild-R-Tape® Construction Tape

Easy-to-use tape used to seal joints in foam insulation panels to minimize air infiltration, secure lap edges in housewraps and vapor barriers, and repair damaged insulation.

WEATHERResist® Flashing Tape

Peel-n-stick flashing tape used to seal joints around doors, windows and transition points to prevent moisture and air infiltration. Bonds to foam, plywood, OSB, concrete, metal, vinyl and other substrates.

FanFold Damproofing Waterproofing Board

Thin extruded polystyrene foam used as an underlayment in re-siding applications or as a protection board on below-grade foundation walls. Provides insulation to walls and a smooth surface over which new vinyl siding or other claddings can be applied. Folded every two feet to provide an easy-to-use, compact package. Comes in several facer and hinge configurations.





INNOVATIONS FOR LIVING®

SUSTAINABILITY

GREENER HOMES
FOR A GREENER PLANET.



Owens Corning understands the importance of operating in ways that meet the needs of the present without compromising the world we leave to the future.

Protective products like FOAMULAR® insulation have their own sustainable attributes and, more important, they enable sustainable building design solutions.

SUSTAINABILITY

FOAMULAR® insulation is the only extruded polystyrene insulation that is certified for its recycled content of at least 20%.³ It helps make possible the design of energy-efficient building envelopes, and it contributes to the total recycled content of projects.



FOAMULAR® insulation is also the only extruded polystyrene product certified by the GREENGUARD Environmental Institute's GREENGUARD Children and Schools Product Certification under the GREENGUARD Standard for Low Emitting Products.⁴ GREENGUARD certification means that certified Owens Corning products contribute to indoor air quality.



FOAMULAR® insulation is durable and reusable. It is a product that has a proven history of removal, salvage and reuse.^{5,6} Reusability saves removal and hauling costs, saves landfill fees and the accompanying environmental impact, plus it means that new insulation does not need to be manufactured, shipped and installed. Other types of foam plastic insulation do not have the water resistance and durability to be removed and reused.

ENERGY STAR® qualified homes are at least 15% more energy efficient than homes built to the 2004 International Residential Code (IRC), and include energy-saving features that typically make them 20–30% more efficient than standard homes. FOAMULAR® Insulating Sheathing materials are an integral element in achieving these energy-saving levels.



FOAMULAR® insulation's long-term R-value sustains energy efficiency over the life of the building envelope. In the LEED® Green Building Rating System⁷ (the leading national standard for green building designs), the single largest point-scoring opportunity is for achieving levels of energy performance above those prescribed in ASHRAE 90.1⁸ when using insulation. With FOAMULAR® insulation, you can achieve the project sustainability that regulations demand and that you and your customers desire.



FOAMULAR® insulation meets specific green practice criteria, allowing points to be earned toward the National Green Building Standard. In fact, it is the first insulation to be approved under the National Association of Home Builders (NAHB) Research Center Green Approved Products seal of approval. The Green Approved mark indicates third-party documentation that a building product contributes to the compliance of specific green practices for National Green Building Certification to the Standard.



With FOAMULAR® insulation, you have Owens Corning quality, performance and reliability inside, plus the knowledge that you're supporting a cleaner, more sustainable environment with every specification.

3. Scientific Certification Systems—Independent, third-party and certification service for recycled content—certified FOAMULAR® insulation to have at least 20% pre-consumer recycled polystyrene based on a weighted 3-plant average. SCS Certificate Registration Number SCS-MC-01132.
4. GREENGUARD Indoor Air Quality Certified, GREENGUARD Environmental Institute; FOAMULAR® Insulation Certification No. In4Pf91213-2. The GREENGUARD Environmental Institute is an independent, non-profit organization that oversees the GREENGUARD Certification ProgramSM including the establishment of acceptable standards for indoor products and testing protocols. For more information, visit www.greenguard.org.
5. FOAMULAR® Extruded Polystyrene Insulation Recycled After 17 Years on the Job at DFW Airport, Owens Corning Publication No. 59400.
6. Metal roof insulation case study, Pink FOAMULAR® Insulation Holds Its Value, Owens Corning Publication No. 10004083.
7. LEED-NC for New Construction, Version 3.0, U.S. Green Building Council, 1015 18th Street, N.W., Suite 508, Washington, DC 20036.
8. ASHRAE 90.1; American Society of Heating, Refrigerating and Air-Conditioning Engineers, 1791 Tullie Circle, N.E., Atlanta, GA 30329.

For more information on how FOAMULAR® insulation products can help you minimize energy loss in your customers' homes, call **1-800-GET-PINK™**, visit **www.foamular.com** or contact your Owens Corning Area Sales Manager today.



INNOVATIONS FOR LIVING™

OWENS CORNING FOAM INSULATION, LLC

ONE OWENS CORNING PARKWAY

TOLEDO, OHIO 43659

1-800-GET-PINK™

www.owenscorning.com

Pub. No. 10011137. Printed in U.S.A. June 2009. THE PINK PANTHER™ & © 1964–2009 Metro-Goldwyn-Mayer Studios Inc. All Rights Reserved. The color PINK is a registered trademark of Owens Corning. ©2009 Owens Corning.

Scientific Certification Systems (SCS) provides independent verification of recycled content in building materials and verifies recycled content claims made by manufacturers. For more information, visit www.scs-certified.com.

The GREENGUARD INDOOR AIR QUALITY CERTIFIED Mark is a registered certification mark used under license through the GREENGUARD Environmental Institute.

ENERGY STAR and the ENERGY STAR mark are registered trademarks of the U.S. Environmental Protection Agency.

LEED is a registered trademark of the U.S. Green Building Council.