



# FOAMULAR® & FOAMULAR® NGX™ INSUL-DRAIN®

## EXTRUDED POLYSTYRENE (XPS) RIGID FOAM INSULATION

Owens Corning® FOAMULAR® & FOAMULAR® NGX™ INSUL-DRAIN® boards are extruded polystyrene (XPS) products that incorporate the features of insulation, drainage, and protection board in a single product. It's easy to install, without the need for special tools or equipment, and the product's compressive strength and long-term moisture-resistance properties mean years of reliable performance on below-grade foundation walls even under extremely harsh conditions. Precision-cut channels drain water from vertical foundation walls while completing the total insulation envelope.

FOAMULAR® NGX™ INSUL-DRAIN® contains the additional benefit of being manufactured with a blowing agent formulation that delivers a 90% reduction to Global Warming Potential (100 years), including the complete elimination of HFC 134a.<sup>1</sup>

1 Compared to FOAMULAR® INSUL-DRAIN® blowing agent formulation.

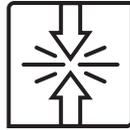
### Features



**SUPERIOR  
MOISTURE  
RESISTANCE**



**DRAINAGE**



**COMPRESSIVE  
STRENGTH**

### Standards, Codes Compliance

- Meets ASTM C578 Type IV
- Meets California Quality Standards and HUD UM #71a

### Physical Properties<sup>2</sup>

PROPERTY	TEST METHOD <sup>3</sup>	VALUE
Thermal Resistance, <sup>4</sup> R-Value, hr·ft <sup>2</sup> ·°F/Btu (RSI, °C·m <sup>2</sup> /W) @ 75°F (24°C) mean temperature	ASTM C518	
1" Thickness		4.4 (0.77)
1½" Thickness		6.9 (1.21)
2¼" Thickness		10.6 (1.87)
@ 40°F (4.4°C) mean temperature		
1" Thickness		4.7 (0.83)
1½" Thickness		7.4 (1.31)
2¼" Thickness		11.4 (2.01)
@ 25°F (-3.9°C) mean temperature		
1" Thickness	4.9 (0.86)	
1½" Thickness	7.7 (1.36)	
2¼" Thickness	11.8 (2.08)	
Compressive Strength, <sup>5</sup> minimum psi (kPa)	ASTM D1621	25 (172)
Drainage Capacity, <sup>6</sup> ASTM @ 500 psf, gal/min/ft	ASTM D4716	12.0
Water Absorption, <sup>7</sup> maximum % by volume	ASTM C272	0.3
Water Vapor Permeance, <sup>8</sup> maximum perm (ng/Pa·s·m <sup>2</sup> )	ASTM E96	1.5 (86)
Dimensional Stability, maximum % linear change	ASTM D2126	2.0
Oxygen Index, <sup>9</sup> minimum % by volume	ASTM D2863	24
Service Temperature, maximum °F (°C)	-	165 (74)
Linear Coefficient of Thermal Expansion, in/in/°F (m/m/°C)	ASTM E228	3.5 x 10 <sup>-5</sup> (6.3 x 10 <sup>-5</sup> )

- Properties shown are representative values for 1" thick core material, unless otherwise specified.
- Modified as required to meet ASTM C578. Foam core meets ASTM C578 specifications and is UL classified.
- R means the resistance to heat flow; the higher the value, the greater the insulation power. This insulation must be installed properly to get the marked R-value. Follow the manufacturer's instructions carefully. If a manufacturer's fact sheet is not provided with the material shipment, request this and review it carefully. R-values vary depending on many factors, including the mean temperature at which the test is conducted and the age of the sample at the time of testing. Because rigid foam plastic insulation products are not all aged in accordance with the same standards, it is useful to publish comparison R-value data. The R-value for FOAMULAR® XPS insulation is provided from testing at two mean temperatures, 40°F and 75°F, and from two aging (conditioning) techniques, 180-day real-time aged (as mandated by ASTM C578) and a method of accelerated aging sometimes called "Long-Term Thermal Resistance" (LTTR) per CAN/ULC S770-03. The R-value at 180-day real-time age and 75°F mean temperature is commonly used to compare products and is the value printed on the product.
- Values at yield or 10% deflection, whichever occurs first. Minimum foam core value. The bearing surface of the product should be considered when designing for specific applications.
- Per lineal foot of width. Tested at a uniform load of 500 psf for 300-hour duration according to ASTM D4716.
- Data ranges from 0.00 to value shown due to the level of precision of the test method.
- Water vapor permeance decreases as thickness increases.
- These laboratory tests are not intended to describe the hazards presented by this material under actual fire conditions.

### Product and Packaging Data

MATERIAL		PACKAGING						
Extruded polystyrene closed-cell foam, ASTM C578 Type IV, 25 psi minimum		Shipped in poly-wrapped units with individually wrapped or banded bundles.						
THICKNESS (IN)	PRODUCT DIMENSIONS THICKNESS X WIDTH X LENGTH (IN)	PALLET DIMENSIONS (UNIT) DIMENSIONS (TYPICAL) WIDTH X LENGTH X HEIGHT (FT)	SQ FT PER PALLET	BOARD FT PER PALLET	BUNDLES PER PALLET	PIECES PER BUNDLE	PIECES PER PALLET	EDGES
1	1 x 48 x 96	4 x 8 x 8	3,072	3,072	8	12	96	Tongue & Groove
1½	1.5 x 48 x 96	4 x 8 x 8	2,048	3,072	8	8	64	
2¼	2.25 x 48 x 96	4 x 8 x 8	1,344	3,072	7	6	42	

Available lengths and edge configurations vary by thickness. See [www.foamular.com](http://www.foamular.com) for current offerings. Other sizes may be available upon request. Consult your local Owens Corning representative for availability.

### Limited Warranty

FOAMULAR® & FOAMULAR® NGX™ XPS insulation limited lifetime warranty maintains 90% of its R-value for the lifetime of the building and covers all ASTM C578 properties. See [FOAMULAR® Extruded Polystyrene Insulation Lifetime Limited Warranty](#) for complete details, limitations, and requirements.

## Technical Information

- This product is combustible. A protective barrier or thermal barrier is required as specified in the appropriate building code. For additional information, contact Owens Corning World Headquarters at 1-800-GET-PINK®.
- All construction should be evaluated for the necessity to provide vapor retarders. See current "ASHRAE Handbook of Fundamentals."
- FOAMULAR® & FOAMULAR® NGX™ INSUL-DRAIN® boards can be exposed to the exterior during normal construction cycles. During that time some fading of color may begin due to UV exposure, and if exposed for extended periods of time, some degradation or "dusting" of the polystyrene surface may begin. It is best if the product is covered within 60 days to minimize degradation. Once covered, the deterioration stops, and damage is limited to the thin top surface layers of cells. Cells below are generally unharmed and still useful insulation.
- INSUL-DRAIN® board is limited for use with exterior below-grade concrete or masonry foundation walls. INSUL-DRAIN® board can be installed directly over waterproofing or dampproofing membranes provided that the membrane is properly cured.
- INSUL-DRAIN® boards should be installed vertically on the exterior of the concrete or masonry wall with the fabric side away from the wall.
- INSUL-DRAIN® should not be exposed to the building interior. Most building codes recognize minimum 1-inch-thick masonry or concrete as adequate thermal barrier protection.
- Owens Corning recommends that Insul-Drain boards be at least partially backfilled the same day as installation to stabilize and secure the boards in place. The balance of the backfill should be added as soon as practical to fully secure the boards and protect them from jobsite damage and UV exposure. Care should be exercised during the backfill operation as to not allow soil penetration between Insul-Drain and the foundation wall.
- Insul-Drain should not be installed unprotected above grade. In order to achieve a continuous thermal envelope, standard Foamular insulation panels should be installed against the foundation wall from the top of the Insul-Drain to the sill plate. The exposed Foamular insulation should be covered with an appropriate protective coating.

## Architectural Notes

### Waterproofing/Dampproofing

- FOAMULAR® & FOAMULAR® NGX™ INSUL-DRAIN® boards should be considered a drainage enhancement mechanism. Owens Corning recommends the application of a waterproofing/ dampproofing membrane at the foundation wall in addition to FOAMULAR® & FOAMULAR® NGX™ INSUL-DRAIN® board. The installation of a properly designed footing drainage system is also recommended.
- Contact water/dampproofing membrane manufacturers for specific information regarding compatibility with FOAMULAR® & FOAMULAR® NGX™ INSUL-DRAIN® boards. FOAMULAR® & FOAMULAR® NGX™ INSUL-DRAIN® boards should not be used in conjunction with coal-tar-based membranes. Contact Owens Corning for recommendations.

## Certifications and Sustainable Features

- Certified by SCS Global Services to contain a minimum of 20% recycled content pre-consumer
- GREENGUARD Certified products are certified to GREENGUARD standards for low chemical emissions into indoor air during product usage. For more information, visit [ul.com/gg](http://ul.com/gg)
- Environmental Product Declaration (EPD) has been certified by UL Environment
- Qualified as an ENERGY STAR® product, under the U.S. Environmental Protection Agency and the U.S. Department of Energy
- Utilizing FOAMULAR® & FOAMULAR® NGX™ XPS insulation can help builders achieve green building certifications, including the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) certification

## Environmental and Sustainability

Owens Corning is a worldwide leader in building material systems, insulation, and composite solutions, delivering a broad range of high-quality products and services. Owens Corning is committed to driving sustainability by delivering solutions, transforming markets, and enhancing lives. More information can be found at [www.owenscorning.com](http://www.owenscorning.com).

FOAMULAR® is manufactured with a polystyrene resin and blend of HFC blowing agents that have a global warming potential (100 years) of less than 750.

FOAMULAR® NGX™ is manufactured with a polystyrene resin and a blend of HFO and HFC blowing agents that have a global warming potential (100 years) of less than 80.

### Disclaimer of Liability

Technical information contained herein is furnished without charge or obligation and is given and accepted at recipient's sole risk. Because conditions of use may vary and are beyond our control, Owens Corning makes no representation about, and is not responsible or liable for, the accuracy or reliability of data associated with particular uses of any product described herein. SCS Global Services provides independent verification of recycled content in building materials and verifies recycled content claims made by manufacturers. For more information, visit [www.SCSglobalservices.com](http://www.SCSglobalservices.com).

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

### Notes

For additional information, refer to the Safe Use Instruction Sheet (SUIS) found in the SDS Database via <http://sds.owenscorning.com>.



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