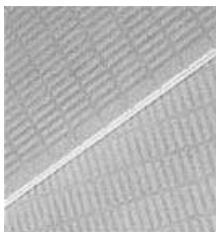




# FOAMULAR® INSUL-DRAIN®

## Extruded Polystyrene (XPS) Insulation Board

### Product Data Sheet



#### Energy-Saving, Moisture Resistant XPS Insulation

#### Foundation Drainage Insulation with Filter Fabric Protection

ASTM C 578 Type IV, 25 psi minimum

#### Description

INSUL-DRAIN® board is a FOAMULAR® extruded polystyrene (XPS) product that incorporates 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 total insulation envelope.

- Durable filtration fabric prevents soil from clogging channels
- 48" x 96" size covers more square footage faster and minimizes joints between boards
- Acts as protection course for waterproofing membrane
- Tongue & groove edges provide proper board alignment and helps seal joints

- Top-edge horizontal channel permits unobstructed water flow between vertical courses of boards
- High R-value, exceptional moisture resistance and high compressive strength of FOAMULAR® XPS insulation
- UL Classified foam core meets ASTM C578 Type IV specifications

#### Key Features

- Excellent long-term stable insulating performance of up to R-10.6<sup>1</sup>
- Exceptional moisture resistance, long-term durability
- Limited lifetime warranty<sup>2</sup>—maintains 90% of R-value and covers all ASTM C 578 properties
- GREENGUARD Gold Certified
- The only XPS foam with certified recycled content—certified by SCS Global Services to contain a minimum 20% recycled content
- Will not corrode, rot or support mold growth
- Zero ozone depletion potential with 70% less global warming potential than our previous formula
- Reusable
- Lightweight, durable rigid foam panels are easy to handle and install
- Easy to saw, cut or score

#### Product Installation

1. INSUL-DRAIN® board is installed against exterior below grade foundation walls. INSUL-DRAIN® board can be installed directly over waterproofing or dampproofing membranes provided that the membrane is properly cured.
2. INSUL-DRAIN® boards should be installed vertically with the fabric side away from the wall. Align the 4 ft. dimension along the horizontal wall and place the edge flush along a corner of the wall. INSUL-DRAIN® boards should be installed so as to extend vertically from the top of the footing to several inches below finished grade. Properly sized gravel fill should be installed at least one foot above the bottom edge of the board. The fabric overhang along the bottom of the board should be tucked underneath to the backside of the board. Should the project require less than a full size 8 ft. long board, excess should be trimmed from the bottom of the board leaving a 3-inch fabric tab to tuck underneath.
3. A bead of compatible adhesive should be applied along the entire top edge of INSUL-DRAIN® boards to secure top fabric overhang and prevent soil penetration into the drainage channels.
4. Adjacent INSUL-DRAIN® boards are installed by engaging the tongue and groove edge to ensure a solid fit between boards.



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It is suggested that a bead of waterproof sealant be applied in the edge groove area in order to retard water penetration to the foundation wall. Additional INSUL-DRAIN® boards should be installed in a similar fashion. The remaining fabric overhang on the tongue side should be overlapped onto the adjacent board and secured with a bead of compatible adhesive.

- INSUL-DRAIN® boards can be trimmed to fit project dimensions or protrusions by scoring with a utility knife or cut with a handsaw. It is recommended that all length cutting take place on the bottom of the board.
- At wall corners where two INSUL-DRAIN® boards intersect, one board should be trimmed flush with the wall and the second board trimmed to overhang the wall, by the thickness of the product, to produce a continuous thermal envelope. A bead of waterproof sealant should be applied vertically where the boards join each other. The fabric overhang should then be attached to the surface of the adjacent board with compatible adhesive.
- Additional tiers of INSUL-DRAIN® boards should be installed the same as the first tier. Be certain to secure all fabric overhangs to adjacent boards with compatible adhesive.

### Typical Physical Properties<sup>1</sup>

FOAMULAR® INSUL-DRAIN® Extruded Polystyrene Insulation Board

Property	Test Method <sup>2</sup>	Value
<b>Thermal Resistance</b> <sup>3</sup> , R-Value (180 day) minimum, hr•ft <sup>2</sup> •°F/Btu (RSI, °C•m <sup>2</sup> /W)		
@ 75°F (24°C) mean temperature	ASTM C 518	
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)
<b>Compressive Strength</b> <sup>4</sup> , minimum psi (kPa)	ASTM D 1621	25 (172)
<b>Drainage Capacity</b> <sup>5</sup> , ASTM @ 500 psf, gal/min/ft	ASTM D 4716	12.0
<b>Water Absorption</b> <sup>6</sup> , maximum % by volume	ASTM C 272	0.10
<b>Water Vapor Permeance</b> <sup>7</sup> , maximum perm (ng/Pa•s•m <sup>2</sup> )	ASTM E 96	1.5 (86)
<b>Dimensional Stability</b> , maximum % linear change	ASTM D 2126	2.0
<b>Flame Spread</b> <sup>8,9</sup>	ASTM E 84	5
<b>Smoke Developed</b> <sup>8,9,10</sup>	ASTM E 84	45-175
<b>Oxygen Index</b> <sup>8</sup> , minimum % by volume	ASTM D 2863	24
<b>Service Temperature</b> , maximum °F (°C)	—	165 (74)
<b>Linear Coefficient of Thermal Expansion</b> , in/in/°F (m/m/°C)	ASTM E 228	3.5 × 10 <sup>-5</sup> (6.3 × 10 <sup>-5</sup> )

- Properties shown are representative values for 1" thick core material, unless otherwise specified.
- Modified as required to meet ASTM C 578
- 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 C 578) 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.
- 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.
- Data from Underwriters Laboratories Inc.® classified. See Classification Certificate U-197.
- ASTM E 84 is thickness-dependent, therefore a range of values is given.

8. 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® board and the foundation wall. As an alternative, in conjunction with

partial backfilling, compatible construction adhesives can be used to temporarily secure INSUL-DRAIN® boards. Beads or spots of compatible adhesive can be dabbed to the backside of INSUL-DRAIN® board and then pressed firmly in place against the wall.

9. INSUL-DRAIN® board 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



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#### Product and Packaging Data

FOAMULAR® INSUL-DRAIN® Extruded Polystyrene Insulation Board

Material					Packaging				
Extruded polystyrene closed-cell foam panel with fabricated drainage channels and a non-woven filtration fabric overlapping the board on three sides.					Shipped in poly-wrapped units with individually wrapped or banded bundles.				
Thickness (in)	Product Dimensions Thickness (in) x Width (in) x Length (in)		Pallet (Unit) Dimensions (typical) Width (ft) x Length (ft) x Height (ft)	Square feet per Pallet	Board feet 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	
1½	1.5 x 48 x 96		4 x 8 x 8	2,048	3,072	8	8	64	Tongue & Groove
2¼	2.25 x 48 x 96		4 x 8 x 8	1,344	3,024	7	6	42	

1. 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.

of the INSUL-DRAIN® board to the sill plate. The exposed FOAMULAR® insulation should be covered with an appropriate protective coating.

#### Technical Information

This product is combustible. A protective barrier or thermal barrier is required as specified in the appropriate building code. For additional information, consult MSDS or 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® insulation 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.

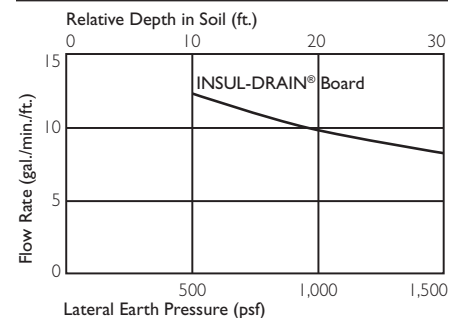
#### Standards, Codes Compliance

- Meets ASTM C 578 Type IV
- Meets California Quality Standards and HUD UM #71a

#### Certifications and Sustainable Features of FOAMULAR® XPS Insulation

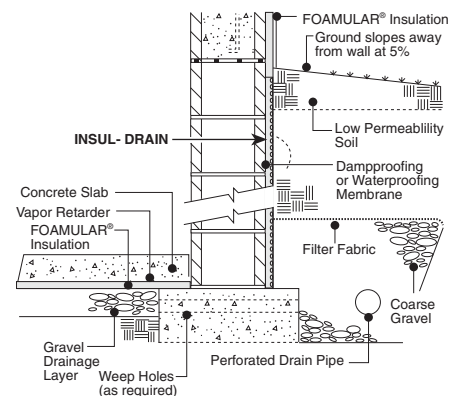
- FOAMULAR® XPS insulation is reusable
- FOAMULAR® XPS insulation is made with a zero ozone depletion formula
- Certified by SCS Global Services to contain a minimum of 20% recycled content
- Certified to meet indoor air quality standards under the stringent GREENGUARD Indoor Air Quality Certification Program, and the GREENGUARD Gold Certification
- Qualified as an ENERGY STAR® product, under the U.S. Environmental Protection Agency and the U.S. Department of Energy
- Approved under the Home Innovation Research Labs NGBS Green Certification Program

#### INSUL-DRAIN® Flow Rate Testing<sup>1</sup>



1. Testing performed by Westinghouse Environmental and Geotechnical Services, Inc. according to ASTM Test Method D 4716 Standard Test Method for Constant Head Hydraulic Transmissivity (In-Plan Flow) of Geotextiles and Geotextile Related Products. The time duration of the test was 300 hours.

#### INSUL-DRAIN® System Installed on Concrete Masonry Wall





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- Utilizing FOAMULAR® XPS insulation can help achieve green building certifications including the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) certification
- FOAMULAR® XPS insulation may qualify for The Buy American provision of the American Recovery and Reinvestment Act (ARRA)

### Architectural Notes

#### Waterproofing/Dampproofing

INSUL-DRAIN® board should be considered a drainage enhancement mechanism. Owens Corning recommends the application of a waterproofing/dampproofing membrane at the foundation wall in addition to INSUL-DRAIN® board. The installation of a properly designed footing drainage system is also recommended.

### Compatibility

Contact membrane manufacturers for specific information regarding compatibility with INSUL-DRAIN® board. INSUL-DRAIN® board should not be used in conjunction with coal-tar based membranes. Contact Owens Corning for recommendations.

### 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.sustainability.owenscorning.com](http://www.sustainability.owenscorning.com).

### Warranty

FOAMULAR® XPS insulation limited lifetime warranty maintains 90% of its R-value for the lifetime of the building

and covers all ASTM C 578 properties. See actual warranty for complete details, limitations and requirements at [www.foamular.com](http://www.foamular.com) or [www.owenscorningcommercial.com](http://www.owenscorningcommercial.com).

### Notes

- R means the resistance to heat flow; the higher the R-value, the greater the insulating power.
- See actual warranty for complete details, limitations and requirements.

All products described here may not be available in all geographic markets. Consult your local sales office representative for more information.

For more information on the Owens Corning family of building products, contact your Owens Corning dealer, call 1-800-GET-PINK®, or access our web sites: [www.foamular.com](http://www.foamular.com) and [www.owenscorning.com](http://www.owenscorning.com).

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