



# FOAMULAR® 400/600/1000 Extruded Polystyrene (XPS) Rigid Foam Insulation

## Product Data Sheet



### Energy-Saving<sup>1</sup>, Moisture-Resistant XPS Insulation

#### High Compressive Strength

FOAMULAR® 400 XPS Insulation: ASTM C578 Type VI, 40 psi minimum

FOAMULAR® 600 XPS Insulation: ASTM C578 Type VII, 60 psi minimum

FOAMULAR® 1000 XPS Insulation: ASTM C578 Type V, 100 psi minimum

### Description

Owens Corning™ FOAMULAR® 400, 600 and 1000 are high strength Extruded Polystyrene (XPS) Insulation products designed for use in engineered applications requiring additional load-bearing capability such as under slab, concrete floors, foundations, roadways and rail beds, plaza and parking decks and cold storage installations.

The unique closed-cell structure of FOAMULAR® XPS Insulation helps to make it highly resistant to moisture, retaining its excellent

R-value year after year—even following prolonged exposure to moisture and freeze/thaw cycling.

### Key Features

- Designed for use in high load bearing applications. High compressive strength helps resist damage from heavy loads. Available in 40, 60 and 100 psi compressive strengths.
- Excellent long-term stable insulating performance with an R-value<sup>2</sup> of R-5 per inch.
- Exceptional moisture resistance, long-term durability.
- Limited lifetime warranty<sup>3</sup>—maintains 90% of R-value and covers all ASTM C578 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 Applications

- Owens Corning FOAMULAR® 400, 600, and 1000 Extruded Polystyrene (XPS) Rigid Foam Insulation are great for under slab, cold storage installations, concrete floors, foundations, plaza and parking decks, roofing, roadways and rail beds, permafrost protection and other high load-bearing applications
- Designed for use in high load bearing applications. High compressive strength resists damage from heavy loads. Available in 40, 60, and 100 psi compressive strengths

### 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® XPS Insulation is a non-structural material and must be installed on framing which is independently braced and structurally adequate to meet required construction and service loading conditions.

FOAMULAR® XPS 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

<sup>1</sup> Savings vary. Find out why in the seller's fact sheet on R-values. Higher R-values mean greater insulating power.

<sup>2</sup> R means the resistance to heat flow; the higher the R-value, the greater the insulating power.

<sup>3</sup> See actual warranty for complete details, limitations and requirements.



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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.

FOAMULAR® Extruded Polystyrene Insulation has a maximum service temperature of 165°F. Taking simple precautions during construction can minimize the potential for heat related damage. Install only as much FOAMULAR® XPS Insulation as can be covered in the same day. For horizontal applications, always turn the print side down so the black print does not show to the sun which may at times act as a solar collector, raising the temperature of the foam under the print to an unacceptable level. Provide a final finish covering or temporary white opaque covering to avoid possible damage when dark (non-white) surfaces are used over FOAMULAR® XPS Insulation. Do not cover FOAMULAR® XPS Insulation either stored (factory wrapped or unwrapped), or partially installed, with dark colored (non-white), or clear (non-opaque) coverings and leave it exposed to the sun. Examples of such coverings include but are not limited to filter fabrics, membranes, temporary tarps, clear polyethylene, etc. If improperly covered, and exposed to the right combination of sun, time and temperature, FOAMULAR® XPS Insulation deformation damage may occur rapidly. See

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

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Property	Test Method <sup>2</sup>	FOAMULAR® Insulation		
		400	600	1000
<b>Thermal Resistance<sup>3</sup>, R-Value (180 day) minimum,</b> hr•ft <sup>2</sup> •°F/Btu (RSI, °C•m <sup>2</sup> /W) @ 75°F (24°C) mean temperature	ASTM C518			
1" Thickness		5.0 (0.88)	5.0 (0.88)	—
1½" Thickness		—	7.5 (1.32)	7.5 (1.32)
2" Thickness		10.0 (1.76)	10.0 (1.76)	10.0 (1.76)
3" Thickness		15.0 (2.64)	15.0 (2.64)	15.0 (2.64)
@ 40°F (4.4°C) mean temperature				
1" Thickness		5.4 (0.95)	5.4 (0.95)	—
1½" Thickness		—	8.1 (1.43)	8.1 (1.43)
2" Thickness		10.8 (1.90)	10.8 (1.90)	10.8 (1.90)
3" Thickness		16.2 (2.85)	16.2 (2.85)	16.2 (2.85)
<b>Long Term Thermal Resistance, LTTR-Value<sup>3</sup>, minimum</b> hr•ft <sup>2</sup> •°F/Btu (RSI, °C•m <sup>2</sup> /W) @ 75°F (24°C) mean temperature	CAN/ULC S770-03			
1" Thickness		5.0 (0.88)	5.0 (0.88)	—
1½" Thickness		—	7.8 (1.37)	7.8 (1.37)
2" Thickness		10.6 (1.87)	10.6 (1.87)	10.6 (1.87)
3" Thickness		16.2 (2.85)	16.2 (2.85)	16.2 (2.85)
<b>Compressive Strength<sup>4</sup>, minimum psi (kPa)</b>	ASTM D1621	40 (276)	60 (414)	100 (689)
<b>Flexural Strength<sup>5</sup>, minimum psi (kPa)</b>	ASTM C203	115 (793)	140 (965)	140 (965)
<b>Water Absorption<sup>6</sup>, maximum % by volume</b>	ASTM C272	0.05	0.05	0.05
<b>Water Vapor Permeance<sup>7</sup>, maximum perm (ng/Pa•s•m<sup>2</sup>)</b>	ASTM E96	1.1 (63)	1.1 (63)	1.1 (63)
<b>Dimensional Stability, maximum % linear change</b>	ASTM D2126	2.0	2.0	2.0
<b>Flame Spread<sup>8,9</sup></b>	ASTM E84	5	5	5
<b>Smoke Developed<sup>8,9,10</sup></b>	ASTM E84	45-175	45-175	45-175
<b>Oxygen Index<sup>8</sup>, minimum % by volume</b>	ASTM D2863	24	24	24
<b>Service Temperature, maximum °F (°C)</b>	—	165 (74)	165 (74)	165 (74)
<b>Linear Coefficient of Thermal Expansion,</b> in/in/°F (m/m/°C)	ASTM E228	← 3.5 × 10 <sup>-5</sup> (6.3 × 10 <sup>-5</sup> ) →		

- Properties shown are representative values for 1" thick material, unless otherwise specified.
- Modified as required to meet ASTM C578.
- 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.
- Value at yield or 5%, whichever occurs first.
- 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 E84 is thickness-dependent, therefore a range of values is given.

Owens Corning publication number 10015704, "Heat Build Up Due to Solar Exposure" for more information.

### Standards, Codes Compliance

- Meets ASTM C578 Type VI (FOAMULAR® 400 XPS Insulation), Type VII (FOAMULAR® 600 XPS Insulation), or Type V (FOAMULAR® 1000 XPS Insulation).



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### Product and Packaging Data

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Material		Packaging							
Extruded polystyrene closed-cell foam panel with continuous skin on face and back surface.		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	
<b>FOAMULAR® 400 XPS Insulation</b>									
1	1 x 24 x 96	4 x 8 x 8	3,072	3,072	8	24	192		
2	2 x 24 x 96	4 x 8 x 8	1,536	3,072	8	12	96	Square Edge	
	2 x 48 x 96	4 x 8 x 8	1,536	3,072	8	6	48		
3	3 x 24 x 96	4 x 8 x 8	1,024	3,072	8	8	64	Square Edge	
	3 x 48 x 96	4 x 8 x 8	1,024	3,072	8	4	32		
<b>FOAMULAR® 600 XPS Insulation</b>									
1	1 x 24 x 96	4 x 8 x 8	3,072	3,072	8	24	192		
1½	1.5 x 24 x 96	4 x 8 x 8	2,048	3,072	8	16	128		
2	2 x 24 x 96	4 x 8 x 8	1,536	3,072	8	12	96	Square Edge	
	2 x 48 x 96	4 x 8 x 8	1,536	3,072	8	6	48		
3	3 x 24 x 96	4 x 8 x 8	1,024	3,072	8	8	64	Square Edge	
	3 x 48 x 96	4 x 8 x 8	1,024	3,072	8	4	32		
<b>FOAMULAR® 1000 XPS Insulation</b>									
1.5	1.5 x 24 x 96 (Half unit)	4 x 8 x 4	1,024	1,536	4	16	64	Square Edge	
2	2 x 24 x 96 (Half unit)	4 x 8 x 4	768	1,536	4	12	48		

1. Product availability and lead times vary by region and by product. Consult your local Owens Corning sales representative for availability and lead times.

- UL Classified. A copy of UL Classification Certificate U-197 is available at [www.owenscorning.com](http://www.owenscorning.com)
- See UL ER8811-01 at UL.com
- See [www.foamular.com](http://www.foamular.com) for details on listings, constructions and assemblies
- Meets California Quality Standards and HUD UM #71a
- Compliance verification by RADCO (AA-650)



### 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

- 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

### 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 <http://sustainability.owenscorning.com>.



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### Warranty

FOAMULAR® XPS Insulation limited lifetime warranty maintains 90% of its R-value for the lifetime of the building and covers all ASTM C578 properties. See actual warranty for complete details, limitations and requirements at [www.owenscorning.com](http://www.owenscorning.com).

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 [www.owenscorning.com](http://www.owenscorning.com).

### Disclaimer of Liability

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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).

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).

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



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