



1. Product Name

- FOAMULAR® 404 Rigid Foam Insulation
- FOAMULAR® 604 Rigid Foam Insulation
- FOAMULAR® THERMAPINK® Rigid Foam Insulation
- FOAMULAR® DURAPINK® Rigid Foam Insulation
- FOAMULAR® DURAPINK® PLUS Rigid Foam Insulation
- FOAMULAR® Tapered Roofing Systems

2. Manufacturer

Owens Corning World Headquarters
One Owens Corning Parkway
Toledo, OH 43659
(800) 438-7465
(800) GET-PINK
Fax: (419) 248-8052
www.owenscorning.com

3. Product Description

BASIC USE

THERMAPINK roof and deck insulation offers exceptional moisture resistance and superior insulation in new construction roofing systems. It has superior long-term thermal properties compared to polyisocyanurate foam products, and also provides efficiencies during installation. It can be placed over a concrete deck or directly on a nonfire resistance rated steel roof deck without the need for a thermal barrier board. For additional details, see Underwriters Laboratories, Inc., (UL) Roof Deck Construction #457.

Extruded polystyrene is the only type of insulation recommended for PRMA applications where the insulation is placed directly over the membrane. Owens Corning offers 4 specific types of FOAMULAR insulation for this use:

- FOAMULAR 404
- FOAMULAR 604
- FOAMULAR 404 RB - Featuring drainage channels
- FOAMULAR 604 RB - Featuring drainage channels

The compressive strength of FOAMULAR insulation provides assurance of long-term roofing integrity. At a minimum of 40 psi (276 kPa) compressive strength, FOAMULAR 404 insulation

meets the needs of many PRMA applications. For even greater strength, specify the 60 psi (413 kPa) compressive strength of FOAMULAR 604 insulation. Both products feature rain channels on all 4 bottom edges to promote drainage.

FOAMULAR 404 and 604 insulation products are designed for Protected Roof Membrane Assemblies (PRMA). They protect the roof membrane from damage, thermal stress and UV exposure. Designed for use with pavers, FOAMULAR 404 RB and 604 RB insulation products support them without the need for pedestals, and provide excellent drainage.

These products feature:

- High compressive strength: 40 or 60 psi (276 or 413 kPa)
- Outstanding moisture resistance for long-term thermal performance
- High R-value of 5 per inch (5 per 25.4 mm) of product thickness
- Tough, lightweight panels that handle, hoist and install quickly and easily
- 15 year Owens Corning thermal warranty combined with membrane manufacturer's warranties for ensured performance

Owens Corning makes tapered roof design easy through its Taper Control Center and will help correctly specify a tapered roofing system at no charge. For the specifier, Owens Corning's all-inclusive design service provides everything needed for the project. This includes layout and budgeting assistance, and value engineering to help choose the best design to fit the project need. Single source responsibility means no third party involvement. The company ships the order with markings that tell installers where every single piece fits on the roof.

DURAPINK and DURAPINK PLUS roofing recovery boards provide new economy and durability for worn-out commercial roofs, saving the trouble and expense of removing the old roof, adding insulation and moisture protection to the new one. Roofing recovery is an increasingly popular means of reroofing for aged and trouble plagued roofs. The decision to recover a roof is based on 2 compelling reasons—the cost involved in tearing off the old roof and the cost of disposing of the discarded debris—both of which can be significant. When recovering, both costs are avoided and local landfill space is saved. Not all roofs are suitable for recover. See SPRI guidelines for details.

To meet the needs of roof recovery applications, Owens Corning developed DURAPINK and DURAPINK PLUS roofing recovery boards, extruded polystyrene roofing products for use with single ply membranes. DURAPINK and DURAPINK PLUS roofing recovery boards work without overlaid protection, ballast or pavers. Important characteristics of DURAPINK recovery board include:

- Closed cell structure means DURAPINK and DURAPINK PLUS roofing recovery boards resist damaging effects of moisture.
- DURAPINK is recommended for use directly under black EPDM or other dark-colored single ply membranes, without need for overlayment board protection.
- DURAPINK PLUS is for use with PVC membranes.
- Lightweight, yet durable, for ease of hoisting and installation.
- Competitively priced with other recovery boards.
- Available in 1/2", 3/4" and 1" (12.7, 19.1 and 25.4 mm) thickness; 48" x 96" (1219 x 2438 mm) boards.
- An approved component in UL Class A, B and C single ply recovery applications.
- Retains 100% of its compressive strength even after soaking.
- Will stand up better to the abuse of roof traffic.

COMPOSITION & MATERIALS

Owens Corning FOAMULAR board is made with the patented HYDROVAC™ manufacturing process, which gives it an impermeable skin on both sides. This skin and the closed cell structure of the board are the reasons why it retains both its ability to insulate and its compressive strength and integrity in use.

Because of its practically impermeable nature, FOAMULAR extruded polystyrene insulation is unaffected by moisture. In contrast, polyisocyanurate insulation absorbs at least 10 times as much moisture. In addition, polyisocyanurate foam products can lose a significant portion of their R-value over time. The thermal resistance ratio (% TRR) of polyisocyanurate foam degrades to less than the 80% figure that is found acceptable by the Corps of Engineers Cold Regions Research Lab (CRRRL), and it does this in less than 100 days. FOAMULAR insulation maintains a level above 80% even after 1000 days.

SIZES

See product data sheet for complete size data.

COLORS

FOAMULAR can be recognized by its characteristic pink color.

LIMITATIONS

- FOAMULAR is practical for all buildings having normal temperature conditions but should not be used in contact with chimneys, heater vents, steam pipes or other surfaces where temperatures exceed 150 degrees F (65 degrees C). It is not recommended for applications where sustained temperatures exceed 165 degrees F (74 degrees C).
- All constructions should be evaluated by a qualified design professional for the necessity of providing vapor retarders to avoid condensation and subsequent damage to the structure. See current ASHRAE *Handbook of Fundamentals* for more information.
- Provisions should be made to protect the insulation from excessive exposure to direct sunlight by covering the insulation as soon as possible.
- Some plastic or oil based adhesives and many solvent laden mastics are not compatible with polystyrene based rigid foam insulation.
- Roofs exposed to chemical discharge need special consideration. Contact Owens Corning for information.
- Thermal barriers are not required over concrete roof decks, wood decks or when the original roof is left in place.
- For specific details about using THERMAPINK insulation over steel decks without a thermal barrier, consult UL Roof Deck Construction #457 or a local Owens Corning representative. Note that thermal barrier boards or cover boards may still be needed when designing hourly fire resistance or Class A, B or C rated roofing systems. Consult applicable systems directories from Underwriters Laboratories or the Factory Mutual System.
- Some roof membranes, such as PVC, require a slip sheet, such as a glass fiber mat or barrier board, over the insulation.
- A mechanically attached or fully adhered overlayment of wood fiber or perlite board is required over FOAMULAR roof insulation for BUR and torch applied modified bitumen.

4. Technical Data

APPLICABLE STANDARDS

- ASTM C203 Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation

- ASTM C272 Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions
- ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- ASTM D1621 Standard Test Method for Compressive Properties of Rigid Cellular Plastics
- ASTM D2126 Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
- ASTM D2863 Standard Test Method for Measuring Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index)
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials

APPROVALS

ICBO Evaluation Report No. 3628

SBCCI PST and ESI Report No. 9727

BOCA Research Report No. 96-24

Meets HUD/FHA Use of Materials Bulletin No. 71 Underwriters Laboratories, Inc., Classification Certificate U-197

ENVIRONMENTAL CONSIDERATIONS

Conserving energy through effective insulation lowers fuel consumption and resultant operating cost.

PHYSICAL/CHEMICAL PROPERTIES

Test reports and additional information are available upon request.

- Flexural strength, 60 - 115 psi (413 - 792 kPa) min
- Water absorption, 0.07 - 0.10 % by volume max
- Thermal conductivity, k-Value of 0.20 at 75 degrees F (24 degrees C)
- Thermal conductivity, k-Value of 0.18 at 40 degrees F (4 degrees C)
- Compressive strength, 25 - 60 psi (172 - 413 kPa) min
- Dimensional stability, 2.0 % linear change max.
- Oxygen index, 24 min
- Flamespread, 5
- Smoke developed, 45 - 175
- Water vapor permeance, 1.1 perm max

5. Installation

PREPARATORY WORK

Handle and store product according to Owens Corning recommendations. FOAMULAR insula-

tion should be stored off the ground, protected from direct sunlight with a light colored polyethylene film and ventilated to prevent excessive temperature buildup. See Owens Corning specifications for fastening recommendations.

METHODS

Installation recommendations vary depending on product, application and specific design requirements. Complete installation recommendations are available from Owens Corning.

PRECAUTIONS

Caution: Combustible.

FOAMULAR will ignite if exposed to fire of sufficient heat and intensity, although it does contain a flame retardant additive to inhibit ignition from small fire sources. During shipping, storage, installation and use, this product should not be exposed to open flame or other ignition sources.

Important: Apply only as much FOAMULAR roof insulation as can be covered by roofing materials (roof membrane and ballast) in the same day of installation to prevent its discoloration and damage from heat buildup by excessive exposure to sunlight. Owens Corning requires that the roofing membrane and the FOAMULAR tapered insulation be ballasted immediately after placement of the membrane to prevent unnecessary movement of the insulation and the membrane. For more details, contact a local Owens Corning sales representative.

BUILDING CODES

Current data on building code requirements and product compliance may be obtained from Owens Corning technical support specialists. Installation must comply with the requirements of all applicable local, state and national code jurisdictions.

6. Availability & Cost

AVAILABILITY

FOAMULAR products are available through a network of Owens Corning distributors throughout the country. Contact manufacturer for more information. Note: All products and sizes may not be available in all markets. For information about nonstandard products, consult a local sales representative.

COST

Budget installed cost information may be obtained from a local Owens Corning distributor or from the manufacturer.

7. Warranty

It is the responsibility of the contractor to install FOAMULAR in accordance with Owens Corning's published recommendations. The presence of an Owens Corning representative at the jobsite does not relieve the contractor from the responsibility to follow these instructions. Owens Corning is not responsible for any liability resulting from a failure to follow these instructions. The manufacturer offers a warranty on retention of R-value over time. The manufacturer's liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to the manufacturer within 30 days from the date it was, or reasonably should have been, discovered. Further information on warranty conditions, duration and remedies may be obtained from Owens Corning.

8. Maintenance

These products are maintenance-free when installed properly according to the manufacturer's published recommendations.

9. Technical Services

Owens Corning supplies preliminary design assistance, aids in the preparation of submittal packages in both new and retrofit applications and offers a value engineering option that lets the designer choose the most effective and efficient tapered roof from among alternate designs. Easy to read, computer generated shop drawings are provided.

To contact the Taper Control Center, call 1 (800) 875-1594.

10. Filing Systems

- First Source for Products
- MANU-SPEC®
- Sweet's Catalog Files
- Additional product information is available from the manufacturer upon request.

**FOAMULAR® Extruded Polystyrene Insulation
Typical Physical Properties⁽¹⁾**

Property	Product Values	
	DURAPINK	THERMAPINK
R Value ^{(1) (3)}	5.0	18 5.0
Thermal Conductivity - "k" (Btu x in/ft ² x hr x °F, max) ⁽³⁾ @ 75°F mean temperature @ 40°F mean temperature	0.20 0.18	0.20 0.18
Compressive Strength minimum value (lb/in ²) ⁽⁴⁾	25.0	18.0
Flexural Strength (lb/in ² , min.) ⁽⁵⁾	75	60
Water by Absorption (% by volume, max.) ⁽⁶⁾	0.10	0.10
Water Vapor Permeance (perm, max.) ⁽⁷⁾	1.10	1.10
Water Affinity	hydrophobic	hydrophobic
Water Capillarity	none	none
Dimensional Stability (% linear change, max.) ⁽⁸⁾	2.0	2.0
Linear Coefficient of Thermal Expansion (m/in/°F, max.)	2.7 x 10 ⁻⁵	2.7 x 10 ⁻⁵
Flame Spread ⁽⁹⁾⁽¹⁰⁾	5	5
Smoke Developed ⁽⁹⁾⁽¹⁰⁾⁽¹¹⁾	45-175	45-175
Oxygen Index, min ⁽⁹⁾	24	24
Type Classifications	Type IV	Type X

(1) Properties shown are representative values for 1" thick material based upon most recent product quality audit data. (2) Modified as required to meet ASTM C 578. (3) Thermal resistance (R) - (hr x ft² x °F/Btu) - of a 1" thickness 5.0 (at 75°F mean temperature), 5.4 (at 40 °F mean temperature). (4) Value at yield or 10%, whichever occurs first. (5) Value at yield or 5%, whichever occurs first. (6) Data ranges from 0.00 to value shown, due to the level of precision of the test method. (7) Actual water vapor permeance data decreases as thickness increases. (8) Data ranges from 0.0 to value shown. (9) These laboratory tests are not intended to describe the hazard presented by this material under actual fire conditions. (10) Data from Underwriters Laboratories, Inc. Classified. See Classification Certificate U-197. (11) ASTM E 84 is thickness-dependent therefore a range of values is given.