



# FOAMULAR® & FOAMULAR® NGX™ 404RB/604RB

## EXTRUDED POLYSTYRENE (XPS) RIGID FOAM INSULATION

FOAMULAR® & FOAMULAR® NGX™ 404RB/604RB Extruded Polystyrene (XPS) Rigid Foam Insulations are specially designed for use in Protected Roof Membrane Assemblies (PRMA), where the insulation is placed over the roof membrane system and below pavers with no pedestals or other vapor diffusion closed ballast. The compressive strength of FOAMULAR® & FOAMULAR® NGX™ XPS Insulation provides the integrity needed for long-term roof performance.

FOAMULAR® NGX™ 404RB/604RB contains the additional benefit of being manufactured with a blowing agent formulation that delivers a 90% reduction to Global Warming Potential (100 year), including the complete elimination of HFC 134a.<sup>1</sup>

1 Compared to FOAMULAR® 404RB/604RB blowing agent formulation.

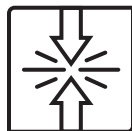
### Features



**SUPERIOR  
MOISTURE  
RESISTANCE**



**DRAINAGE**



**COMPRESSIVE  
STRENGTH**

### Standards, Codes Compliance

- Meets ASTM C578 Type VI (404RB) and Type VII (604RB)
- UL Classification Certificate U-19712
- Code Evaluation Report UL ER8811-0112
- ASTM E119 Fire Resistance Rated Wall Assemblies<sup>2</sup>
- Meets California Quality Standards; HUD UM #71a
- Compliance verification by RADCO (AA-650)

2 Visit [www.owenscorning.com](http://www.owenscorning.com) for more details.

### Applications

Designed for use directly below pavers with no pedestals or other vapor diffusion closed ballast/overburden, FOAMULAR® & FOAMULAR® NGX™ 404RB/604RB XPS Rigid Foam Insulation products provide compressive strength while maintaining the drainage necessary to prevent moisture accumulation at the foam-paver interface.

This solution may allow for an overall reduction in assembly thickness. See Owens Corning publication number 10021616, "PRMA and Vegetative Roof Assemblies Technical Bulletin" for more information.

### Physical Properties<sup>3</sup>

| PROPERTY                                                                                                                                             | TEST METHOD <sup>4</sup> | 404 RB                                              | 604 RB      |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------|-------------|
| Thermal Resistance, <sup>5</sup> R-Value (180 day) minimum, hr·ft <sup>2</sup> ·°F/Btu (RSI, °C·m <sup>2</sup> /W)<br>@ 75°F (24°C) mean temperature | ASTM C518                | 9.5 (1.67)                                          | 9.5 (1.67)  |
| @ 40°F (4.4°C) mean temperature                                                                                                                      |                          | 10.3 (1.81)                                         | 10.3 (1.81) |
| @ 25°F (-3.9°C) mean temperature                                                                                                                     |                          | 10.6 (1.87)                                         | 10.6 (1.87) |
| Compressive Strength, <sup>6</sup> minimum psi (kPa)                                                                                                 | ASTM D1621               | 40 (276)                                            | 60 (414)    |
| Flexural Strength, <sup>7</sup> minimum psi (kPa)                                                                                                    | ASTM C203                | 90 (621)                                            | 120 (828)   |
| Water Absorption, <sup>8</sup> maximum % by volume                                                                                                   | ASTM C272                | 0.3                                                 | 0.3         |
| Water Vapor Permeance, <sup>9</sup> maximum perm (ng/Pa·s·m <sup>2</sup> )                                                                           | ASTM E96                 | 1.1 (63)                                            | 1.1 (63)    |
| Dimensional Stability, maximum % linear change                                                                                                       | ASTM D2126               | 2.0                                                 | 2.0         |
| Flame Spread <sup>10, 11</sup>                                                                                                                       | ASTM E84                 | 10                                                  | 10          |
| Smoke Developed <sup>10, 11, 12</sup>                                                                                                                | ASTM E84                 | 175                                                 | 175         |
| Oxygen Index, <sup>10</sup> minimum % by volume                                                                                                      | ASTM D2863               | 24                                                  | 24          |
| Service Temperature, maximum °F (°C)                                                                                                                 | —                        | 165 (74)                                            | 165 (74)    |
| Linear Coefficient of Thermal Expansion, in/in/°F (m/m/°C)                                                                                           | ASTM E228                | 3.5 x 10 <sup>-5</sup><br>(6.3 x 10 <sup>-5</sup> ) |             |

3 Properties shown are representative values for core 2" thick material, unless otherwise specified.

4 Modified as required to meet ASTM C578.

5 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.

6 Values at yield or 10% deflection, whichever occurs first.

7 Value at yield or 5%, whichever occurs first.

8 Data ranges from 0.00 to value shown due to the level of precision of the test method.

9 Water vapor permeance decreases as thickness increases.

10 These laboratory tests are not intended to describe the hazards presented by this material under actual fire conditions.

11 Data from Underwriters Laboratories Inc.® classified. See Classification Certificate U-197.

12 ASTM E84 is thickness-dependent, therefore a range of values is given.

## Technical Information

- FOAMULAR® & FOAMULAR® NGX™ XPS Insulation are non-structural materials and must be installed on framing which is independently braced and structurally adequate to meet required construction and service loading conditions.
- FOAMULAR® & FOAMULAR® NGX™ 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 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® & FOAMULAR® NGX™ XPS Insulation have 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® & FOAMULAR® NGX™ 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 (nonwhite) surfaces are used over FOAMULAR® & FOAMULAR® NGX™ Insulation. Do not cover FOAMULAR® or FOAMULAR® NGX™ 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. If improperly covered, and exposed to the right combination of sun, time and temperature, FOAMULAR® & FOAMULAR® NGX™ Insulation deformation damage may occur rapidly. See Owens Corning publication number 10015704, “Heat Build Up Due to Solar Exposure” for more information.
- This product is combustible. A protective barrier or thermal barrier is required as specified in the appropriate building code.
- All construction should be evaluated for the necessity to provide vapor retarders. See current “ASHRAE Handbook of Fundamentals.”

## 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
- 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

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 year) 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 year) 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>.

## Product and Packaging Data

| MATERIAL                                                                    |                                                                |                                                                                | PACKAGING                                                                     |                           |                          |                         |                         |                                                                                           |
|-----------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------|--------------------------|-------------------------|-------------------------|-------------------------------------------------------------------------------------------|
| Extruded polystyrene closed-cell foam,<br>ASTM C578 Type IV, 25 psi minimum |                                                                |                                                                                | Shipped in poly-wrapped units with individually<br>wrapped or banded bundles. |                           |                          |                         |                         |                                                                                           |
| THICKNESS<br>(IN)                                                           | PRODUCT<br>DIMENSIONS<br>THICKNESS<br>X WIDTH X<br>LENGTH (IN) | PALLET (UNIT)<br>DIMENSIONS<br>(TYPICAL)<br>WIDTH<br>X LENGTH X<br>HEIGHT (FT) | SQUARE<br>FT PER<br>PALLET                                                    | BOARD<br>FT PER<br>PALLET | BUNDLES<br>PER<br>PALLET | PIECES<br>PER<br>BUNDLE | PIECES<br>PER<br>PALLET | EDGES                                                                                     |
| FOAMULAR® & FOAMULAR® NGX™ 404RB Ribbed XPS Insulation                      |                                                                |                                                                                |                                                                               |                           |                          |                         |                         | Rain channeled<br>on all bottom<br>edges and<br>ribbed channels<br>on the top<br>surfaces |
| 2                                                                           | 2 x 24 x 96                                                    | 4 x 8 x 8                                                                      | 1,536                                                                         | 3,072                     | 8                        | 12                      | 96                      |                                                                                           |
| FOAMULAR® & FOAMULAR® NGX™ 604RB Ribbed XPS Insulation                      |                                                                |                                                                                |                                                                               |                           |                          |                         |                         |                                                                                           |
| 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                      |                                                                                           |
| 3                                                                           | 3 x 24 x 96                                                    | 4 x 8 x 8                                                                      | 1,024                                                                         | 3,072                     | 8                        | 8                       | 64                      |                                                                                           |

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

## Maximum Design Load Recommendation, PSF

| FOAMULAR® & FOAMULAR® NGX™<br>XPS INSULATION PRODUCT | DEAD LOAD | LIVE LOAD |
|------------------------------------------------------|-----------|-----------|
| 404 RB                                               | 1,110     | 660       |
| 604 RB                                               | 1,660     | 1,000     |

## 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.

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