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SUBMITTAL TRANSMITTAL

October 18, 2011
WCM Submittal No: 07200-002

PROJECT: Harold Thompson Regional WRF
 Birdsell Rd.
 Fountain, CO 80817
 Job No. 2908

ENGINEER: GMS, Inc.
 611 No. Weber St., #300
 Colorado Springs, CO 80903
 719-475-2935 Roger Sams

OWNER: Lower Fountain Metropolitan
 Sewage Disposal District
 901 S. Santa Fe Ave.
 Fountain, CO 80817
 719-382-5303 James Heckman

CONTRACTOR: Weaver Construction Management
 3679 S Huron Street, Suite 404
 Englewood, CO 80110
 303-789-4111 John Jacob

SUBJECT: Equipment & Maintenance Foundation Rigid Insulation Per ESI No. 11, Owens Corning
 Foamular 250 2" thick, 48" X 96" Sheets, Loctite PL 200 Foamboard Adhesive

SPEC SECTION: 07200 - Insulation

PREVIOUS SUBMISSION DATES: n/a

DEVIATIONS FROM SPEC: ___ YES X NO

CONTRACTOR'S STAMP: This submittal has been reviewed by WCM and approved with respect to the means, methods, techniques, & safety precautions & programs incidental thereto. Weaver General Construction also warrants that this submittal complies with contracted documents and comprises on deviations thereto.

Contractor's Stamp:

Date: 10/18/11

Reviewed by: H.C. Myers
 (X) Reviewed Without Comments
 () Reviewed With Comments

Engineer's Stamp:

**ENGINEER'S
 COMMENTS:**



INNOVATIONS FOR LIVING™

FOAMULAR® 250 Rigid Foam Insulation

Product Data Sheet



Owens Corning FOAMULAR 250 extruded polystyrene insulation is ideal for wall furring, perimeter/ foundation, cavity wall, crawlspace, pre-cast concrete, under slab, roofing systems, sheathing and other applications. Owens Corning's patented Hydrovac® process technology make the unique closed-cell structure of FOAMULAR insulation highly resistant to moisture, retaining its long term R-value* year after year – even following prolonged exposure to water leakage, condensation, ground-water and freeze/thaw cycling.

Performance Benefits

- High R-value (R-5 per inch of product thickness).*
- Minimum compressive strength of 25 psi.
- Effective resistance against moisture, mildew, corrosion and rot.
- Ease of handling and installation (lightweight, tough, rigid foam panels).
- Easy to saw, cut and score
- Wide selection of sizes and thicknesses.

- Available in straight, tongue and groove, or scored square edges.

- Compliance with building codes and standards.

Product Applications

Superior insulation performance for a wide variety of building requirements.

High-performance FOAMULAR 250 works to:

- When joints are taped, provides a weather resistant barrier to enhance the longevity of the building.

- Provides insulation in a metal or wood furring system used for masonry or concrete walls.

- Performs below grade in perimeter and foundation applications, or directly beneath the concrete slab to complement the insulating sheathing envelope around the building framing.

FOAMULAR is ideal for below grade applications. Extruded polystyrene (XPS) is resistant to degradation from material common to most soils and will retain its insulating performance characteristics even after prolonged exposure to moisture.

Typical Physical Properties¹

Property	Test Method ²	Value
Thermal conductivity - "k" ³ (Btu x in/hr x ft ² x °F) @ 75°F mean temperature @ 40°F mean temperature	ASTM C 518	
		0.20
		0.18
Thermal Resistance - "R", minimum (°F x ft ² x h/btu) @ 75°F mean temperature @ 40°F mean temperature	ASTM C 518	
		5.0
		5.4
Compressive Strength, minimum (lb/in ²) ⁴	ASTM D 1621	25.0
Flexural Strength (lb/in ² min) ⁵	ASTM C 203	75
Water Absorption (% by volume max) ⁶	ASTM C 272	0.10
Water Vapor Permeance (perm max) ⁷	ASTM E 96	1.1
Water Affinity	—	hydrophobic
Water Capillarity	—	none
Dimensional Stability (% linear change max) ⁸	ASTM D 2126	2.0
Linear Coefficient of thermal expansion (in/in/°F max)	—	2.7 x 10 ⁻⁵
Flame Spread ^{9,10}	ASTM E 84	5
Smoke Developed ^{9,10,11}	ASTM E 84	45-175
Oxygen Index min ⁹	ASTM D 2863	24
Service Temperature max (°F)		165
ASTM C 578 (type)		IV

¹Properties shown are representative values for 1" thick material based upon most recent product quality audit data.

²Modified as required to meet ASTM C578.

³Thermal resistance (R) – (hr. x ft.² x °F/Btu) – of a 1" thickness at 5.0 (at 75°F mean temperature), 5.4 (at 40°F).

⁴Value at yield or 10% deflection, whichever occurs first.

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

⁶Data ranges from 0.00 to value shown due to the level of precision of the test method.

⁷Actual water vapor permeance data decreases as thickness increases.

⁸Data ranges from 0.0 to value shown.

⁹These laboratory tests are not intended to describe the hazard presented by this material under actual fire conditions.

¹⁰Data from Underwriters Laboratories, Inc®. classified. See Classification Certificate U-197.

¹¹ASTM E84 is thickness-dependent, therefore a range of values is given.

*The higher the R-value, the greater the insulating power. Ask your seller for the fact sheet on R-values.



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Technical Information

- FOAMULAR insulation is ideal for all buildings under normal temperature conditions, but should not be used in contact with chimneys, heater vents, steam pipes or other surfaces where temperatures exceed 165°F.
- All construction should be evaluated for the necessity to provide vapor retarders. See current ASHRAE Handbook of Fundamentals
- FOAMULAR insulation is a non-structural material and must be installed on framings which are independently structurally adequate to meet required construction and service loading conditions.

Standards and Codes Compliance

- Recognized by code authorities under Research Reports BOCA 96-24; ICBO 3628; SBCCI PST & ESI 9727A
- Meets HUD/FHA Use of Materials Bulletin No. 71a and ASTM C 578 Type IV
- Underwriters Laboratories, Inc.®, Classification Certificate U-197
- Thermal resistance (R-value): 5.0 at 75°F, 5.4 at 40°F mean temperature per 1" thickness (hr x ft² x °F/Btu)

Caution

This product will ignite if exposed to fire of sufficient heat and intensity. See the conditions of use section of the code evaluation reports for specific applications.

During shipping, storage, installation and use, this product should not be exposed to open flame or other ignition sources.

Note

All products described here may not be available in all geographic markets. Consult your local sales office representative for more information. FOAMULAR insulation is produced by Owens Corning's patented Hydrovac® process technology.

For more information on the Owens Corning family of home building products, contact your Owens Corning dealer, call 1-800-GET-PINK or access our Web site:
www.owenscorning.com

Product Data

Foamular Insulation Product - 250 (25 psi)¹

Material

Extruded polystyrene closed-cell foam panel with continuous skins on face and back surfaces

Weight

150 lb/1,000 ft² for 1" thickness

Packaging

Shipped in units with two stretchwrap bands per bundle, with an additional exterior wrap.

Thickness ² (in)	Width x Length ³ (in)	Edges
1, 1½, 2, 2½, 3	16 x 96	Square
¾, 1, 1½, 2, 2½, 3, 3½, 4	24 x 96	Square
¾, 1, 1½, 2, 2½, 3	48 x 96	Square
¾, 1	48 x 108	Square
¾, 1, 1½, 2, 2½, 3	48 x 96	Scored Square
¾, 1, 1½, 2	24 x 96	T&G ⁴
¾, 1, 1½, 2	48 x 96	T&G ⁴
¾, 1	48 x 108	T&G ⁴

¹Compressive strength, minimum (specification) value (lb/in²)

²"R" per inch: 5.0 (at 75°F mean temperature)

³Other sizes available on request. Consult your local Owens Corning representative for availability.

⁴Tongue-and-groove edge reduces air infiltration



INNOVATIONS FOR LIVING™

OWENS CORNING WORLD HEADQUARTERS

ONE OWENS CORNING PARKWAY

TOLEDO, OHIO 43659

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www.owenscorning.com

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TECHNICAL DATA SHEET



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Professional and Consumer Adhesives
Rocky Hill, CT 06067
Phone 1-800-624-7767
Fax (440) 250-7863
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DESCRIPTION

Loctite® PL® 300 VOC Foamboard Adhesive is a premium grade formulation for bonding foamboard insulation to a variety of surfaces, interior or exterior. It is compatible with all foamboard insulation products. Loctite® PL® 300 VOC is a latex-based adhesive especially designed for bonding polystyrene foam to itself or to a variety of construction materials, including, but not limited to: wood, gypsum board, concrete and brick. Low VOC formulation meets stringent State and Federal VOC Regulations.

RECOMMENDED FOR:

Loctite® PL® 300 VOC bonds to all types of surfaces: wood, concrete, brick and drywall. It permanently joins foamboard to the substrate without compromising the insulation value of the foam.

LIMITATIONS:

- Do not apply at temperatures lower than 40°F (5°C) or above 100°F (38°C)
- Do not use on polyethylene (PE), polypropylene (PP), polytetrafluoroethylene (PTFE) and acrylic
- Not to be used in areas subject to permanent water immersion
- Should not be applied outside if rain is expected within 12 hours
- Do not apply to wet surfaces
- Not recommended for bonding panels to nonporous surfaces. One surface must be porous.

FEATURES & BENEFITS:

Feature	Benefits
Foamboard compatible.....	Will not attack or burn through foamboard
Low VOC Formula.....	Meets stringent State and Federal VOC Regulations
Water and Weather Resistant.....	Great for indoor or outdoor projects
Bonds to most building materials.....	Provides a strong, durable bond to multiple surfaces
Gap filling.....	Will bridge minor gaps when bonding irregular surfaces
High Grab.....	Reduces the use of fasteners

Item #	Package	Size
1421941	Paper Cartridge	10 fl. oz.
1421930	Paper Cartridge	28 fl. oz.

COVERAGE

For a 10 fl. oz. cartridge:

A 1/4" (6 mm) bead extrudes approximately 30.6 ft (9.35 m).
A 3/8" (9.5 mm) bead extrudes approximately 13.6 ft. (4.1 m).

For a 28 fl. oz. cartridge:

A 1/4" (6 mm) bead extrudes approximately 85.8 ft (26.1 m).
A 3/8" (9.5 mm) bead extrudes approximately 38.1 ft. (11.6 m).

DIRECTIONS

Tools Typically Required:

Utility knife, caulking gun

Safety Precautions:

Wear gloves. Wash hands after use.

Preparation:

The temperature of the adhesive, the surfaces and the working area must be between 40°F (5°C) and 100°F (38°C). For smooth, fast, easy application during cold weather, store adhesive at room temperature (70° ± 5°F) 24 hours prior to use. Ensure surfaces to be bonded are clean, dry, structurally sound and free of dust, grease, oil or other contaminants. Pre-fit all materials prior to applying product. Mechanical fasteners must be used and kept in place until adhesive is fully cured. Cut off tip of cartridge at 45° angle to desired bead size and puncture inner seal of cartridge. Recommended bead size is 3/8" (9.5 mm).

Application:

Using a caulking gun, apply adhesive as a series of vertical beads 9 to 12 inches apart. Start the beads approximately 1 inch from the panel edge. Immediately after applying the adhesive place the foam against the substrate and press firmly into place to flatten out the adhesive. Mechanical fasteners must be used and kept in place until the adhesive is fully cured. Cure time will vary depending on the porosity of the material used, the humidity and the temperature at time of application. Low temperatures and high humidity will increase the amount of time required for the adhesive to dry. Bracing is recommended until adhesive cures. The adhesive must be fully cured before it can be exposed to elevated temperatures.

Drywall application over foam insulation:

Apply adhesive as outlined above. Position drywall, align and press firmly into place. Nail panel to underlying studs or strapping around entire perimeter. It is recommended to brace panels in the field for at least 24 hours.

Clean-up:

Clean tools and uncured adhesive residue immediately with water. Cured adhesive may be carefully cut away with a sharp-edged tool.

STORAGE AND DISPOSAL

PROTECT FROM FREEZING. For best results, store at 70° ± 5°F in a cool, dry place. Store away from heat, flame and sparks. Take unwanted product to an approved household hazardous waste transfer facility. Hardened material may be disposed of with trash.

LABEL PRECAUTIONS

CAUTION! Do not take internally. Use with adequate ventilation. **KEEP OUT OF REACH OF CHILDREN. FIRST AID:** In case of eye or skin contact, flush thoroughly with plenty of water. If swallowed, do NOT induce vomiting. Call physician immediately. If unusual symptoms persist, seek medical attention.

Refer to the Material Safety Data Sheet (MSDS) for further information

DISCLAIMER

The information and recommendations contained herein are based on our research and are believed to be accurate, but no warranty, express or implied, is made or should be inferred. Purchasers should test the products to determine acceptable quality and suitability for their own intended use. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

TECHNICAL DATA

Typical Uncured Physical Properties		Typical Application Properties	
<u>Color:</u>	Light Blue	<u>Application Temperature:</u>	Apply and cure between 40°F (5°C) and 100°F (38°C)
<u>Appearance:</u>	Thick, non-sagging paste	<u>Working Time:</u>	20 minutes
<u>Base:</u>	Acrylic Latex	<u>Full Cure Time:</u>	7 days Cure time depends upon temperature, humidity, porosity of substrate and amount of adhesive used.
<u>Odor:</u>	None		
<u>Specific Gravity:</u>	1.533		
<u>VOC Content:</u>	< 22 g/L (1% by weight)		
<u>Shelf Life:</u>	18 months from date of manufacture (unopened)		
<u>Lot Code Explanation:</u>	YYDDD YY = Last two digits of year of manufacture DDD = Day of manufacture based on 365 days in a year For example: 09061 = 61 st day of 2009 = March 2, 2009		
(Lot code is inkjetted on body of cartridge)			

Typical Cured Performance Properties

<u>Color:</u>	Light Blue
<u>Cured Form:</u>	Non-flammable solid
<u>Service Temperature:</u>	0°F (-17.78°C) to 170°F (77°C)
<u>Water Resistance:</u>	Yes, after full cure.