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May 9, 2012

Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, as described in *The Project Resource Manual—CSI Manual of Practice, Fifth Edition*.

This section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all “Specifier Notes” after editing this section.

SECTION 07 21 14.13

GRAPHITE-ENHANCED EXPANDED POLYSTYRENE BOARD INSULATION

Specifier Notes: This section covers Progressive Foam Technologies, Inc., graphite-enhanced expanded polystyrene exterior board insulation.

- 1) Fullback® custom-contoured rigid foam insulation installed behind a specific make and profile of siding.
- 2) Linebacker®: Rigid foam insulation with installation guide.
- 3) Halfback® Universal Siding Insulation: Rigid foam insulation, flat for universal application
- 4) Halfback®H20 Universal Siding Insulation: Drainable continuous insulation for water-managed siding and cladding systems.
- 5) ProBoard® Insulating Sheathing: Flat, rigid foam insulation with flexible, plastic facer on one side, reflective facer on the other.
- 6) ProFold® FanFolded Underlayment: Flat, fan-folded underlayment with flexible plastic facer on one side, reflective facer on the other

Consult Progressive Foam Technologies, Inc. for assistance in editing this section for the specific application.

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Graphite-enhanced expanded polystyrene board insulation as follows:
 - 1. Precision-contoured continuous insulation, field installed as thermal, acoustical, and structural backing for siding.
 - 2. Drainable continuous insulation for water-managed siding and cladding systems.
 - 3. Fanfold-type continuous insulation.

1.2 RELATED SECTIONS

Specifier Notes: Edit the following list of related sections as required. Delete related sections not required. List other sections with work directly related to this section.

- A. Division 07 Section – Common Work Results for Thermal and Moisture Protection.

1.3 REFERENCE STANDARDS

Specifier Notes: List reference standards mentioned in this section, complete with designations and titles. Delete reference standards not included in this edited section. This article does not require compliance with reference standards, but is merely a listing of those used.

- A. ASTM C 272 – Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.
- B. ASTM C 303 – Standard Test Method for Dimensions and Density of Preformed Block and Board-Type Thermal Insulation.
- C. ASTM C 578 – Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- D. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
- E. ASTM E 96 – Standard Test Methods for Water Vapor Transmission of Materials.
- F. UL 723 – Standard for Test for Surface Burning Characteristics of Building Materials.

1.4 QUALITY ASSURANCE

Specifier Notes: Review and edit quality requirements. Delete requirements not applicable to the Project.

- A. Source Limitation: Provide siding insulation and accessories produced by a single manufacturer.
- B. Manufacturer's Qualifications:
 - 1. A manufacturing entity with not less than **Ten (10) years** of documented experience in the manufacture and distribution of siding insulation of the type and extent required for the Project.
 - 2. Manufacturer implements a plant quality management program third-party certified.
 - 3. Manufacturer implements an environmental responsibility policy to reduce industrial waste and conserve energy consumption in its plant operations.
 - 4. Manufacturer has trained field representatives to inspect work in progress and prior to final acceptance.
- C. Installer Qualifications:
 - 1. Installer has documented experience installing the specified insulation and is satisfactory to the insulation manufacturer.

1.5 SUSTAINABILITY REQUIREMENTS

Specifier Notes: Sustainability criteria vary from project to project according to the Owner's requirements. They are not used for every project. The primary sustainability models identified in this Section include:

- U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED).
- Green Communities Criteria 2008.
- National Association of Home Builders NAHB National Green Building Standard (ICC 700-2008):
- U.S. Environmental Protection Agency/U.S. Department of Energy Star Program

Edit according to the Owner's requirements and coordinate with related Division 01 requirements.

- A. LEED For New Construction and Major Renovations (v3)
 - 1. IEQ Credit 7.1 Thermal Comfort – Design.
- B. LEED For Existing Buildings
 - 1. MR Credit 3 Sustainable Purchasing: Facility Alterations and Additions
 - a. Adhesives and sealants have a VOC content compliant with South Coast Air Quality Management District Rule #1168, or sealants used as fillers meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51.

- C. LEED For Homes
 - 1. EA Credit 1: Optimize Energy Performance
 - 2. EA Credit 2.1 Insulation
 - 3. EA Credit 2.2 Enhanced Insulation
 - 4. MR Credit 2 Environmentally Preferable Product
- D. Green Communities Criteria, 2008
 - 1. 5.1a Efficient Energy Use: New
 - 2. 5.1b Efficient Energy Use: Moderate and Substantial
- E. NAHB National Green Building Standard (ICC 700-2008):
 - 1. Practice # 602.8 Termite-Resistant Materials
 - 2. Practice # 610.1 Innovative Practices.
 - 3. Practice # 701 Minimum Energy Efficiency Requirements
 - a. 701.1.1 Performance Path Requirements
 - b. 701.1.2 Prescriptive Path Requirements
 - 4. Practice #703.2 Insulation and air sealing
 - 5. Practice #704.6 Installation and performance verification
 - 6. Practice #1001 Building owner's manual for one- and two-family dwellings
- F. Energy Star Compliance: Comply with ENERGY STAR Qualified Homes, Version 3 (Rev. 01) Thermal Enclosure System Rater Checklist, Item 4.3 Reduced thermal bridging at walls using insulated siding > R-3 in Climate Zones 1-4, > R-5 in Climate Zones 5-8 9,10
- G. Sustainable Design Submittals: Comply With Section 01 81 13 – Sustainable Design Requirements.

Specifier Notes: Edit submittal requirements as required. Delete submittals not required.

1.6 SUBMITTALS FOR REVIEW

- A. Manufacturer's Technical Data Sheet.
- B. Samples: Submit manufacturer's sample of board insulation laminated to specified siding, minimum 5 inches by 5 inches.

Specifier Notes: Retain the following if sustainability requirements are specified. Refer to Sustainability Requirements article above.

- C. Sustainable Design Submittals: Provide manufacturer's certification that products comply with the requirements specified in Sustainability Requirements article above.

1.7 SUBMITTALS FOR INFORMATION

- A. Qualification data for manufacturer and installers. Refer to Quality Assurance Article above.

Specifier Notes: Select Certified Test Reports (1.7 B) or Manufacturer's certification (1.7 C) below.

- B. Certified test reports verifying compliance of insulation with the performance requirements specified in Part 2 - Products
- C. Manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- D. Sample Warranty: Submit copy of manufacturer's standard warranty terms for Owner's information and review.
- E. MSDS Sheets for insect deterrent.

1.8 SUBMITTALS FOR CONTRACT CLOSEOUT

- A. Sustainable Design Closeout Submittals: Refer to Section 01 81 13 – Sustainable Design Requirements.
- B. Warranty: Manufacturer's standard warranty for each product specified.

Specifier Notes: Include the following requirement if required by the Owner.

- C. Thermographic Testing Reports.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Refer to Manufacturer's published "Delivery Storage and Handling Requirements."
- B. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying:
 - 1. Product name and manufacturer.
 - 2. Siding make and profile.
- C. Storage and Handling Requirements:

1. Store and handle materials in accordance with manufacturer's instructions and to prevent damage.
2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
3. Store materials in clean, dry area.
4. Protect materials from wind and solar exposure.
5. Protect materials during storage, handling, and installation.

1.10 WARRANTY

- A. Submit manufacturer's executed Limited Double Lifetime Warranty.

1.11 COORDINATION

- A. Field-Constructed Mock-Up: At a location and time approved by the Owner's representative, construct approximately 32 square feet (4' x 8') of insulation and siding on structural substrate to demonstrate workmanship. Protect installed mock-up until approved by the Manufacturer's field representative and the Owner's Representative. Installation may proceed following approval of mock-up. Installed mock-up may be incorporated into the finished work.
- B. Pre-Construction Meeting: At a location and time prior to scheduled commencement of the Work of this Section, convene a meeting at the Project site. Attendees include the Owner's Representative, the Manufacturer's field representative, the Contractor, the Installer, and related trades. Review the following.
 1. Project conditions.
 2. Substrate conditions.
 3. Status of other trades.
 4. Project duration.
 5. Field-constructed mock-up.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. The Project has been designed based on the products of prequalified manufacturers in order to achieve certain building thermal and acoustical performance values.
 - 1.) Do not make substitutions.

- 2.) Refer to Division 00 – Bidding and Contracting Requirements Sections for the process for obtaining approval of other manufacturers

B. Pre-Qualified Manufacturer:

- 1.) Progressive Foam Technologies, Inc., 6753 Chestnut Ridge Road, Beach City, Ohio 44608. Toll Free 800-860-3626. Phone 330-756-3200. Fax 330-756-3206. Website www.progressivefoam.com. E-mail info@progressivefoam.com.

2.2 SIDING INSULATION

A. Basis of Design: Premium Series Insulation Board manufactured by Progressive Foam Technologies and as follows:

1. Description: Precision-contoured graphite-enhanced foam board insulation, field installed behind siding specified in other sections.
 - a. Compliance: ASTM C 578.
 - b. Certification: UL 723.
2. Raw Material: Graphite enhanced expandable polystyrene beads.
 - a. Blowing agent: Pentane, 6% by weight, average
2. Additional Treatments: Insulation manufacturers fire-retardant and insect-deterrent
3. Density, ASTM C 303: 1.25 lb/cf
4. Surface Burning Characteristics, ASTM E 84:
 - a. Flame Spread Index: 10.
 - b. Smoke Developed Index: 40.
5. Water Absorption, ASTM C 272: Maximum 3 percent by volume.
6. Water Vapor Transmission, ASTM E 96: up to 3.5 perms/inch for products without plastic/reflective facers.
7. Thermal Expansion, ASTM C 578: 0.000035 inch/inch/degree F (0.000063 mm/mm/degree C).
8. R-Value: 4.2 per inch

2.3 INSULATION PRODUCTS

- A. **Fullback®V Siding Insulation for Vinyl Siding Premium Series:** Precision-contoured foam board insulation field installed behind specific make and profile of vinyl siding.

1.) Board Dimensions, thickness and R-value vary greatly depending on the particular insulation profile selected for the project.

- B. **Fullback® FC Siding Insulation for Fiber Cement Premium Series:** Precision-contoured insulation for fiber cement, manufacturer's standard board size.

1.) Board Dimensions and R-Values:

- a) 0.638" x 48" x 48": R-3.0
- b) 1.0" x 48" x 48": R-4.6
- c) 1.08" x 48" x 48: R-5.0

- C. **Halfback® H₂O Universal Siding Insulation Premium Series:** Drainable continuous insulation for water-managed siding and cladding systems

1.) Board Dimensions and R-Values:

- a) ¾" x 48" x 96": R-3.0 or ¾" x 48" x 96": R-3.0
- b) 1" x 48" x 96": R-4.0 or 1" x 48" x 96": R-4.0
- c) 1.25" x 48" x 96": R-5.0 or 1.25" x 48" x 96": R-5.0

- D. **Linebacker® Siding Insulation Premium Series:** Flat foam insulation with contoured installation registration points.

1.) Board Dimensions and R-values:

- a) .67" x 48" x 48": R-3.0
- b) .87" x 48" x 48": R-3.9

- E. **ProBoard® Insulating Sheathing:** Flat, rigid foam insulation with flexible, plastic facer on one side, reflective facer on the other.

1.) Board Dimensions and R-values:

- a) [1/2" x 48" x 96" (R-1.9)] [1/2" x 24" x 96" (R-1.9)]
- b) [3/4" x 48" x 96" (R-2.9)] [3/4" x 24" x 96" (R-2.9)]
- c) [1" x 48" x 96" (R-3.8)] [1" x 24" x 96" (R-3.8)]

- F. **ProFold® Universal Siding Insulation:** Fan-fold type insulation.

1.) Board Dimensions and R-Values:

- a) 1/2" x 48" x 50 feet: R-2.3

b) 3/8" x 48" x 50 feet: R-1.7

G. Accessories:

1. Steel Starter Strips: 10 ft lengths.
2. Aluminum L-Trim Pieces: 8' lengths
3. Insulating Shims: .75" x 3-3/4" x 48"
.95" x 3-3/4" x 48"
1.183" x 3-3/4" x 48
4. Insulating V-Corners: .75" x 3-3/4" x 48"
.95" x 3-3/4" x 48"
1.183" x 3-3/4" x 48

Specifier Notes: Specify the section number for the siding.

- C. Siding: Specified elsewhere in Division 07.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls to receive insulation.
- B. Verify insulation coordinates with make and profile of siding.
- C. Notify Architect of conditions that would adversely affect installation of insulation or siding.
- D. Do not begin installation until unacceptable conditions are corrected.

3.2 INSTALLATION

- A. Install insulation in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Install insulation plumb, level, square, in proper alignment, and weathertight.
- C. Butt adjoining insulation panels together without gaps.
- D. Siding: Install siding according to the siding manufacturer's instructions.

3.3 PROTECTION

- A. Protect installed board insulation from damage during construction until covered with siding in accordance with insulation manufacturer's instructions.

3.4 INSPECTION AND TESTING

Specifier Notes: Manufacturer field representation and Owner-sponsored testing requirements increase project cost. Retain the following requirements if approved by the Owner.

- A. Schedule manufacturer's field representative to inspect installation prior to final acceptance of the Work. Make all corrections recommended by the field representative as a condition of acceptance.
- B. Thermographic Testing: Owner will engage and pay for thermographic testing of the completed work. Cooperate with Owner's testing agent by providing convenient access to the Work.

3.5 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

- A. Comply with requirements of Section 01 74 19 Construction Waste Management and Disposal

END OF SECTION