



Carlisle Spray Foam Insulation  
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## SEALTITE™ PRO HFO

Carlisle Spray Foam Insulation is a leading manufacturer of spray polyurethane foam systems in North America. Previously marketed under Accella Polyurethane Systems, Bayer Material Science and Covestro - Carlisle Spray Foam Insulation is a fully integrated, spray foam insulation provider, backed by the technology resources - and grounded on the corporate stability - of a century-old icon in the building ecosystem - Carlisle Construction Materials. Our SealTite™ PRO product line of spray foam building insulation solutions is the superior insulation choice for your next project. Compared to traditional fibrous insulation products, SealTite PRO spray foam insulation can be used in both interior and exterior applications to achieve superior performance by providing four levels of protection in one: Thermal, Air, Water, and Vapor.

Carlisle Spray Foam Insulation is focused on developing spray foam insulation solutions to help architects design safe, resilient, energy efficient buildings with low environmental impacts. When planning a project, you need to know more than the technical information about the products you are specifying. Our SealTite PRO products lead the spray foam industry with the most listed Underwriters Laboratory (UL) hourly fire rated designs and the most extensive NFPA 285 compliant wall assemblies. Our commitment to SERVICE BEYOND THE SPEC SHEET provides the assurance that the products you recommend and ultimately specify are thoroughly tested for performance, designed to meet today's demanding building codes, and backed by expert service.

Carlisle Spray Foam Insulation is the only spray foam manufacturer that provides everything needed to completely seal and protect the building envelop. Together with other CCM brands such as Hunter Panels, Insulfoam, CCW, Henry, and PAC-CLAD, CSFI offers designers the most flexibility and design options to create high performance building envelope solutions from a single source ensuring material compatibility and total system performance.

## THERMAL INSULATION SECTION 07 21 19 FOAMED-IN-PLACE INSULATION

Specifier Notes: This Section covers Carlisle Spray Foam Insulation's "SealTite PRO HFO" closed-cell, spray-applied, polyurethane foam (SPF) insulation. "SealTite PRO HFO" is available in two grades "Regular" and "Winter" for warm and cold weather applications. Consult Carlisle Spray Foam Insulation (CSFI) for assistance in editing this Section for the specific application.

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Closed-cell, spray-applied, polyurethane foam plastic (SPF) insulation.

#### 1.2 RELATED SECTIONS

ATTENTION SPECIFIER: Edit the following list of related sections as required for the Project. Limit the list to sections with specific information that the reader might expect to find in this Section but is specified elsewhere.

- A. Section 06 16 00 – Sheathing for polyisocyanurate-foam exterior sheathing.
- B. Section 07 21 00 – Thermal Insulation for foam-plastic board insulation.
- C. Section 07 26 00 – Vapor Barrier.
- D. Section 07 27 00 – Air Barriers.
- E. Section 07 57 00 – Coated Foamed Roofing.
- F. Section 07 80 00 – Fireproofing
- G. Section 07 84 00 – Thermal Barrier
- H. Section 09 25 00 – Gypsum Board
- I. Section 09 96 46 – Intumescent Painting.

### 1.3 REFERENCES

ATTENTION SPECIFIER: Delete any references listed below that may not be required by the final version of this project specification.

- A. American Society for Testing and Materials (ASTM) International:
  - 1. ASTM C 518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
  - 2. ASTM D 1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
  - 3. ASTM D 1622 / D 1622M – Standard Test Method for Apparent Density of Rigid Cellular Plastics.
  - 4. ASTM D 1623 – Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.
  - 5. ASTM D 2126 – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
  - 6. ASTM D 2842 – Standard Test Method for Water Absorption of Rigid Cellular Plastics.
  - 7. ASTM D 6226 – Standard Test Method for Open Cell Content of Rigid Cellular Plastics
  - 8. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
  - 9. ASTM E 96 / E 96M – Standard Test Methods for Water Vapor Transmission of Materials.
  - 10. ASTM E 2178 – Standard Test Method for Air Permeance of Building Materials.
  - 11. ASTM C 1338 – Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
- B. National Fire Protection Association (NFPA):
  - 1. NFPA 259: Standard Test Method for Potential Heat of Building Materials
  - 2. NFPA 286: Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth
- C. ICC Evaluation Service (ICC-ES):
  - 1. ICC-ES AC377 - Acceptance Criteria for Spray-Applied Foam Plastic Insulation.

- D. International Association of Plumbing and Mechanical Officials (IAPMO):
  - 1. IAPMO Evaluation Report UES-720 – SealTite PRO HFO Spray-Applied Polyurethane Foam Plastic Insulation. ([www.uniform-es.org](http://www.uniform-es.org)).
- E. Spray Polyurethane Foam Alliance (SPFA).
- F. Underwriters Laboratory (UL):
  - 1. UL 263 – Fire Tests of Building Construction and Material.
  - 2. UL 1715 - Fire Test of Interior Finish Material.
  - 3. UL 2818 – 2013 Gold Standard for Chemical Emissions for Building Materials, Finishes and Furnishings.

#### 1.4 SUBMITTALS

ATTENTION SPECIFIER: Edit submittal requirements as required for the Project. Delete submittals not required.

- A. Comply with Division 01.
- B. Product Data: Submit manufacturer’s product technical data sheets, including surface preparation and application instructions.
- C. Manufacturer’s Certification:
  - 1. Submit manufacturer’s certification that materials comply with specified requirements and are suitable for intended application.
  - 2. Submit manufacturer’s certification from Spray Polyurethane Foam Alliance Professional Certification Program (SPFA PCP) as Accredited Supplier Company.
  - 3. Submit manufacturer’s Authorized Contractor Certificate for the installer.
  - 4. Submit manufacturer’s Hydrofluorocarbon (HFC) compliance statement.
- D. Product Evaluation Reports: Submit manufacturer’s product evaluation reports from accredited evaluation service.
- E. Environmental Product Declaration (EPD): Submit product specific EPD.
- F. Warranty Documentation: Submit manufacturer’s standard warranty.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer’s Qualifications:
  - 1. Manufacturer regularly engaged, for a minimum of 10 years, in the manufacturing of polyurethane foam insulation of similar type to that specified.
  - 2. Spray foam insulation products manufactured by an ISO 9001:2015 certified company.
  - 3. SPFA Professional Certification Program as Accredited Supplier Company.
- B. Applicator’s Qualifications:
  - 1. Applicator regularly engaged, for a minimum of 5 years, in application of spray polyurethane foam insulation of similar type to that specified.
  - 2. Authorized by manufacturer to install their products.

3. Use persons trained by manufacturer in polyurethane foam insulation application or certified by SPFA Professional Certification Program.

#### 1.6 PRE-INSTALLATION CONFERENCE

ATTENTION SPECIFIER: Edit preinstallation meetings as required for the Project. Delete if not required.

- A. Convene preinstallation meeting [1 week] [2 weeks] before start of work of this Section.
- B. Require attendance of parties directly affecting Work of this Section, including Contractor, Architect, applicator, and manufacturer's representative.
- C. Review the Following:
  1. Materials.
  2. Protection of in-place conditions.
  3. Surface preparation.
  4. Application.
  5. Field quality control.
  6. Cleaning.
  7. Protection.
  8. Coordination with other Work.

#### 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, safety information, net weight of contents, expiration date and HFC compliance statement.
- B. Storage and Handling Requirements:
  1. Store and handle materials in accordance with manufacturer's instructions.
  2. Keep materials in manufacturer's original, unopened containers and packaging until application.
  3. Store materials in clean, dry area indoors.
  4. Store materials at 70°F - 80°F (21°C - 27°C) a minimum of 48 hours before use.
  5. Store materials out of direct sunlight.
  6. Protect materials from freezing.
  7. Protect materials during storage, handling, and application to prevent contamination or damage.
  8. Remove empty containers from the job site daily.

#### 1.8 PROJECT CONDITIONS

ATTENTION SPECIFIER: Edit the following paragraph for the grade of polyurethane foam insulation specified in Part 2 of this Section.

- A. Ambient and Substrate Temperatures:
  1. SealTite PRO HFO - Regular: Between 50°F and 120°F (10°C and 49°C).
  2. SealTite PRO HFO - Winter: Between 25°F and 70°F (-4°C and 21°C).

- B. Moisture: Do not apply polyurethane foam insulation when moisture in form of rain, snow, ice, fog, frost, or dew is expected during application.
- C. Relative Humidity: Do not apply polyurethane foam insulation when relative humidity over 85% is expected during application.
- D. Wind: Do not apply polyurethane foam insulation with wind speed above 12 mph.
- E. Do not apply polyurethane foam insulation under ambient conditions outside manufacturer's limits.
- F. Ventilate insulation application areas and protect workers in accordance with the *Spray Foam Coalition's Guidance on best practices for the installation of Spray Polyurethane Foam*.
- G. Protect adjacent surfaces, windows, equipment, and site areas from damage by overspray.

## 1.9 WARRANTY

- A. Manufacturer's Warranty: Manufacturer warrants that the spray polyurethane foam insulation, when installed by authorized applicators and applied in accordance with the published application instructions, will perform as stated on the Product Technical Data Sheet.
  - 1. This warranty is in effect throughout the life of the building provided the original purchaser submits the warranty registration form within 30 days of occupancy.
  - 2. Manufacturer's sole responsibility under this Limited Lifetime Warranty shall be to repair or replace any defective Product at the cost of the material only.
  - 3. Manufacturer shall not be responsible for labor costs, or any other costs whatsoever related to, or in connection with the removal or installation of either the original or replacement product.

## PART 2 PRODUCTS

### 2.1 MANUFACTURER

- A. Manufacturer: Carlisle Spray Foam Insulation, 100 Enterprise Dr.; Cartersville, GA 30120; Phone: 844-922-2355; Website: <https://www.carlislesfi.com>

ATTENTION SPECIFIER: Specify if substitutions will be permitted.

- B. Substitutions: [Not permitted] [Comply with Division 01].

### 2.2 FOAMED-IN-PLACE INSULATION

- A. Basis of Design: "SealTite PRO HFO" spray-applied polyurethane foam (SPF) insulation.
- B. Description: Two-component, HFO blown, Closed-Cell, Medium-Density, Spray-Applied Polyurethane Foam Plastic Insulation: ASTM C1029, Type II.
- C. Standards Compliance.
  - 1. Acceptance Criteria: ICC-ES AC 377.
  - 2. Evaluation Report: IAPMO UES-720.
  - 3. Greenguard Gold.
- D. Typical Physical Properties.

1. Air Leakage Rate, ASTM E 2178:
  - a. Less than 0.02 L/s-m<sup>2</sup> (0.004 ft<sup>3</sup>/min-ft<sup>2</sup>) at 1 inch.
  - b. Less than 0.01 L/s-m<sup>2</sup> at 2 inches.
  - c. Less than 0.008 L/s-m<sup>2</sup> at 3 inches.
2. Water Vapor Transmission (Permeance), ASTM E 96 Procedure A: 1.0 perms at 1 inch.
3. Core Density, ASTM D 1622: 2.0 pcf, nominal.
4. R-Value, Aged, ASTM C 518:
  - a. 7.2 (ft<sup>2</sup>·°F·h/BTU) at 1 inch.
  - b. 22 at 3 inches.
  - c. 25 at 3.5 inches.
  - d. 40 at 5.5 inches.
5. Compressive Strength, ASTM D 1621: 31 psi, nominal.
6. Tensile Strength, ASTM D 1623: 39 psi, nominal.
7. Water Absorption, ASTM D 2842: Less than 1.5 percent.
8. Dimensional Stability, ASTM D 2126, Change in Volume:
  - a. 28 days at -4°F (-20°C) at Ambient Humidity: Less than 1%.
  - b. 28 days at 175°F (80°C) at Ambient Humidity: Less than 3%.
  - c. 28 days at 160°F (70°C) and 97% Relative Humidity: Less than 6%.
9. Closed Cell Content, ASTM D 6226: Greater than 96%.
10. Surface Burning Characteristics, ASTM E 84, 4 Inches:
  - a. Flame Spread Index: Less than 25.
  - b. Smoke Developed Index: Less than 450.
11. Fungi Resistance, ASTM C 1338: No Growth.
12. Potential Heat of Combustion, NFPA 259:
  - a. 11,024 (btu/lb) [25,643 (kJ/kg)].
  - b. 1,984 (btu/ft<sup>2</sup>) per inch.

E. Environmental Requirements:

1. The product shall have a product specific Environmental Product Declaration (EPD)
2. Global Warming Potential: Less than or equal to one (1).
3. Ozone Depletion Potential: Zero (0).

F. Toxicity and Hazardous Materials.

1. UL Greenguard Certification for low-chemical emissions in accordance with UL 2818: Greenguard Gold.
2. Product containing no added urea-formaldehyde.
3. PBDE-free product.
4. Free of flammable blowing agents.
5. Does not contain Hydrofluorocarbons (HFCs)

6. Free of trans-1,2-Dichloroethene, TDCE, 1,2-Dichloroethene, 1,2-DCE, and trans-dichloroethylene.

### 2.3 ACCESSORIES

ATTENTION SPECIFIER: Consult Manufacturer for substrate conditions requiring application of a primer. Delete if not required.

- A. Primer: Material recommended by insulation manufacturer where required for adhesion of insulation to substrates.

ATTENTION SPECIFIER: Include "Thermal Barrier" intumescent coating if required to separate spray foam from occupied spaces. Delete options not required.

- B. Thermal Barrier (Fire Resistive) Intumescent Coatings: Fire-protective intumescent coating formulated for application over polyurethane foam plastics, compatible with insulation, and passes NFPA 286 or UL 1715 testing as part of an approved assembly.
  1. DC315 as manufactured by International Fireproof Technology, Inc.
  2. No-Burn Plus ThB as manufactured by No-Burn, Inc.
  3. Flame Control 60-60A as manufactured by Flame Control Coatings, Inc.
  4. Fireshell F10E as manufactured by ICP Construction.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine areas to receive polyurethane foam insulation.
- B. Notify Architect of conditions that would adversely affect application.
- C. Do not begin surface preparation or application until unacceptable conditions are corrected.

### 3.2 PREPARATION

- A. Protection of In-Place Conditions:
  1. Protect adjacent surfaces from contact with overspray.
  2. Protect electrical outlet and junction boxes from contact with polyurethane foam insulation.
- B. Surface Preparation:
  1. Prepare surfaces in accordance with manufacturer's instructions.
  2. Remove dirt, dust, debris, oil, grease, rust, loose scale, ice, frost, moisture, and other surface contaminants which could adversely affect application of polyurethane foam insulation.

### 3.3 APPLICATION

- A. Spray-apply polyurethane foam insulation in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Material Temperature: Maintain materials in containers at 65°F to 85°F (18°C to 29°C) while in use.
- C. Ensure substrates are dry during application.
- D. Insulation Thickness:
  - 1. Maximum Pass Thickness: 4 inches.
  - 2. Total Thickness: Indicated on the Drawings.
- E. Apply polyurethane foam insulation to uniform thickness without voids, pinholes, cracks, and crevices.

ATTENTION SPECIFIER: Include the following paragraph if polyurethane foam insulation is to be covered with intumescent coating.

- F. Intumescent Coating:
  - 1. Cover polyurethane foam insulation with intumescent coating at locations indicated on the Drawings.
  - 2. Apply intumescent coating as specified in Section 09 96 46.

#### 3.4 FIELD QUALITY CONTROL

ATTENTION SPECIFIER: Specify field quality control for application of polyurethane foam insulation as required for the Project.

- A. Inspect completed application of polyurethane foam insulation, including:
  - 1. Total thickness.
  - 2. Free of voids, pinholes, cracks, and crevices.
  - 3. Adhesion to substrate.

#### 3.5 CLEANING

- A. Promptly clean surfaces that receive overspray of polyurethane foam insulation.
- B. Do not use harsh cleaning materials or methods that could damage surfaces.

#### 3.6 PROTECTION

- A. Protect Work of this Section from damage during construction.

**END OF SECTION**