

SECTION 07 21 19

FOAMED-IN-PLACE INSULATION

PART 1 GENERAL

1.1 DESCRIPTION:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. This section includes the following:
 - 1. Closed-cell spray polyurethane foam.
 - 2. Open-cell spray polyurethane foam.

1.2 RELATED WORK:

- A. Related Sections include the following:
 - 1. Sustainable Design Requirements: Section 01 81 11, SUSTAINABLE DESIGN REQUIREMENTS.
 - 2. Thermal Insulation: Section 07 21 13, THERMAL INSULATION
 - 3. Applied Fireproofing: Section 07 81 00, APPLIED FIREPROOFING
 - 4. Joint Sealants: Section 07 92 00, JOINT SEALANTS

1.3 SUBMITTALS:

- A. Product Data: For each type of product. Include manufacturer's written instructions for evaluating, preparing, and treating substrate; technical data; and tested physical and performance properties of Foamed-in-Place Insulation.
- B. Shop Drawings:
 - 1. Show locations and extent of Foamed-in-Place Insulation.
 - 2. Include details of interfaces with other materials that form part of the thermal barrier.
- C. Product Certificates: For Foamed-in-Place Insulation, certifying compatibility of thermal barrier and accessory materials with project materials that connect to or that come in contact with the barrier; signed by product manufacturer.
- D. Qualification Data: For Applicator.
- E. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- F. Warranty: Refer to manufacturer's standard warranty terms.

1.4 QUALITY ASSURANCE:

- A. Applicator Qualifications: An authorized representative who is trained and approved by manufacturer. Any repairs by an approved licensed contractor.
- B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- C. Fire Resistance Characteristics: As determined by testing identical products (based on a 4 inch (100 mm) minimum thickness) according to ASTM E 119 and NFPA 285 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Protect spray polyurethane foam components as follows:
 - 1. Component A and B: Store between 60 degrees F (15 degrees C) and 90 degrees F (32 degrees C).
 - 2. Component B can be frozen but must be protected from overheating over 120 degree F (49 degree C) and prolonged storage over 100 degree F (37 degree C).
 - 3. Component B: Mix thoroughly prior to use.
 - 4. Components should be a match set (system) as supplied by the manufacturer.
 - 5. Use components within their labeled shelf-life.
 - 6. Use components as supplied with no site alterations or additions.

1.6 PROJECT CONDITIONS:

- A. Environmental Limitations: Apply Foamed-in-Place Insulation within the range of ambient and substrate temperatures recommended by insulation manufacturer. Protect substrates from environmental conditions that affect performance of insulation. Do not apply insulation to a wet substrate or during snow, rain, fog, or mist.

PART 2 PRODUCTS

2.1 PERFORMANCE CHARACTERISTICS:

- A. Air Material Air Leakage Rate: Maximum material air leakage rate of less than 0.004 cfm/ft² under a differential of 0.3 in w.g. (1.6 psf) (0.02 L/m² at 75 Pa) per ASTM E 2178 or E 282.

- B. Surface Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: 25 or less.
 - 2. Smoke-Development Index: 450 or less.
- C. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- D. Compressive strength: Minimum 40 psi (276 kPa) (ASTM C1029 Type II).
- E. Sustainability Requirements: Provide spray polyurethane foam insulation as follows:
 - 1. Low Emitting: Insulation tested according to CA/DPH/EHLB/v1.1-2010.
 - 2. Resistant to fungal growth as per ASTM C1338.
 - 3. Containing no PBDE.

2.2 CLOSED-CELL SPRAY POLYURETHANE FOAM:

- A. Closed-Cell Spray Polyurethane Foam: ASTM C 1029, Type II, minimum density of 2.2 lb/cu. Ft. (35.2 kg/cu. m) and minimum aged R-value at 1-inch (25.4-mm) thickness of 4.9 deg F x h x sq. ft./Btu at 75 deg F (0.86 K x sq. m/W at 24 deg C).
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Icynene Inc.; Icynene ProSeal Eco or an approved equal.

2.3 OPEN-CELL SPRAY POLYURETHANE FOAM:

- A. Open-Cell Spray Polyurethane Foam: Spray-applied polyurethane foam using water as a blowing agent. Minimum density of 0.5 lb/cu. Ft. (8.0 kg/cu. m) and minimum aged R-value at 1-inch (25.4-mm) thickness of 3.7 deg F x h x sq. ft./Btu at 75 deg F (0.65 K x sq. m/W at 24 deg C).
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Icynene Inc.; Icynene ProSeal Eco or an approved equal.

2.4 MISCELLANEOUS MATERIALS:

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

PART 3 EXECUTION

3.1 EXAMINATION:

- A. Verify substrate and surface conditions are in accordance with insulation manufacturer recommended tolerances prior to installation of insulation and accessories.

3.2 SURFACE PREPARATION:

- A. Verify that surfaces are clean, dry, and free of substances that are harmful to insulation.
- B. Priming: Prime substrates where recommended by insulation manufacturer. Apply primer to comply with insulation manufacturer's written instructions. Confine primers to areas to be insulated; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION:

- A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- B. Spray insulation to envelop entire area to be insulated and fill voids.
- C. Apply in multiple passes to not exceed minimum thicknesses recommended by manufacturer. Do not spray into rising foam.
- D. Do not apply insulation within 3-inches (76 mm) of heat emitting devices or where the temperature is in excess of 200 degrees F (93 degrees C), as per ASTM C411 or in accordance with applicable codes.
- E. Framed Construction: Install into cavities formed by framing members to achieve thickness indicated on drawings.
- F. Cavities: Install into cavities to fully fill void.
- G. Miscellaneous Voids: Apply according to manufacturer's written instructions.

3.4 PROTECTION:

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes.
- B. Thermal Protection: Protect installed spray polyurethane foam insulation with qualified thermal or ignition barrier per applicable building codes.

3.5 INSTALLATION OF AIR BARRIER COMPONENTS:

- A. Install air barrier components - membranes and sealants - as indicated on drawings for spray polyurethane foam as part of an air barrier system.
- B. - - - E N D - -