SECTION 072119 - FOAMED-IN-PLACE INSULATION

Revise this Section by deleting and inserting text to meet Project-specific requirements.

MasterSpec includes provisions for LEED 2009, LEED v4, IgCC, and Green Globes. Sustainable design requirements may be inserted in the Section Text using the hypertext links.

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Closed-cell spray polyurethane foam insulation.

Open-cell spray polyurethane foam insulation.

Accessories.

Refer to sections listed below for cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections. Sections listed below are for spec editor’s and design team coordination and are to remain as Editor’s Notes. Remove referenced specification sections within the body of the specification if not applicable to the project.

Section 072100 "Thermal Insulation" for foam-plastic board insulation.

* + - 1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product.

Include manufacturer’s installation instructions.

* + - * 1. Quality Control Submittals.

Test and Evaluation Reports:

Product Test Reports: For each product, for tests performed by qualified testing agency.

Research Reports: For spray-applied polyurethane foam-plastic insulation, from **[an agency acceptable to authorities having jurisdiction] [UNIFORM CODE-ES] <Insert evaluation agency> showing compliance with <Insert requirement>.**

Field Quality-Control Submittals:

Field quality-control reports.

Design Consultant to review code references and verify that the referenced sections/tables are current. Note that code references shall be based on the current version of the Uniform Code.

* + - 1. QUALITY ASSURANCE
				1. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
1. PRODUCTS

Before selecting manufacturers and products, verify availability, suitability for intended applications, and compliance with minimum performance requirements. For definitions of terms and requirements for Contractor's product selection.

Product options commonly available from manufacturers are included in square brackets throughout the Section Text. Not every manufacturer listed can provide every option offered; verify availability with manufacturers.

* + - 1. CLOSED-CELL SPRAY POLYURETHANE FOAM INSULATION
				1. Closed-Cell Spray Polyurethane Foam: ASTM C1029, Type II, minimum density of **[1.5 lb/cu. ft.] <Insert density>** and minimum aged R-value at 1-inch thickness of 6.2 deg F x h x sq. ft./Btu at 75 deg F.

Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

Flame-Spread Index: **[25] [75] <Insert value>** or less.

Smoke-Developed Index**: [450] <Insert value>** or less.

Retain "Fire Propagation Characteristics" subparagraph below if required. Tested products are not available from all manufacturers for all types of assemblies. NFPA 285 pass is required by the IBC for exterior walls; NFPA 276 pass is required for foam plastic in roof assemblies.

Fire Propagation Characteristics: Passes **[NFPA 285] [and] [NFPA 276]** testing as part of an approved assembly.

* + - 1. OPEN-CELL SPRAY POLYURETHANE FOAM INSULATION
				1. Open-Cell Spray Polyurethane Foam: Spray-applied polyurethane foam using water as a blowing agent. Minimum density of **[0.4 lb/cu. ft.] <Insert density>** and minimum aged R-value at 1-inch thickness of 3.4 deg F x h x sq. ft./Btu at 75 deg F.

Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

Flame-Spread Index: [**25**] [**75**] <**Insert value**> or less.

Smoke-Developed Index: [**450**] <**Insert value**> or less.

Retain "Fire Propagation Characteristics" subparagraph below if required. Tested products are not available from all manufacturers for all types of assemblies. NFPA 285 pass is required by the IBC for exterior walls; NFPA 276 pass is required for foam plastic in roof assemblies.

Fire Propagation Characteristics: Passes **[NFPA 285] [and] [NFPA 276]** testing as part of an approved assembly.

* + - 1. ACCESSORIES

Retain "Primer" paragraph below if priming is required.

* + - * 1. Primer: Material recommended by insulation manufacturer where required for adhesion of insulation to substrates.

Retain "Thermal Barrier" paragraph below if a thermal barrier is required to separate spray foam from occupied spaces.

* + - * 1. Thermal Barrier: Material barrier intended to prevent flame-source access to foam and delay temperature-rise of foam during a fire event.

Retain one of first four subparagraphs below in compliance with IBC 2018. Verify compliance with authorities having jurisdiction.

Gypsum Wallboard: 0.5-inch minimum thickness.

Heavy timber in accordance with the IBC.

Materials tested in accordance with and complying with acceptance criteria of both the Temperature Transmission Fire Test and the Integrity Fire Test of NFPA 275.

Thermal Barrier Coating: Fire-protective intumescent coating formulated for application over polyurethane foam plastics, compatible with insulation, and **passes [NFPA 275] [and] [NFPA 286]** testing as part of an approved assembly.

Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

Flame-Spread Index: **[25] <Insert value>** or less.

Smoke-Developed Index: **[50] <Insert value>** or less.

Topcoat: **[8- to 12-mil-] <Insert value>** thick, **[water-based latex-based paint] [heavy-duty protective coating]** recommended in writing by intumescent thermal barrier manufacturer as compatible with substrate materials.

Retain "Ignition Barrier" paragraph below if an ignition barrier is required to separate spray foam from limited-access spaces.

* + - * 1. Ignition Barrier: Material providing a 15-minute minimum fire-ignition barrier.

Retain one of first six subparagraphs below in compliance with IBC 2018. Verify compliance with authorities having jurisdiction.

Mineral-Fiber Insulation: 1.5-inch minimum thickness.

Wood Structural Panel, Particleboard or Hardboard: 0.25-inch minimum thickness.

Gypsum Wallboard: 0.325-inch minimum thickness.

Corrosion-Resistant Steel: 0.016-inch base metal thickness.

Cellulose Insulation: 1.5-inch minimum thickness, self-supported spray-applied; for attic spaces only.

Ignition Barrier Coating: Fire-protective coating formulated for application over polyurethane foam plastics, compatible with insulation, and in compliance with UNIFORM CODE-ES AC377, Appendix X.

Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

Flame-Spread Index: **[25] <Insert value>** or less.

Smoke-Developed Index: **[50] <Insert value>** or less.

1. EXECUTION
	* + 1. PREPARATION
				1. Verify that substrates are clean, dry, and free of substances that are harmful to insulation.
				2. 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.
			2. INSTALLATION
				1. Comply with insulation manufacturer's written instructions applicable to products and applications.
				2. Spray insulation to envelop entire area to be insulated and fill voids.
				3. Apply in multiple passes to not exceed maximum thicknesses recommended by manufacturer. Do not spray into rising foam.

Retain "Framed Construction" paragraph below for framed construction. Coordinate with Drawings.

* + - * 1. Framed Construction: Install into cavities formed by framing members to achieve thickness indicated on Drawings.

Retain "Cavity Walls" paragraph below for cavity walls. Coordinate with Drawings.

* + - * 1. Cavity Walls: Install into cavities to **[thickness indicated on Drawings] [fully fill void]**.
				2. Miscellaneous Voids: Apply according to manufacturer's written instructions.
				3. Install **[thermal] [ignition]** barrier material.

Do not cover insulation prior to any required spray foam insulation inspections.

* + - * 1. Apply barrier coatings in accordance with manufacturer's written instructions and to comply with requirements for listing and labeling for fire-propagation characteristics and surface-burning characteristics specified.

If a restricted application method is required (e.g., only spray or roller), revise first subparagraph below to suit Project.

Use equipment and techniques best suited for substrate and type of material applied as recommended by coating manufacturer.

Apply coatings to prepared surfaces as soon as practical after preparation and before subsequent surface soiling or deterioration.

Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Produce sharp lines and color breaks.

* + - 1. FIELD QUALITY CONTROL

Retain "Manufacturer's Field Service" paragraph below to require a company field advisor per OGS Spec Section 014216 to perform tests and inspections.

* + - * 1. Manufacturer's Field Service: Engage a company field advisor per OGS Spec Section 014216 to test and inspect spray foam insulation installation, including accessories. Report results in writing.
			1. PROTECTION
				1. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes.

END OF SECTION 072119