SECTION 078123 - INTUMESCENT FIRE PROTECTION

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

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			1. SUMMARY
				1. Section Includes:

Mastic and intumescent fire-resistive coatings.

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 099646 "Intumescent Painting" for intumescent paints that are fire retarding, but not fire resistive.

* + - 1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.

Retain subparagraph below if required. If retaining, revise to include additional and product-specific requirements to suit Project.

Review products, design ratings, restrained and unrestrained conditions, thicknesses, and other performance requirements.

* + - 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 the following:

Manufacturer’s installation instructions.

Mastic and intumescent fire-resistive coatings.

Substrate primers.

Reinforcing fabric.

Reinforcing mesh.

Topcoat.

* + - * 1. Sustainable Design Submittals:

Retain "Shop Drawings" paragraph below if extent or complexity of fire protection is sufficient to justify submitting Shop Drawings. Consider deleting paragraph if only one fire-resistance design is required for Project.

* + - * 1. Shop Drawings: Framing plans or schedules, or both, indicating the following:

Extent of fire protection for each construction and fire-resistance rating.

Applicable fire-resistance design designations of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.

Minimum mastic and intumescent fire-resistive coating thicknesses needed to achieve required fire-resistance rating of each structural component and assembly.

Treatment of mastic and intumescent fire-resistive coating after application.

Retain "Samples" paragraph below for single-stage Samples, with a subordinate list if applicable.

* + - * 1. Samples: For each exposed product and for each color and texture specified, **[in manufacturer's standard dimensions] [4 inches square] <Insert dimensions>** in size.
				2. Quality Control Submittals:

Qualification Data: For **[Installer] [and] [testing agency]**.

Retain "Product Certificates" paragraph below to require submittal of product certificates from manufacturers.

Product Certificates: For each type of mastic and intumescent fire-resistive coating.

Evaluation Reports: For mastic and intumescent fire-resistive coating, from ICC-ES.

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.

Retain "Field quality-control reports" paragraph below if Contractor is responsible for field quality-control testing and inspecting.

Field quality-control reports.

* + - 1. QUALITY ASSURANCE

Revise "Installer Qualifications" paragraph below to suit Project. Verify that manufacturers qualify installers who are available to perform work in Project area.

* + - * 1. Installer Qualifications: A firm or individual certified, licensed, or otherwise qualified by mastic and intumescent fire-resistive coating manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements.
				2. Benchmarks: Build Benchmarks**[to verify selections made under Sample submittals and to demonstrate aesthetic effects] [and] [to set quality standards for materials and execution]**.

Indicate portion of Work represented by Benchmarks on Drawings or draw Benchmarks as separate element.

Build Benchmark of **[each type of fire protection and different substrate] [and] [each required finish] <Insert description>** as shown on Drawings.

Approval of Benchmarks does not constitute approval of deviations from the Contract Documents contained in Benchmarks unless Director’s Representative specifically approves such deviations in writing.

* + - 1. FIELD CONDITIONS

Revise "Environmental Limitations" paragraph below if different temperature or time limits apply to required products. Temperature below is common for waterborne products. Some products, such as epoxies, may require higher mixing and application temperatures; others, such as solvent-borne products, may allow lower temperatures to 35 deg F.

* + - * 1. Environmental Limitations: Do not apply fire protection when ambient or substrate temperature is **[50 deg F] <Insert temperature>** or lower unless temporary protection and heat are provided to maintain temperature at or above this level for 24 hours before, during, and for 24 hours after product application.
				2. Ventilation: Ventilate building spaces during and after application of fire protection, providing complete air exchanges according to manufacturer's written instructions. Use natural means or, if they are inadequate, forced-air circulation until fire protection dries thoroughly.
1. PRODUCTS

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. PERFORMANCE REQUIREMENTS
				1. Assemblies: Provide fire protection, including auxiliary materials, according to requirements of each fire-resistance design and manufacturer's written instructions.

Retain "Source Limitations" paragraph below if fire-resistance designs are based on products by single manufacturer. Retain option if one manufacturer cannot satisfy all design conditions.

* + - * 1. Source Limitations: Obtain fire protection [ **for each fire-resistance design**] from single source.

UL 263 is cited as equivalent to ASTM E119 in the IBC. Insert UL 1709 or ASTM E1529 test method in "Fire-Resistance Design" paragraph below if required; see the Evaluations. UL's "Fire Resistance Directory" does not list products tested to ASTM E119 or ASTM E1529. Insert additional testing only if required.

* + - * 1. Fire-Resistance Design: Indicated on Drawings, tested according to **[ASTM E119 or UL 263] <Insert requirement>**; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

Steel members are to be considered unrestrained unless specifically noted otherwise.

* + - * 1. Asbestos: Provide products containing no detectable asbestos.
			1. MASTIC AND INTUMESCENT FIRE-RESISTIVE COATINGS

Materials and finishes vary with manufacturer and product and are based on approved fire-resistance designs that comply with the fire-resistance ratings of building elements as required by code. Coordinate the approved fire-resistance design with the material composition and other salient characteristics retained.

If decorative paints or coatings over mastic and intumescent fire-resistive coatings are specified in Section 099114 "Exterior Painting" and Section 099123 "Interior Painting," verify compatibility with products in this Section and verify acceptability to authorities having jurisdiction.

Copy "Mastic and Intumescent Fire-Resistive Coating" paragraph below and re-edit for each product or fire-resistance design. A topcoat may be mandatory or optional; it provides additional protection to mastic and intumescent fire-resistive coating and offers greater color selection.

Insert drawing designation or UL-design number. Use these designations or numbers on Drawings to identify each product or fire-resistance design.

* + - * 1. Mastic and Intumescent Fire-Resistive Coating **<Insert drawing designation or UL-design number>**: Manufacturer's standard, **[factory-mixed formulation] [or] [factory-mixed, multicomponent system consisting of intumescent base coat and topcoat]**, and complying with indicated fire-resistance design.

Retain "Application" subparagraph below if applicable. UL's "Fire Resistance Directory" includes testing for these three optional uses (exposures). See the Evaluations.

Application: Designated for **["exterior"] ["interior general purpose"] [and] ["conditioned interior space purpose"]** use by a qualified testing agency acceptable to authorities having jurisdiction.

Insert a minimum thickness in "Thickness" subparagraph below if required.

Thickness: As required for fire-resistance design indicated, measured according to requirements of fire-resistance design.

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 number>** or less.

Generally, retain first option in "Smoke-Developed Index" subparagraph below if the fire-resistive coating is used in an air plenum. See the Evaluations.

Smoke-Developed Index: **[50] [450] <Insert number>** or less.

Retain "Hardness" subparagraph below if required; values are examples only. If required, also insert a "Bond Strength" subparagraph. The BCNYS and UL do not have hardness or bond-strength requirements for mastic and intumescent fire-resistive coatings. See the Intumescent Fire-Resistive Coatings Table in the Evaluations.

Hardness: Not less than **[45] [65] [80] <Insert value>**, Type D durometer, according to ASTM D2240.

Retain "Finish" subparagraph below if appearance is a concern; consult manufacturer for recommendations and revise to suit Project. If retaining more than one finish, indicate locations of each on Drawings or by inserts.

Finish: **[As selected by Director’s Representative from manufacturer's standard finishes] [Spray-textured finish] [Rolled, spray-textured finish] <Insert requirement>**.

Consider retaining "Color and Gloss" subparagraph below if important to Project's appearance; consult manufacturer for recommendations.

Color and Gloss: **[As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Director’s Representative from manufacturer's full range] <Insert color and gloss>**.

* + - 1. AUXILIARY MATERIALS
				1. Provide auxiliary materials that are compatible with mastic and intumescent fire-resistive coating and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.

Retain "Substrate Primers" paragraph below. If primers are specified for shop or field application in another Section, verify that they comply with requirements below.

* + - * 1. Substrate Primers: Primers approved by mastic and intumescent fire-resistive coating manufacturer and complying with required fire-resistance design by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

Retain "Reinforcing Fabric" and "Reinforcing Mesh" paragraphs below if required. Consult manufacturers for recommendations and revise to suit Project.

* + - * 1. Reinforcing Fabric: Glass- or carbon-fiber fabric of type, weight, and form required to comply with fire-resistance designs indicated; approved and provided by mastic and intumescent fire-resistive coating manufacturer.
				2. Reinforcing Mesh: Metallic mesh reinforcement of type, weight, and form required to comply with fire-resistance design indicated; approved and provided by mastic and intumescent fire-resistive coating manufacturer. Include pins and attachment.

"Topcoat" paragraph below is a generic description; retain if required and revise to suit Project. Insert proprietary products for use only with same manufacturer's fire-resistive coatings. Consult manufacturers named in "Mastic and Intumescent Fire-Resistive Coatings" Article for recommendations for single-source responsibility for tested fire-resistance designs.

* + - * 1. Topcoat: Suitable for application over mastic and intumescent fire-resistive coating; of type recommended in writing by mastic and intumescent fire-resistive coating manufacturer for each fire-resistance design.
1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrates and other conditions affecting performance of the Work and according to each fire-resistance design.

Verify that substrates are free of dirt, oil, grease, release agents, rolling compounds, mill scale, loose scale, incompatible primers, paints, and encapsulants, or other foreign substances capable of impairing bond of fire protection with substrates under conditions of normal use or fire exposure.

Verify that objects penetrating fire protection, including clips, hangers, support sleeves, and similar items, are securely attached to substrates.

Verify that substrates receiving fire protection are not obstructed by ducts, piping, equipment, or other suspended construction that will interfere with fire protection application.

* + - * 1. Conduct tests according to mastic and intumescent fire-resistive coating manufacturer's written instructions to verify that substrates are free of substances capable of interfering with bond.
				2. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
				3. Proceed with installation only after unsatisfactory conditions have been corrected.
			1. PREPARATION
				1. Cover other work subject to damage from fallout or overspray of fire protection materials during application.
				2. Clean substrates of substances that could impair bond of fire protection.

Generally, retain first paragraph below.

* + - * 1. Prime substrates where included in fire-resistance design and where recommended in writing by mastic and intumescent fire-resistive coating manufacturer unless compatible shop primer has been applied and is in satisfactory condition to receive fire protection.

Retain paragraph below unless fire protection is neither visible nor important to Project's appearance.

* + - * 1. For applications visible on completion of Project, repair substrates to remove surface imperfections that could affect uniformity of texture and thickness in finished surface of fire protection. Remove minor projections and fill voids that would telegraph through fire-resistive products after application.
			1. APPLICATION
				1. Construct fire protection assemblies that are identical to fire-resistance design indicated and products as specified, tested, and substantiated by test reports; for thickness, primers, topcoats, finishing, and other materials and procedures affecting fire protection Work.
				2. Comply with mastic and intumescent fire-resistive coating manufacturer's written instructions for mixing materials, application procedures, and types of equipment used to mix, convey, and apply fire protection; as applicable to particular conditions of installation and as required to achieve fire-resistance ratings indicated.
				3. Coordinate application of fire protection with other construction to minimize need to cut or remove fire protection.

Do not begin applying fire protection until clips, hangers, supports, sleeves, and other items penetrating fire protection are in place.

Defer installing ducts, piping, and other items that would interfere with applying fire protection until application of fire protection is completed.

* + - * 1. Install auxiliary materials as required, as detailed, and according to fire-resistance design and mastic and intumescent fire-resistive coating manufacturer's written instructions for conditions of exposure and intended use. For auxiliary materials, use attachment and anchorage devices of type recommended in writing by mastic and intumescent fire-resistive coating manufacturer.
				2. Spray apply fire protection to maximum extent possible. After the spraying operation in each area, complete the coverage by trowel application or other placement method recommended in writing by mastic and intumescent fire-resistive coating manufacturer.
				3. Extend fire protection in full thickness over entire area of each substrate to be protected.
				4. Install body of fire protection in a single course unless otherwise recommended in writing by mastic and intumescent fire-resistive coating manufacturer.
				5. Provide a uniform finish complying with description indicated for each type of fire protection material and matching finish approved for required mockups.
				6. Cure fire protection according to mastic and intumescent fire-resistive coating manufacturer's written instructions.
				7. Do not install enclosing or concealing construction until after fire protection has been applied, inspected, and tested and corrections have been made to deficient applications.

Retain or revise "Finishes" paragraph below to suit Project; coordinate with finishes retained in "Mastic and Intumescent Fire-Resistive Coatings" Article.

* + - * 1. Finishes: Where indicated, apply fire protection to produce the following finishes:

Manufacturer's Standard Finishes: Finish according to manufacturer's written instructions for each finish selected.

Spray-Textured Finish: Finish left as spray applied with no further treatment.

Rolled, Spray-Textured Finish: Even finish produced by rolling spray-applied finish with a damp paint roller to remove drippings and excessive roughness.

* + - 1. FIELD QUALITY CONTROL

Retain first option in "Special Inspections" paragraph below if Director’s Representative engages special inspector. Consider retaining second option if authorities having jurisdiction allow Contractor to engage special inspector. If retaining second option, retain "Field quality-control reports" paragraph in "Quality Control Submittals" Article. See "Special Inspections" Article in the Evaluations.

* + - * 1. Special Inspections: **[Director’s Representative will engage] [Engage]** a qualified special inspector to perform the following special inspections:

First option in subparagraph below applies to the BCNYS. Retain second option if including a Schedule of Special Inspections in the Contract Documents. Verify test and inspection requirements with authorities having jurisdiction.

Test and inspect as required by the BCNYS **[, Subsection 1705.14, "Mastic and Intumescent Fire-Resistant Coatings."] [as indicated on Schedule of Special Inspections.] <Insert requirement.>**

* + - * 1. Perform the tests and inspections of completed Work in successive stages. Do not proceed with application of fire protection for the next area until test results for previously completed applications of fire protection show compliance with requirements. Tested values must equal or exceed values as specified and as indicated and required for approved fire-resistance design.
				2. Fire protection will be considered defective if it does not pass tests and inspections.

Remove and replace fire protection that does not pass tests and inspections, and retest.

Apply additional fire protection, per manufacturer's written instructions, where test results indicate insufficient thickness, and retest.

* + - * 1. Prepare test and inspection reports.
			1. CLEANING
				1. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.
			2. PROTECTION
				1. Protect fire protection, according to advice of manufacturer and Installer, from damage resulting from construction operations or other causes, so fire protection is without damage or deterioration at time of Substantial Completion.
			3. REPAIRS
				1. As installation of other construction proceeds, inspect fire protection and repair damaged areas and fire protection removed due to work of other trades.
				2. Repair fire protection damaged by other work before concealing it with other construction.
				3. Repair fire protection by reapplying it using same method as original installation or using manufacturer's recommended trowel-applied product.

END OF SECTION 078123