

**SECTION 099646 INTUMESCENT PAINTING**

**PART 1 - GENERAL**

**1.1 GENERAL REQUIREMENTS**

- A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

**1.2 SECTION INCLUDES**

- A. Work of this Section includes all labor, materials, equipment, and services necessary to complete the intumescent painting on fireproofed steel exposed to view, as indicated on drawings and as specified herein, including, but not limited to, the following:

- 1. Interior intumescent paint.

**1.3 RELATED SECTIONS**

- A. Structural Steel - Section 051200.
- B. Painting and Finishing - Section 099000.

**1.4 REFERENCES**

- A. ASTM Test Standards

- 1. ASTM D 2240 – Durometer Hardness (Shore D Only).
  - 2. ASTM D 2794 – Impact Resistance.
  - 3. ASTM D 4060 – Abrasion Resistance.
  - 4. ASTM D 4541 – Bond Strength.
  - 5. ASTM E 84 – Surface Burning Characteristics of Building Materials.
  - 6. ASTM E 119 – Fire Tests of Building Construction and Materials.

- B. The Society of Protective Coatings (SSPC):

- 1. SSPC SP-6: Commercial Blast Cleaning Standard.

- C. Underwriters' Laboratories Inc. (UL):

- 1. Fire Resistive Directory, Volume 1; Current edition. Classification identified as Mastic and Intumescent Coatings (CDWZ).
  - 2. UL 263 - Fire Test of Building Construction and Material.

**1.5 SUBMITTALS**

- A. Product Data: Submit product data including manufacturer's technical information indicating product performance characteristics, performance and limitation criteria for each product specified herein.

- B. Submit evidence indicating that manufacturer of the intumescent fireproofing coating has reviewed and approved shop primer to be used by the structural steel fabricator; refer to Section 051200, "Structural Steel," for primer description.
- C. Submit evidence indication that manufacturer of the intumescent fireproofing coating has reviewed and approved proposed topcoat.
- D. Fire Test Evidence: Submit published third-party design listings for fire resistance ratings and product thickness. Include evidence that the fire testing was sponsored by the manufacturer and that the material tested was produced at the manufacturer's facility under the supervision of third-party certification personnel.
- E. Installation Instructions: Submit manufacturer's written installation instructions.
- F. Installer Qualifications: Submit applicator's current certification as a manufacturer trained and approved installer.
- G. Shop Drawings: Submit plan, section, elevation and perspective drawings as necessary to depict system configuration, design considerations and application procedures.
- H. Selection Samples: For each finish product specified, submit samples representing manufacturer's range of available materials, finishes and shapes.

#### 1.6 QUALITY ASSURANCE

- A. Material Manufacturer: Company specializing in manufacturing products listed in this section.
  - 1. Fire Protection Factory Manufacturer: Company specializing in manufacturing the work of this section with a minimum of three years' documented experience and certified by the material manufacturer.
- B. Fire Protection Installer: Company specializing in installing the work of this section with a minimum of three years' documented experience and certified by the material manufacturer.
- C. Product
  - 1. All products listed in this section must be manufactured under the appropriate follow-up service with each container bearing the certified label (mark).
  - 2. Intumescent fireproofing shall be a complete system consisting of compatible primer, intumescent fireproofing coating, adhesive, edge sealant and decorative topcoat.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Before proceeding with the work, the installer will apply the primer, intumescent fireproofing, and decorative top coat to a representative substrate section of 10 square feet in size. Areas will be designated by the Architect.
  - 2. Materials must be applied in accordance with the project requirements for fire rating thickness, finish texture and color.
  - 3. The application must be witnessed by the Architect's or Owner's representative and is subject to their approval. Once agreed upon in writing, it serves as a guide for the finished work.

4. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
5. Refinish mock-up area as required to produce acceptable work.

**1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver materials in manufacturer's original, sealed, undamaged container with identification label intact. Packaged materials must bear the appropriate labels, seals and designated certification mark for fire resistive ratings.
- B. Storage: Store materials in strict accordance with manufacturers documented instructions.
- C. Documentation: All batch number, product identification and quantities shall be recorded on appropriate QC documents. A copy of the transport document and manufacturers conformance certificate shall be attached to the material delivery QC form.
- D. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.

**1.8 PROJECT CONDITIONS**

- A. Project Environmental Requirements: Substrate and air temperature shall be in accordance with the manufacturer's requirements.
  1. Protect work area from windblown dust and rain. Protect adjacent areas from over spray of fireproofing material.
  2. Provide ventilation in areas to receive work of this section during application and minimum 24 hours after application.
- B. Temperature and Humidity Requirements: Maintain air temperature and relative humidity in areas where products will be applied for a time period before during and after application as recommended by manufacturer.
  1. Do not install intumescent fire protection system when temperature of substrate and/or surrounding ambient air temperature is below 41 degrees F. Temporary protection and heat shall be maintained at this minimum temperature for 24 hours before, during and 24 hours after material application.
  2. Steel substrate temperature shall be a minimum of 5 deg F. above the dew point of the surrounding air for a period of 24 hours prior and during the application of the material.
  3. If necessary for job schedule, the Contractor shall provide enclosures and heat to maintain proper temperatures and humidity levels in the application areas.
  4. The relative humidity of the application area shall not exceed a maximum of 85 percent for 24 hours prior, during and 24 hours after the application of the material.

**1.9 SEQUENCING AND SCHEDULING**

- A. Sequence and coordinate installation of fireproofing system with Work in other sections which would interfere with efficient fireproofing application.
- B. Do not apply fire protection materials to supporting structural steel until the concrete toppings and/or roofing applications have been completed and are substantially dry.

1.10 WARRANTY

- A. At project closeout, provide to Owner an executed copy of the manufacturer's standard limited warranty against manufacturing defect, outlining its terms, conditions, and exclusions from coverage.
1. Duration: Minimum two years.

PART 2 - PRODUCTS

2.1 INTUMESCENT FIREPROOF COATING FOR INTERIOR APPLICATION

- A. Provide 4-hour intumescent paint for existing columns along mezzanine that are being clad in millwork.

1. Acceptable Products

- a. "Interchar 1120" made by International Paint.
- b. "Thermo-Sorb" made by Carboline.
- c. "Albi Clad TF" made by Albi Mfg. Co.
- d. "Cafco Spray Film – WB 5" made by Isolatek International for columns only, and WB-3 for beams, joists and girders.
- e. "Promapaint P-3" made by Promat Firestop.
- f. "Firetex FX5120" by Sherwin Williams.
- g. Or approved equal.

- B. Description: A single pack, chlorine-free, waterborne intumescent coating site applied over shop applied prime coat (see Section 051200). Coating must meet the following minimum physical requirements:

PROPERTY	TEST METHOD	VALUE
Dry Applied Density		85 PCF
Hardness	ASTM D 2440	45-50
Compressive Strength	ASTM D 695	300 PSI
Bond Strength	ASTM D 4541	145 PSI
Abrasion Resistance	ASTM D 4060	0.16 grams loss @ 100 cycles
Flame Spread	ASTM E 84	Class A
Smoke Developed	ASTM E 84	Class A

- C. Fireproofing Performance: Provide intumescent fireproofing system, tested by independent testing agency in accordance with ASTM E 119/UL test as indicated, and acceptable to authorities having jurisdiction:
1. Listed by UL and bearing the UL label.
- D. Accessory Materials: Manufacturer's recommended adhesive and edge sealant.
- E. Shop Primer Coating: Refer to Section 051200, "Structural Steel."

- F. Decorative Topcoat: Approved by the intumescent fireproofing manufacturer and applied in accordance with the topcoat manufacturer's documented instructions, custom colors as selected by the Architect.
  - 1. Provide water-based epoxy top coat as specified in Section 099000.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. All surfaces to receive the fire protection material must be clean, dry and free of oil, grease, loose mill scale, loose shop primer, dirt, dust or other foreign substances which would impair bond of the fire protection material to the substrate.
- B. Do not commence installation of the fire protection system until the contractor, installer and fire protection manufacturer's representative have examined the surfaces to receive the fire protection and determined the surfaces are acceptable to receive the fire protection material. Commencement of installation is acceptance of substrate.
- C. Verify that substrate and workspace temperature and humidity conditions are in accordance with requirements of this section.
- D. Verify that all clip hangers, piping, ducts, equipment or other items which would interfere with the installation of the factory-manufactured architectural fire protection system are not positioned or installed until installation is complete.

#### **3.2 PREPARATION**

- A. Provide masking, drop cloths or other suitable coverings to prevent overspray onto surfaces not intended to be affected by Work in this section.
- B. Clean substrate free of dust, dirt, grease or other foreign substances that would impair with the bond of the intumescent fireproofing protection adhesive material.
- C. Grind smooth all weld spatter and defects prior to commencement of fire protection installation and touch-up shop primer in the field using same paint as shop primer.

#### **3.3 APPLICATION (FIELD APPLIED)**

- A. Equipment and installation procedures must conform to the manufacturer's installation instructions. The intumescent fireproofing protection material shall be applied at the required dry film thickness to achieve fire resistance rating specified herein.
- B. Install fire protection material only to primed surfaces and in accordance with manufacturer's installation instructions. Refer to Section 051200 for steel shop primer.
- C. Final texture and finish of the intumescent fireproofing must be completed prior to the application of the decorative top coat and in accordance with the Architect's approval and approved mock-up samples.
- D. Apply decorative top coat in accordance with the manufacturer's application instructions. Final color, gloss and finish will be determined and approved by the Architect.

**3.4 FIELD QUALITY CONTROL**

- A. The Owner shall retain the services of an independent testing laboratory to inspect and verify the installation of the intumescent fireproofing material in accordance with the provisions of AWCI Technical Manual 12-B, Standard Practice for the Testing and Inspection of Field Applied Thin-Film Intumescent Fire-Resistive Materials; an Annotated Guide.
- B. The fire protection material inspection must be performed prior to the application of the decorative top coat.
- C. All test results must be made available to all parties at the completion of each pre- designated area and approved prior to the application of top coat.
- D. Intumescent fireproofing not in compliance with the specification requirements must be corrected prior to the application of the decorative top coat.

**3.5 CLEAN UP AND REPAIR**

- A. Upon completion of installation, all excess material, overspray and debris must be cleared and removed from the job site.
- B. Remove fire protection materials from surfaces not required to be fireproofed.
- C. All patching and repair to intumescent fireproofing, due to damage by other trades, shall be performed under this section of work. Patching must be performed by the installer of the intumescent fireproofing and applied in accordance with the manufacturer's installation instructions.

**3.6 PROTECTION**

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 099646