

## SECTION 07 81 24

### INTUMESCENT FIREPROOFING

#### PART 1 – GENERAL

##### 1.01 SECTION INCLUDES

- A. Epoxy-based intumescent fireproofing.
- B. Decorative topcoat finish.
- C. Primer.

##### 1.02 SYSTEM DESCRIPTION

- A. System includes one hour and two hour fire-rated protection for structural steel members as indicated.
- B. Fireproofing material shall be an epoxy-based intumescent fireproof coating. Provide decorative topcoat for exposed portions of structural steel only.

##### 1.03 RELATED SECTIONS

- A. Compatible primer for structural steel is specified in Section 05 12 00, Structural Steel Framing.

##### 1.04 MEASUREMENT AND PAYMENT

- A. General: Intumescent fireproofing will not be measured separately for payment but will be paid for as part of the Contract lump sum price for Architectural Work.

##### 1.05 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  - 1. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
  - 2. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials
- B. The Society for Protective Coatings (SSPC):
  - 1. Steel Structures Painting Manual, Volume 2, "Systems and Specifications"
  - 2. SSPC-PA 2 Procedure for Determining Conformance to Dry Coatings Thickness

- C. Underwriters Laboratories Inc. (UL):
  - 1. UL Fire Resistance Directory; applicable UL Design Numbers for application of fireproofing and conditions as indicated.
- D. National Fire Protection Association (NFPA):
  - 1. NFPA 101, Life Safety Code, Section 10.2.3.4.1 Class A Interior Wall and Ceiling Finish

**1.06 REGULATORY REQUIREMENTS**

- A. In addition to the foregoing referenced standards, the regulatory requirements that govern the work of this Section include the following governing code:  
  
California Code of Regulations (CCR), Title 24, Part 2, California Building Code, Chapter 7, "Fire and Smoke Protection Features."

**1.07 SUBMITTALS**

- A. General: Refer to Section 01 33 00, Submittal Procedures, and Section 01 33 23, Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.
- B. Product Data: Submit manufacturer's product data of the intumescent fireproofing material proposed for this work, indicating product characteristics, performance, and limitations. Include topcoat coating material and color samples for exposed steel surfaces.
  - 1. Color of the topcoat in exposed locations requires the approval of the Engineer before the topcoat may be used in the work.
- C. Certificates: Submit certificates from an independent testing laboratory, attesting that fire protection material and installation methods meet specified fire hazard classifications and fire resistance ratings.

**1.08 QUALITY ASSURANCE**

- A. Regulatory Requirements: Intumescent fireproofing shall meet or exceed the applicable requirements of the California Building Code, Chapter 7, and the applicable UL Design Number and code approval for the application of the one-hour and two-hour fire protection indicated.
- B. Qualifications: Application of the intumescent fireproofing material shall be by a skilled and experienced applicator specializing in the application of intumescent fireproofing. Fireproofing applicator shall be approved by the manufacturer who furnishes the materials.

C. Manufacturer's Field Services:

1. The Contractor shall make necessary arrangements with the manufacturer of the materials to be applied to provide on-site consultation and inspection services to ensure the proper application of the intumescent fireproofing material.
2. At completion of the work, the manufacturer shall submit written certification that fireproofing material was applied over inspected and approved base steel components and that fireproofing material was applied correctly in accordance with these Specifications and the manufacturer's specifications and recommendations.

**1.09 DELIVERY AND STORAGE**

- A. Materials shall be delivered to the site in sealed containers properly marked and labeled to show manufacturer's name, brand, and certification of compliance with requirements for fire hazard and fire resistance classifications. Damaged containers found unsuitable for use in the work will be rejected and shall be removed from the site. Store materials under cover in a dry location.

**1.10 PROJECT CONDITIONS**

- A. Surfaces to which fire protection material is to be applied, as well as the ambient temperature during application and for 24 hours after application, shall not fall below 50 degrees Fahrenheit. Relative humidity shall be low enough to assure proper drying of the applied material.

**PART 2 – PRODUCTS**

**2.01 MATERIALS**

- A. Fireproofing Material: Epoxy-based intumescent fireproofing material for spray or brush application, with a dry film thickness of not less than 0.26 inch as required to achieve the specified one-hour and two-hour fire-resistive ratings. Fireproofing material shall be labeled by the Underwriters' Laboratories, Inc., for fire hazard classification, and evidence of the UL Classification Marking shall appear on the containers of all fireproofing material. Material containing asbestos will not be acceptable. Material shall contain the following properties and characteristics:
1. Fire-Retardant Requirements: Fireproofing material shall have been tested, classified, and listed by the Underwriters Laboratories Inc. or Warnock Hersey in accordance with the provisions of ASTM E119.
  2. Surface Burning Characteristics: Fireproofing material shall have a flame-spread rating of 25 or less, according to NFPA 101, Section 10.2.3.4.1 Class A Interior Wall and Ceiling Finish when tested in accordance with ASTM E84.
  3. VOC Regulations: Fireproofing material shall comply with applicable California VOC Regulations as specified in Section 01 60 00, Product Requirements.

- B. Decorative Topcoat Finish Material: Provide topcoat coating material for exposed steel as recommended by the fireproofing material manufacturer in color as selected by the Engineer.
- C. Primer: Factory-applied primer with adhesion and compatibility characteristics necessary for the successful application of the fireproofing material as specified in Section 05 12 00, Structural Steel Framing.

**2.02 MIXING**

- A. Mixing of fireproofing materials shall be in accordance with the manufacturer's instructions and recommendations.

**PART 3 – EXECUTION**

**3.01 EXAMINATION**

- A. Verify that items that will penetrate fireproofing, including clips and hangers for piping and conduits, are properly located and installed.
- B. Verify that interfacing installations are complete as indicated.

**3.02 PREPARATION OF SURFACES**

- A. Surfaces to which intumescent fireproofing will be applied shall be cleaned of oil, grease, dirt, loose paint, mill scale, or any other matter that may impair bond of fireproofing material to steel.
- B. Provide suitable templates, masking, or coverings to stop fireproofing material and overspray at exposed finished surfaces in sharp and neat straight lines. Provide for protection of floors and equipment from spillage and overspray.

**3.03 APPLICATION**

- A. Application of fireproofing materials shall be in accordance with the application instructions and recommendations of the materials' manufacturer and the fire test reports' information.
- B. Fireproofing material shall be applied in minimum thickness of 0.26 inch and as required to meet UL Design requirements and code approval for one-hour and two-hour fire protection of structural steel.
- C. Apply decorative finish coating over intumescent fireproofing for exposed steel surfaces in accordance with the manufacturer's application instructions and recommendations.

**3.04 PATCHING AND REPAIRING**

- A. Perform patching and repairing of fireproofing material as required to provide the one-hour and two-hour fire protection and related thickness. Include all patching and repairing of fireproofing material required after the work of other trades has been installed, such as piping and conduits, ductwork, and similar work. Re-apply fireproofing material as required to maintain fire-resistive continuity.

**3.05 FIELD QUALITY CONTROL**

- A. Corrective measures, when necessary, shall be performed as required. The Contractor shall require that the manufacturer of the fireproofing material submit recommendations for corrective measures to the Engineer for approval.
- B. The Contractor shall take frequent, dry film thickness (DFT) readings of applied material to verify compliance with thickness requirements. Measurements shall be taken in accordance with SSPC-PA 2, Procedure for Determining Conformance to Dry Coatings Thickness. Submit report of such measurements to the Engineer for record purposes.

**END OF SECTION 07 81 24**