SECTION 078123 – INTUMESCENT FIRE RESISTIVE MATERIALS

PART 1 - GENERAL

1.1 SCOPE

1.1.1 This specification covers labor, materials, equipment, and application necessary for, and incidental to, the complete and proper installation of intumescent fire protection for application to steel structures and supports in accordance with all applicable requirements of contract documents.

1.1.2 This specification shall be supplemented by the applicable requirements of building codes, insurance rating organizations and all other authorities having jurisdiction.

1.2 SECTION INCLUDES

1.2.1 Intumescent fire protection material.

1.2.2 Topcoat protective decorative finish.

1.3 RELATED SECTIONS

1.3.1 Section 051000: Structural Steel.

1.3.2 Section 051200 - 055000: Structural steel and metal fabrications with reference to primer receiving fire protection materials.

1.3.3 Section 078100 Spray-Applied Fire Resistive Material.

1.3.4 Section 072700: Firestopping and Smoke Seals.

1.3.5 Section 099000: Painting.

1.4 REFERENCES

1.4.1 Underwriters Laboratories (UL) Fire Resistance Directory.

1.4.2 Intertek Directory of Building Products

1.4.3 Underwriters Laboratories of Canada (ULC) - List of Equipment and Materials.

1.4.4 Third Party Evaluation Services Report

1.4.3 Test Standards and Practices

a) ANSI/UL 263 (ASTM E119) - Fire Tests of Building Construction and Materials
b) CAN/ULC-S101 - Standard Methods of Fire Endurance Tests of Building Construction and Materials
c) ASTM E84 (UL723, CAN/ULC-S102) - Surface Burning Characteristics of Building Materials. Flame Spread Maximum: 5 and Smoke Developed Maximum: 35
d) ASTM D2240 – Durometer Hardness (Shore D Only). Minimum: 66 Shore D
e) ASTM D2794 – Impact Resistance. Intrusion minimum: 151 inch-lb.
f) ASTM D4060 – Abrasion Resistance. Maximum 0.2600 grams/1000 cycles
g) ASTM D4541 – Bond Strength. Minimum: 631 psi.
h) ASTM D3960 – Results of Volatile Organic Compound Maximum: 8g/L
i) ASTM E2924 – Standard Practice for Intumescent Coatings
j) ASTM – Standard Practice for On-Site Inspection of Installed Intumescent Fire Resistive Material

1.4.4 AMPP/SSPC Surface Preparation Standards.

1.4.5 Material manufacturer's current published information including, but not limited to, application guide.

1.4.6 AWCI Technical Manual 12-B "Standard Practice for the Testing and Inspection of Field Applied Thin-Film Intumescent Fire-Resistive Materials; an Annotated Guide", Latest Edition.

1.5 SYSTEM DESCRIPTION

1.5.1 The intumescent fire protection materials shall be applied at the required thickness to provide the UL or Intertek fire resistive ratings.

1.6 SUBMITTALS

1.6.1 Manufacturer's Data: Submit manufacturer's specifications, including independent laboratory test reports and certifications as may be required to show material compliance with contract documents.

1.6.2 LEED SUBMITTALS

1.6.3 Low-Emitting Materials, LEED v4/v4.1: For field applications, coatings shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

1.6.4 Test Standard: CDPH Standard Method v1.2

a) Maximum Private Office: 0.1 mg/m³

b) Maximum School Classroom: < 0.1 mg/m³

1.7 QUALITY ASSURANCE

1.7.1 Comply with ASTM E2924 for the testing, labeling, transportation, delivery, storage, shelf life, application and inspection of intumescent coatings.

1.7.2 Manufacturer - Company specializing in manufacturing fire protection products.

1.7.3 The intumescent fire resistive material shall be manufactured under the Follow-Up Service program of Intertek and UL or ULC and bear the UL and/or ULC label (mark).

1.7.4 Applicator - A firm with expertise in the installation of fire resistive or similar materials.

1.7.5 Product - The product shall be approved by the architect and applicable authorities having jurisdiction.

1.8 DELIVERY, STORAGE AND HANDLING

1.8.1 Deliver materials to the project in manufacturer's unopened packages, fully identified as to trade name, type and other identifying data. Packaged materials shall bear the appropriate labels, seals, Intertek, and UL label (mark) for fire resistive ratings and shall be stored between temperatures of 45˚F – 100 ˚F (7˚C – 38 ˚C) in compliance with manufacturer instructions in a dry interior location away from direct sunlight. DO NOT FREEZE.

1.9 PROJECT/SITE CONDITIONS

1.9.1 When the temperature at the job site is less than 50˚ F (10˚ C), a minimum substrate and ambient temperature of 50˚ F (10˚ C) shall be maintained prior to, during, and a minimum of 72 hours after application. If necessary for job schedule, the General Contractor shall provide enclosures and heat to maintain proper temperatures and humidity levels in the application areas.

1.9.2 In enclosed areas, ventilation shall not be less than 4 complete air exchanges per hour until the material is dry.

1.9.3 Relative humidity shall not exceed 85% throughout the total period of application and drying for the intumescent fire resistive material, and must not exceed 85% throughout the application and drying for the protective decorative topcoat.

1.10 SEQUENCING AND SCHEDULING

1.10.1 Applicator shall cooperate in the coordination and scheduling of fire protection work to avoid delays in job progress.

1.10.2 The installation of piping, ducts, conduit or other suspended equipment shall not commence until the application of the thin-film fire resistive material is complete in that area.

PART 2 - PRODUCTS

2.1 COMPATIBLE METAL PRIMER

2.1.1 Primer shall be approved by manufacturer and applied in full accordance with the primer manufacturer's written instructions.

2.2 INTUMESCENT FIRE PROTECTION SYSTEM

2.2.1 The intumescent fire resistive material shall be Contego® HS Intumescent RFB, as supplied by Contego International Inc.

2.2.2 Intumescent fire resistive material shall be applied in accordance with drawings and/or specifications, and shall have been tested in accordance with the procedures of ANSI/UL 263 or ASTM E119 or CAN/ULC-S101, and reported by Intertek, Underwriters Laboratories, Inc. or Underwriters Laboratories of Canada only.

2.2.3. Thin-Film Fire-Resistive Intumescent Mastic Coating: Factory-mixed formulation.

a) Water-Based Formulation: Approved by manufacturer and authorities having jurisdiction for indicated use.
b) Verify with manufacturer that products selected are suitable for use indicated.
c) Intertek or UL Fire Tested Designs Only based on ANSI/UL 263 (ASTM E119).
d) Current Third Party Evaluation Service Report
e) To assure an acceptable Architectural finish, no mesh is allowed.
f) A representative mock-up sprayed Architectural finish sample must be submitted, reviewed, and accepted by the architect in advance.

2.3 DECORATIVE TOPCOATING

2.3.1 Topcoat materials shall be as required for color-coding, aesthetics or additional surface protection, approved by the thin-film fire resistive material manufacturer and applied in full accordance with the coating manufacturer's written instructions.

PART 3 - EXECUTION

3.1 PREPARATION

3.1.1 All surfaces to receive thin-film fire resistive material shall be clean, dry and free of oil, grease, loose mill scale, dirt, dust or other materials which would impair bond of the thin-film fire resistive material to the surface. Any cleaning of the surfaces to receive fire resistive material shall be the responsibility of the General Contractor or steel erector, as outlined in the structural steel section.

3.1.2 Confirm compatibility of surfaces to receive thin-film fire resistive material. Steel surfaces shall be primed with a compatible primer approved by the thin-film fire resistive material manufacturer.

3.1.3 Provide masking, drop cloths or other suitable coverings to prevent overspray onto surfaces not intended to be coated with intumescent coating.

3.2 APPLICATION

3.2.1 The thin-film fire resistive material shall be applied at the required dry film thickness per the appropriate Intertek or UL design number guidelines and manufacturer's written application instructions.

3.3 MOCK UP

3.3.1 Before proceeding with the work, the applicator shall apply the thin-film fire resistive material to a section witnessed by the architect's or owner's representative. The application shall be subject to their approval and shall be used as a guide for texture and thickness of the finished work.

3.4 CLEAN UP AND REPAIR

3.4.1 Upon completion of installation, all excess material, overspray and debris shall be cleared and removed from the job site.

3.4.2 All patching of and repair to thin-film fire resistive material, due to damage by other trades, shall be performed under this section and paid for by the trade responsible for the damage. Patching shall be performed by an applicator with expertise in the installation of fire resistive or similar materials. Repair shall be in accordance with Intertek or UL design number guidelines and manufacturers written application instructions.

3.5 INSPECTION AND TESTING

3.5.1 In addition to continuous Wet Film Thickness checks performed by applicator during application, the installed intumescent material shall be inspected by a qualified independent testing laboratory for thickness in accordance with the AWCI Technical Manual 12-B "Standard Practice For The Testing and Inspection Of Field Applied Thin-Film Intumescent Fire-Resistive Materials; an Annotated Guide", Latest Edition, before application of the topcoat or ASTM E3432 Standard Practice for On-Site Inspection of Installed Intumescent Fire Resistive Material.

3.5.2 The results of the above tests shall be made available to all parties at the completion of each area and approved prior to the application of topcoat.

Note:

The performance data presented herein is based on Contego International's experience and knowledge and represents expected performance derived from testing conducted in accordance with recognized standard methods under controlled laboratory conditions. Contego International makes no representation or warranty that these results will be replicated in all applications, as installation methods, environmental conditions, and design factors may vary. Not recommended for exterior use.