SECTION 07 81 23.10

EPOXY INTUMESCENT FIREPROOFING

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\*\* NOTE TO SPECIFIER \*\* International Protective Coatings; Epoxy Intumescent Fireproofing. .
This section is based on the products of International Protective Coatings, which is located at:
 6001 Antoine Drive
Houston, TX 77092
Tel: (713) 682-1711
Fax: (713) 684-1515
Email : request info
Web: http://www.international-pc.com

International Paint has operations in 54 countries worldwide and over 3,500 employees. The company's International brandname has worldwide market leadership positions in Marine, Protective and Yacht paints.International Protective Coatings is the leading supplier of high performance Protective Coatings and forms part of Akzo Nobel, a market driven, technology based company specializing in Coatings, Chemicals and Pharmaceuticals.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Intumescent fire protection material.
		2. Protective decorative top coat finish.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 05 10 00 - Structural Metal Framing.
		2. Section 05 12 16 - Fabricated Fireproofed Steel Columns.
		3. Section 07 80 00 - Fire and Smoke Protection.
		4. Section 09 90 00 - Painting and Coating.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. Association of the American Walls And Ceilings Industries (AWCI):
			1. AWCI Technical Manual 12-B, Standard Practice for the Testing and Inspection of Field Applied Thin-Film Intumescent Fire-Resistive Materials; an Annotated Guide.
		2. ASTM International (ASTM):
			1. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.
			2. ASTM D 695 - Standard Test Method for Compressive Properties of Rigid Plastics.
			3. ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
			4. ASTM D 2240 - Standard Test Method for Rubber Property - Durometer Hardness.
			5. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
		3. Building Research Establishment Ltd/Fire Resistance Station (BRE/FRS):
			1. Blast Resistance Determination.
		4. International Standards Organization (ISO):
			1. ISO 12944 - Corrosion Protection of Structural Steel by Protective Paint Systems.
			2. ISO 2812 - Determination of Resistance to Liquids by Immersion Method.
			3. ISO 20340 - Performance Requirements for Protective Paint Systems.
			4. ISO 4624- Paints and Varnishes: Pull- off test for Adhesion.
		5. The Society of Protective Coatings (SSPC):
			1. SSPC SP-6: Commercial Blast Cleaning Standard.
		6. 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.
		7. United States Green Building Council (USGBC):
			1. LEED-NC Version 2.2
		8. International Paint, LLC:
			1. Interchar 212 Finish Standards.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00.
		2. Product Data: Submit product data including manufacturer's technical information indicating product performance characteristics, performance and limitation criteria.
		3. Fire Test Evidence: Submit published UL 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 manufacturers facility under the supervision of Underwriters Laboratories, Inc personnel.
		4. Application Instructions: Submit manufacturer's written installation instructions.
		5. Applicator Qualifications: Submit applicators current certification as a manufacturer trained and approved applicator.
		6. Manufacturers Qualifications: Submit manufacturer documentation that the fireproofing product complies with the specified contract requirements.
		7. Shop Drawings: Submit plan, section, elevation and perspective drawings as necessary to depict system configuration, design considerations and application procedures.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available materials.
		2. Verification Samples: For each finish product specified, two samples representing actual product, color, and finish.

\*\* NOTE TO SPECIFIER \*\* Delete the entire next article if LEED Credit is not required on this project.

* 1. LEED REQUIREMENTS / CREDIT

\*\* NOTE TO SPECIFIER \*\* Interchar 212 fire protection materials can be applied on-site and are suitable for maintaining or upgrading the fire rating of the existing structural frame on building renovation projects. Delete the next paragraph if not applicable.

* + 1. MR Credit 1.1: Building Reuse: 1 Credit.

\*\* NOTE TO SPECIFIER \*\* Interchar 212 fire protection material is manufactured in Houston, TX and greater than 20 percent of the raw materials are extracted within a 500 mile radius of the Houston manufacturing facility. If this location falls within a 500 mile radius of the project site, then Interchar 212 can contribute to earning Materials and Resources Credit 5.2. Delete the next paragraph if not applicable.

* + 1. MR Credit 5.2: Regional Materials- 20 percent extracted, processed and manufactured regionally: 1 Credit.

\*\* NOTE TO SPECIFIER \*\* Interchar 212 fire protection materials can contribute to the IAQ Management Plan for the construction process by addressing control measures referenced in the SMACNA IAQ Guidelines for Occupied Buildings. Delete the next paragraph if not applicable.

* + 1. EQ Credit 3.1: Construction IAQ Management Plan: 1 Credit.
			1. Source Control: Interchar 212 is zero VOC, 100 percent solids fireproofing materials.
			2. Scheduling: Interchar 212 fireproofing material can be exposed to moisture and are not susceptible to microbial contamination. Additionally, these materials can be shop-applied and therefore project sequencing will significantly reduce potential absorption of VOCs by porous on-site materials.

\*\* NOTE TO SPECIFIER \*\* Delete the next paragraph if not applicable.

* + 1. EQ Credit 4.2: Low-Emitting Materials: 1 Credit.
			1. Interchar 212 fire protection materials is zero VOC as measured in accordance with the Green Seal Standard GS-11 requirements.

\*\* NOTE TO SPECIFIER \*\* Interchar 212 fire protection material is designed for off-site shop application and addresses Green Building concerns. Delete the next paragraph if not applicable.

* + 1. ID Credit 1.1: Innovative Design: 1 Credit.
			1. Interchar 212 fire protection material is designed for off-site shop application. Shop application of passive fire proofing addresses the following Green Building concerns:
				1. Significant reduction in on-site water consumption during construction. The application requirements for spray applied fireproofing consume thousands of gallons of potable water for mixing, overspray and clean out. Interchar 212 material is 100 percent solids requiring no water for application.
				2. Significant reduction in job site fireproofing waste generation. Less material is applied on-site to the field joints and touch-up areas.
				3. Significant reduction in the exposure of construction personal to VOCs and potentially harmful construction dust.
				4. Interchar 212 material absorbs less than 1 percent moisture and is not susceptible to damage, thereby eliminating a potential source for microbial contamination.
	1. QUALITY ASSURANCE
		1. Manufacturer:
			1. Company specializing in manufacturing products listed in this section with a minimum of ten (10) years documented experience.
			2. The Manufacturer's quality management system must be assessed and registered by an independent registrar as conforming to the requirements of ISO 9001.
		2. Applicator: Company specializing in applying the work of this section with a minimum of three (3) years documented experience and certified by the manufacturer.
		3. 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 fire protection system will be a complete system from a single source consisting of primer, epoxy intumescent fireproofing and topcoat.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
			1. Before proceeding with the work, the applicator will apply the primer, intumescent fireproofing and decorative top coat to a representative substrate section of 100 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. DELIVERY, STORAGE, AND HANDLING
		1. Delivery: Deliver materials in manufacturer's original, sealed, undamaged container with identification label intact. Packaged materials must bear the appropriate labels, seals and UL label (mark) for fire resistive ratings.
		2. Storage: Store materials in strict accordance with manufacturers documented instructions.
		3. 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.
		4. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.
	2. PROJECT CONDITIONS
		1. Project Environmental Requirements: Substrate and air temperature shall be in accordance with the manufacturers 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.
		2. 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 apply epoxy intumescent fireproofing when temperature of substrate and/or surrounding ambient air temperature is below 41 degrees F (5 C). 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 (3 deg C) 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 General 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.
	3. SEQUENCING AND SCHEDULING
		1. Sequence and coordinate application of epoxy intumescent fireproofing with Work in other sections which would interfere with efficient fireproofing application.
		2. Do not commence Work related to the installation of piping, ducts, conduit or other suspended equipment until the application of the epoxy intumescent material is complete in that area.
		3. Do not apply epoxy intumescent materials to supporting structural steel until the concrete toppings and/or roofing applications have been completed and are substantially dry.
	4. WARRANTY
		1. At project closeout, provide to Owner or Owners Representative 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 (2) Years. Consult International Paint representative for extended warranty and conditions.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: International Paint, LLC, which is located at: 6001 Antoine Dr.; Houston, TX 77092; Tel: 713-684-1206; Fax: 713-684-1515; Email: [request info (r.scott.Lewis@akzonobel.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=International+Paint,+LLC&coid=38883&rep=&fax=713-684-1515&message=RE:%20Spec%20Question%20(07810int):%20%20&mf=); Web: [www.international-pc.com](http://www.international-pc.com) | [www.firesthetics.com](http://www.firesthetics.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions must be made 30 days prior to submittal and contain the full name of each product, descriptive literature, testing data collected from industry consensus standard testing, data on past performance, manufacturer's instruction for use and generic type. Information must demonstrate equivalence of product and performance to the specified material and complete systems. No intumescent fireproofing or coating material may be procured or delivered to the project site prior to the review and acceptance of the proposed materials by the Architect in writing.
	1. APPLICATIONS/SCOPE
		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.
		2. This specification shall be supplemented by the applicable requirements of building codes, insurance rating organizations and all other authorities having jurisdiction.
	2. MATERIALS
		1. Primer coating shall be approved by the intumescent fireproofing manufacturer and applied in accordance with the primer manufacturers documented instructions.
		2. Epoxy intumescent fireproofing material shall be Interchar 212 manufactured by International Paint LLC.
		3. Intumescent fireproofing: Plural component, 100 percent solids, zero VOC material conforming to the following requirements:
			1. Bond Strength - ISO 4624, min.: 1440 psi.
			2. Tensile Strength - ASTM D 638, min.: 1640 psi.
			3. Compressive Strength - ASTM D 695, min.: 1500 psi.
			4. Flexural Strength - ASTM D 790, min.: 1400 psi.
			5. Duromenter Hardness - ASTM D 2240, min.: 60 Shore D.
			6. Surface Burning Characteristics, ASTM E 84: Class A rating.
			7. Moisture Absorbance - ISO 2812-2: Less than 1 percent water uptake.
			8. Chemical Resistance - ISO 2812-1: Pass.
			9. Corrosion Resistance - ISO 12944: C5 rating.
			10. Blast Resistance - BRE/FRS, min.: 4 bar overpressure.
		4. Fireproofing: Provide intumescent fire resistive coating system, tested by independent testing agency in accordance with ASTM E 119/UL 263, and acceptable to authorities having jurisdiction:

\*\* NOTE TO SPECIFIER \*\* Select testing requirements. Delete four of the next five paragraphs.

* + - 1. Listed by UL, ULC, ITS/WH, or FM and bearing their label.
			2. Listed by UL and bearing the UL label.
			3. Listed by ULC and bearing the ULC label.
			4. Listed by ITS/WH and bearing the ITS/WH label.
			5. Listed by FM and bearing the FM mark.
		1. Structural Steel Columns:
			1. Fire Resistance Rating: \_\_\_\_\_\_ hours.
			2. Design Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		2. Structural Steel Beams:
			1. Fire Resistance Rating: \_\_\_\_\_\_ hours.
			2. Design Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
		3. Decorative topcoat must be approved by the intumescent fireproofing manufacturer and applied in accordance with the topcoat manufacturer's documented instructions.
1. EXECUTION
	1. EXAMINATION
		1. All surfaces to receive intumescent fireproofing material must be clean, dry and free of oil, grease, loose mill scale, dirt, dust or other foreign substances which would impair bond of the intumescent fireproofing material to the substrate.
		2. Where necessary, cleaning or other corrections of the surfaces to receive the intumescent fireproofing are the responsibility of the installer of the incompatible substrate.
		3. Do not commence application of the intumescent fireproofing until the contractor, applicator and inspector have examined the surfaces to receive the intumescent fireproofing and determined the surfaces are acceptable to receive the intumescent fireproofing material. Commencement of application is acceptance of substrate.
		4. Verify that substrate and workspace temperature and humidity conditions are in accordance with requirements of this section.
		5. Verify that all clip hangers, piping, ducts, equipment or other items which would interfere with the application of fireproofing are not positioned or installed until fireproofing application is complete.
	2. PREPARATION
		1. Provide masking, drop cloths or other suitable coverings to prevent overspray onto surfaces not intended to be affected by Work in this section.
		2. Clean substrate free of dust, dirt, grease or other foreign substances that would impair with the bond of the intumescent fireproofing material.
		3. Comply with Commercial Blast Cleaning in accordance with SSPC SP-6 for minimum surface preparation.
		4. Grind smooth all weld spatter and defects prior to commencement of fireproofing application.
	3. APPLICATION
		1. Equipment and application procedures must conform to the intumescent fireproofing manufacturer's application instructions. Apply fireproofing material at the required dry film thickness in accordance with the appropriate UL design listing.
		2. Apply approved primer to properly cleaned substrate in accordance with manufacturer's application instructions. Provide primer cut back areas a minimum three (3) inches (76mm) from bolted connections and minimum twelve (12) inches (305mm) from welded connections.
		3. Primer applied at the steel fabricators shop must be in accordance with the provisions of Section 01 52 19.
		4. Apply intumescent fireproofing material only to primed surfaces in accordance with manufacturer's application instructions.
		5. Apply intumescent fireproofing material at maximum 250 mils wet film thickness (WFT) per coat. Subsequent coats are applied until final dry film thickness (DFT) is achieved for required fire resistance rating. Final DFT is measured with a dry film thickness gauge.
		6. Final texture and finish of the intumescent fireproofing surface must be completed prior to the application of the decorative top coat and in accordance with International Paint Interchar 212 Finish Standards.
		7. 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.
	4. FIELD QUALITY CONTROL
		1. At the Owners expense, the Architect will select an independent testing laboratory to inspect and verify the application of 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.
		2. The intumescent fireproofing material inspection must be performed prior to the application of the decorative top coat.
		3. 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.
		4. In-place intumescent fireproofing not in compliance with the specification requirements must be corrected prior to the application of the decorative top coat.
		5. Prior to mixing Part A and B during the application of the intumescent fireproofing material, random pre-determined liquid samples of Part A and Part B must be submitted for material characterization (fingerprinting) in accordance with the procedures detailed in the ISO 20340 Standard. Sample frequency will be pre-determined by the architect and testing performed by an independent testing laboratory or the intumescent coating manufacturer.
	5. CLEAN UP AND REPAIR
		1. Upon completion of installation, all excess material, overspray and debris must be cleared and removed from the job site.
		2. Remove intumescent fireproofing materials from surfaces not required to be fireproofed.
		3. All patching and repair to intumescent fireproofing material, due to damage by other trades, will be performed under this section and paid for by the trade responsible for the damage. Patching must be performed by applicators certified by the intumescent fireproofing manufacturer and applied in accordance with the manufacturer's application instructions.
	6. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION