



Guide Specifications – Alternate Thermal and Ignition Barrier

IFRM's Section 078120 - Intumescent Fire Resistive Material 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 Spray Polyurethane Foam 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 072119: Thermal Insulation

1.3.2 Section 078426: Thermal Barrier for Plastics.

1.3.4 Section 072700: Fire-Stopping and Smoke Seals.

1.3.5 Section 099000: Painting.

1.4 REFERENCES

1.4.1 National Fire Protection Association.

1.4.3 Test Standards

- a) NFPA 286 - STANDARD METHODS OF FIRE TESTS FOR EVALUATING CONTRIBUTION OF WALL AND CEILING INTERIOR FINISH TO ROOM FIRE GROWTH.
- b) CAN/ULC 9705- FULL SCALE ROOM TEST FOR SURFACE PRODUCTS
- c) ASTM E84 (UL723, CAN/ULC-S102) - Surface Burning Characteristics of Building Materials. Class A Rating Required; Flame Spread Maximum: 0 and Smoke Developed Maximum: 10.
- d) ASTM D4541 Adhesion, Pull-Off Strength applied to SPF: 50psi
- e) ASTM D4541 Adhesion, Pull-Off Strength – Concrete: 200psi
- f) ASTM D3359 Tape Adhesion: 5B

Guide Specifications – Alternate Thermal and Ignition Barrier IFRM's

- g) ASTM D 2697: Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings – Maximum variation 0.50%
 - h) CA/DHS/EHLB/R-174 (CAL1350): Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers
 - i) ASTM E 661: Concentrated Load and Impact Test : >350 Lbs. @ >24"
- 1.4.4 Material manufacturer's current surface preparation guide.
- 1.4.5 Material manufacturer's current published information including, but not limited to, application guide, ventilation guide shall be on site at all times during the installation.
- 1.5 SYSTEM DESCRIPTION
- 1.5.1 The intumescent fire protection materials shall be applied at the required thickness to provide the tested fire resistive ratings as per certified test report for Country, jurisdiction and specific SPF system being installed.
- 1.6 SUBMITTALS
- 1.6.1 Manufacturer's Data: Submit manufacturer's specifications, including independent laboratory physical property test reports and certifications as may be required to show material compliance with contract documents.
- 1.7 QUALITY ASSURANCE
- 1.7.1 Manufacturer - Company specializing in manufacturing fire protection products.
- 1.7.2 The intumescent fire resistive material shall be manufactured under the Follow-Up Service program of WH Intertek and bear the WH and/or WH/C label (mark), or equivalent third party quality assurance program.
- 1.7.3 Applicator - A firm with expertise in the installation of fire resistive or similar materials having been trained by the manufacturer of the IFRM.
- 1.7.4 Product - The product shall be approved by the architect and applicable authorities having jurisdiction. Acceptable products include
-International Fireproof Technology DC315
-Approved topcoat that has been investigated so as not to negatively affect the fire resistive properties of the IFRM.
- 1.8 DELIVERY, STORAGE AND HANDLING

Guide Specifications – Alternate Thermal and Ignition Barrier IFRM's

- 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 and WHI and/or UL label (mark) for fire resistive ratings and shall be stored at temperatures 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 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 Ventilation shall not be less than 4 complete air exchanges per hour until the material is cured.
- 1.9.3 Relative humidity shall not exceed 85% throughout the total period of application and drying for the intumescent fire resistive material. When installed in areas where high humidity is a condition of use, a compatible bonding primer and protective topcoat shall be applied. Site conditions must not exceed 85% throughout the application and drying for the primer and/or 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 BONDING PRIMER

- 2.1.1 Primer, if required, shall be approved by manufacturer and applied in full accordance with the manufacturer's written instructions. Application rate shall be NOT LESS than 3 mils WFT and NOT MORE than 5 mils WFT.
Acceptable product- Sherwin Williams DTM Bonding Primer or comparable as recommended by manufacturer.
- 2.1.2 Primer shall be required as per Certified test report for specific SPF system being installed, OR
- 2.1.3 When the installation of DC315 will be in unconditioned spaces or high humidity locations such as, but not limited to, cold storage, food storage (potato shed), parking garages, indoor swimming pools or when the intended end use of building requires a variation in temperature and IFRM will be exposed to freeze/thaw cycling a primer shall be applied.

Guide Specifications – Alternate Thermal and Ignition Barrier IFRM's

2.2 INTUMESCENT FIRE PROTECTION SYSTEM

2.2.1 The intumescent fire resistive material shall be AC 456 Compliant DC315 as supplied by International Fireproof Technology 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 NFPA 286, CAN/ULC 9705 or ISO 9705 and ASTM E84 or ULC S102, and reported by a recognized and laboratory accredited by IAS or SCC.

2.2.3. Thin-Film Fire-Resistive Intumescent Coating: DC315 AC 456 Compliant and Recognized on a third Party Code Compliance Reports Intertek CCRR-1076, IAPMO ER-499, ICC-ES 3702, CCMC -14036-R

- A. Single Component, Factory-mixed, Water-Based formulation.
- B. Fire Tested Designs Only based on NFPA 286, ISO 9705 or Equivalent.
- C. Minimum Shore D Hardness of 40 before the topcoat and finish coat is applied.
- D. Product and manufacturing facilities shall conform to a recognized third party quality assurance and follow up inspection program.
- E. "Low Emitting Material" per CAL 1350 Collaborative for High Performance Schools
- F. ANSI 51 testing for incidental food contact
- G. Tested useful life, fire resistant property is not compromised after 50 years
- H. Meets Life Safety Code 101

2.3 DECORATIVE and/or PROTECTIVE TOPCOATING

2.3.1 For interior conditioned spaces topcoat materials shall be as required for color-coding, aesthetics or additional surface protection, and approved by the thin-film fire resistive material manufacturer. Application rate shall be NOT LESS THAN 8 mils WFT and NOT MORE THAN 12 mils WFT

2.3.1.1 Acceptable product – Sherwin Williams Promar 200, Promar 400, Dryfall- or equivalent

2.3.2 For interior unconditioned spaces subject to constant high humidity, condensation or at risk of direct contact with moisture, a protective topcoat must be applied over the DC315 as per manufacturer's recommendations.

2.3.2.1 Acceptable Product- Sherwin Williams Steel Master 9500, Sherwin Williams A-100 Latex, Sherwin Williams Vapor Barrier Primer Finish - or equivalent

2.3.3 For exterior applications with DC315, a two component polyurethane top coat must be applied over the DC315 as per manufacturer's recommendations. Contact manufacturer for current recommendation.

Guide Specifications – Alternate Thermal and Ignition Barrier IFRM's

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 material, 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 SPF Contractor, as outlined in the Thermal Insulation section. Glossy foam surfaces shall be primed or "fogged" with SPF prior to applying IFRM. Fogging is a procedure in which the SPF applicator thinly mists the surface with SPF to dull the glossy sheen and provide fine texture to ensure adhesion of the coatings.
- 3.1.2 Confirm compatibility of surfaces to receive thin-film fire resistive material. Refer to test report for the applicable brand and type of SPF to verify compatibility, if a primer is required. Required 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 SPF test report and manufacturers written application instructions.
- 3.2.2 The thin-film fire resistive material shall be spray applied using airless spray equipment that meets the minimum requirements set forth in manufacturer's installation documents.

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.

Guide Specifications – Alternate Thermal and Ignition Barrier IFRM's

3.5 CERTIFIED APPLICATOR ON SITE INSPECTION AND TESTING

3.5.1 Applicator shall perform continuous Wet Film Thickness checks to ensure the correct mil thickness is being applied. Medallions may be installed prior to applying the IFRM as a means of measuring both wet and dry films being applied. Medallions, if used, can be maintained with contract documents for verification of Dry Film Thickness. As an alternative to medallions, the certified applicator can measure dry film on site by taking a representative sample of the installed coating and measuring it using calipers, optical comparators or another similar tool. Applicators should complete a job work report that includes ambient conditions, application thickness and results of on site testing. Upon completion, a job site label or similar method of identifying the product should be affixed in an area such as the electrical panel and shall include applicator name and contact information, company information, products used, measured thickness.

3.5.2 The results of the installed thickness tests shall be verified by the contractor and signed off on by the GC prior to the application of topcoat (if required).

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