
Part 1 General

1.1 SECTION INCLUDES

- .1 ULC Spray-Applied Fire Resistive Material (SFRM) for fireproofing of structural elements.

1.2 REFERENCES

- .1 Underwriters' Laboratories of Canada (ULC).
 - .1 Guide BXUVC, Fire Resistance Ratings.
 - .2 Guide CHPXC, Spray-Applied Fire Resistive Material.
 - .3 CAN/ULC-S101, Standard Methods of Fire Endurance Tests of Building Construction and Materials.
- .2 Underwriters Laboratories Inc. (UL).
 - .1 Guide BXRH7, Fire Resistance Ratings Certified for Canada.
 - .2 Guide CHPX7, Spray-applied Fire Resistive Materials Certified for Canada.
- .3 American Society for Testing and Materials (ASTM).
 - .1 ASTM E605, Standard Test Methods for Thickness and Density of Sprayed Fire Resistive Material (SFRM) Applied to Structural Members.
 - .2 ASTM E859/E859M-93(2015)e1, Standard Test Method for Air Erosion of Sprayed Fire-Resistive Materials (SFRMs) Applied to Structural Members.
- .4 Association of the Wall and Ceiling Industry (AWCI).
 - .1 Technical Manual 12-A; Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials; an Annotated Guide - 122

1.3 DEFINITIONS

- .1 SFRM: Spray-applied Fire Resistive Materials, as defined by Underwriters' Laboratories of Canada.

1.4 QUALITY ASSURANCE

- .1 Work shall be performed by a firm with expertise in the installation of fire protection or similar materials. This firm shall be licensed or otherwise approved by the spray-applied fire resistive material manufacturer.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00.
- .2 Submit proof of installer approval by manufacturer.
- .3 Manufacturer's Data: Submit manufacturer's instructions for proper application of fireproofing.
- .4 Fire Testing: Submit evidence that the fireproofing has been subjected to full-

scale ASTM E119 fire testing at Underwriters Laboratories Inc. by the manufacturer.

- .5 Thickness Schedule: Provide schedule indicating material to be used, building elements to be protected with spray applied fireproofing, hourly rating and material thickness provided and appropriate references.
- .6 Submit WHMIS Material Safety Data Sheets.
- .7 Engineering Judgement: For assemblies not tested and rated, submit proposals based on related ULC designs using accepted fireproofing design criteria. Proposals will be reviewed by Departmental Representative and Authority Having Jurisdiction. Allow 14 days for review of proposals.

1.6 ENVIRONMENTAL CONDITIONS

- .1 At outdoor temperatures less than 5°C, ensure that a 5°C air and substrate temperature is maintained during and for 24 hours after application. Provide heated enclosures to maintain temperatures.
- .2 Provide ventilation to allow for drying of fireproofing during and subsequent to its application. In enclosed areas, ventilation shall be not less than 4 complete air changes per hour.
- .3 Provide temporary enclosures to prevent spray from contaminating air beyond application area.
- .4 Protect adjacent surfaces, flooring and equipment from damage by overspray, fall-out, and dusting of fireproofing materials.

1.7 STORAGE AND HANDLING

- .1 Deliver materials to the project in manufacturer's unopened packages, fully identified as to trade name, type and other identifying data. Packaging shall bear the UL and ULC labels for fire hazard and fire-resistance classifications.
- .2 Store materials above ground, in a dry location, protected from weather, moisture and areas of high humidity. Damaged packages found unsuitable for use should be rejected and removed from the project.

Part 2 Products

2.1 SPRAY-APPLIED FIRE RESISTIVE MATERIALS (SFRM)

- .1 SFRM: Spray applied mixture, ULC Listed or UL Certified for use in Canada when tested in accordance with CAN/ULC-S101.
 - .1 Fire Resistance Rating: 1 hour.
 - .2 Density: Medium.
 - .3 Air Erosion: Maximum weight loss of 0.025 g/sq. ft. (0.270 g/sq. m) in 24 hours according to ASTM E859.
 - .4 Water: Potable and free from mineral or organic substances that may affect set of the SFRM.

2.2 ACCESSORIES

- .1 Sealer: transparent-drying, water-dispersible, tinted protective coating as

recommended by fireproofing manufacturer.

- .2 Provide installation accessories required by ULC/UL fire resistance design or site conditions including, but not limited to; bonding agents, mechanical attachments, metal lath, scrim, or netting, curing compound, and sealer.

Part 3 Execution

3.1 EXAMINATION

- .1 All surfaces to receive SFRM to be free of oil, grease, loose mill scale, dirt, paints/primers (other than those listed and tested) or other foreign materials, which would impair bonding.
- .2 Where necessary, cleaning or other corrections of surfaces shall be the responsibility of the supplier of the incompatible substrate.
- .3 Application of the fireproofing shall not begin until the Departmental Representative, applicator and testing laboratory (inspector) have examined surfaces and determined that surfaces are acceptable to receive the material.

3.2 PREPARATION

- .1 Clips, hangers, supports, sleeves and other attachments to the substrate are to be placed prior to the application of SFRM.
- .2 Verify that ducts, piping, equipment, or other items which would interfere with application of SFRM are not positioned until SFRM work is completed.
- .3 Complete placing of concrete on floor and roof decking prior to application of the SFRM to the underside of steel deck and supporting beams and joists.
- .4 On roof decks without concrete cover, complete roofing application and roof mounted equipment installation prior to application of the SFRM to the underside of roof decking and supporting beams and joists.
- .5 Prohibit all roof traffic upon commencement of the SFRM application and until the SFRM material is dry.
- .6 Provide masking, drop cloths or other suitable coverings to prevent overspray from coming in contact with surfaces not intended to be sprayed.

3.3 APPLICATION

- .1 Equipment, mixing and application shall be in accordance with the manufacturer's written application instructions.
- .2 Bonding materials (adhesives, catch coats, metal lath, mesh, stud pins, etc.) shall be applied as per the appropriate ULC/UL fire resistance design and manufacturer's written recommendations.
- .3 Apply bonding adhesive, primer and spatter coat to substrate if recommended by manufacturer.
- .4 Apply SFRM over substrate, building up to required thickness to cover substrate with monolithic blanket of uniform density and texture.
- .5 Apply fireproofing to locations indicated on Drawings.
- .6 Apply sealer over all areas of SFRM in plenum return spaces to prevent air erosion of surface.

3.4 INSPECTION AND TESTING

- .1 Inspection and testing of SFRM will be carried out by Testing Laboratory designated by Departmental Representative.
- .2 Departmental Representative will pay costs for testing.
- .3 The spray-applied fire resistive material shall be tested for thickness and density in accordance with ASTM E605 or AWCI.

3.5 PATCHING

- .1 Patch damage to fireproofing caused by testing or by other trades before fireproofing is concealed, or if exposed, before final inspection.
- .2 All patching of and repair to sprayed fire protection, due to damage by other trades, shall be performed under this Section and paid for by the trade responsible for the damage.
- .3 Appearance of patches in exposed areas to be identical to main field application in colour, texture and thickness, when viewed from expected vantage points.

3.6 CLEANING

- .1 Clean surfaces contaminated by work of this Section daily.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Preparing substrate surfaces.
- .2 Sealant and joint backing.

1.2 RELATED SECTIONS

- .1 Section 05 73 13 – Glazed Metal Railings.
- .2 Section 09 21 16 - Gypsum Board Assemblies.

1.3 REFERENCES

- .1 ASTM C834-10 - Standard Specification for Latex Sealants.
- .2 ASTM C919-12 - Standard Practice for Use of Sealants in Acoustical Applications.
- .3 ASTM C920-11 - Standard Specification for Elastomeric Joint Sealants.
- .4 ASTM C1330-02(2013) - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
- .5 ASTM D5893/D5893M-10 - Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements.

1.4 SUBMITTALS FOR REVIEW

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and colour availability.
- .3 Samples: Submit two sample ribbons of sealant, illustrating sealant colours for selection.
- .4 Submit laboratory tests or data validating product compliance with performance criteria specified. Include SWRI validation certificate where required.
- .5 Closeout Submittals: Sealant applicator to submit copies of the Manufacturer's Warranty.

1.5 SUBMITTALS FOR INFORMATION

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, perimeter conditions requiring special attention, and field quality control testing.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver and store materials in original wrappings and containers with manufacturer's seals and labels, intact. Protect from freezing, moisture, water and contact with ground or floor.
- .2 Store products in a location protected from freezing, damage, construction activity, precipitation, and direct sunlight in strict accordance with manufacturer's recommendations.
- .3 Condition products to approximately 16 to 21°C for use in accordance with manufacturer's recommendations.

1.7 ENVIRONMENTAL AND SAFETY REQUIREMENTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada.
- .2 Conform to manufacturer's recommended temperatures, relative humidity, and substrate moisture content for application and curing of sealants including special conditions governing use.

Part 2 Products

2.1 SEALANT MATERIALS

- .1 Acoustical sealant: to ASTM C919, single component, non-hardening, non-skinning, synthetic rubber. Acceptable product: Pecora BA-98, Tremco Acoustical Sealant.
- .2 Acrylic latex: to ASTM C 834, single component general purpose siliconized acrylic latex sealant. Acceptable product: BASF Sonmolastic Sonolac, GE L100, Pecora AC-20 + Silicone, Tremco Tremflex 834.
- .3 Butyl Sealant: to ASTM C1311, single component, solvent release, non-skinning, non-sagging, black colour; Acceptable Products: Pecora BC-158, Tremco Butyl Sealant.

2.2 ACCESSORIES

- .1 Primer: Type recommended by the sealant manufacturer and compatible with joint forming materials.
- .2 Joint Cleaner: Non-corrosive and non-staining type recommended by sealant manufacturer and compatible with joint forming materials.
- .3 Soft Backer Rod: to ASTM C1330, non-gassing, reticulated closed-cell polyethylene rod designed for use with cold-applied joint sealants. Size required for joint design.

- .4 Closed-Cell Backer Rod: to ASTM C1330, closed-cell polyethylene rod designed for use with cold-applied joint sealants for on-grade or below-grade applications. Size required for joint design.
- .5 Joint Filler: closed-cell polyethylene joint filler designed for use in cold joints, construction joints, or isolation joints wider than 6 mm. Size required for joint design.
- .6 Bond Breaker: Pressure-sensitive tape recommended by sealant manufacturer to suit application.

2.3 COLOURS

- .1 Unless indicated otherwise in respective technical specification sections, colour selection is at the option of the Departmental Representative.

2.4 SEALANT SCHEDULE

- .1 Full length of glazing / glazing shoe base and at shoe base / stainless stain trim
 - .1 Sealant type: Acrylic latex.

Part 3 Execution

3.1 EXAMINATION

- .1 Verify that substrate surfaces and joint openings are clean, dry, and free of frost and ready to receive work.
- .2 Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

- .1 Remove loose materials and foreign matter which might impair adhesion of sealant.
- .2 Clean and prime joints in accordance with sealant manufacturer's written instructions.
- .3 Perform preparation in accordance with sealant manufacturer's written instructions.
- .4 Protect elements surrounding the work of this section from damage or disfiguration.

3.3 INSTALLATION

- .1 Install sealant in accordance with sealant manufacturer's written instructions.
- .2 Mask edges of joint where irregular surface or sensitive joint border exists to provide neat joint.
- .3 Measure joint dimensions and size materials to achieve required 2:1 width/depth ratios.
- .4 Install joint backing to achieve a neck dimension no greater than 1/3 of the joint width.
- .5 Install bond breaker where joint backing is not used.
- .6 Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- .7 Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- .8 Tool joints concave.

3.4 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .2 Clean adjacent soiled surfaces.

3.5 PROTECTION OF FINISHED WORK

- .1 Remove masking tape and excess sealant.
- .2 Protect sealants until cured.

END OF SECTION