

SECTION 078100 – APPLIED FIRE PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sprayed fire-resistive materials.

B. Related Sections:

1. Section 051200 – Structural Steel Framing.
2. Section 053100 – Steel Decking.
3. Section 054000 – Cold-Formed Metal Framing.

C. Reference and Industry Standards

1. The following reference standards shall be applicable to this Section:
 - a. New York City Building Code, **current** edition, as amended, inclusive of:
 - Chapter 7 Fire and Smoke Protection Features
2. The following Industry standards shall be applicable to this Section:
 - ASTM (American Society for Testing and Materials)
 - UL (Underwriters Laboratories)

1.2 DEFINITIONS

- A. SFRM: Sprayed fire-resistive materials.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For the following:

1. Sprayed fire-resistive material.
2. Substrate primers.
3. Bonding agent.
4. Topcoat.

1.5 INFORMATIONAL SUBMITTALS

- A. Product certificates.
- B. Evaluation reports.
- C. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual certified, licensed, or otherwise qualified by sprayed fire-resistive material manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Assemblies: Provide fire protection, including auxiliary materials, according to requirements of each fire-resistance design and manufacturer's written instructions.
- B. Fire-Resistance Design: Indicated on Drawings, tested according to [ASTM E119 or UL 263] **<Insert requirement>**; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Steel members are to be considered unrestrained unless specifically noted otherwise.
- C. Asbestos: Provide products containing no detectable asbestos.

2.2 SPRAYED FIRE-RESISTIVE MATERIALS

- A. Sprayed Fire-Resistive Material **<Insert UL-design number>**: Manufacturer's standard, factory-mixed, lightweight, dry formulation, complying with indicated fire-resistance design, and **[mixed with water at Project site to form a slurry or mortar before conveyance and application]** **[or] [conveyed in a dry state and mixed with atomized water at place of application]**.
 - 1. Application: Designated for exterior use by a qualified testing agency acceptable to authorities having jurisdiction.
 - 2. Bond Strength: Minimum **[150-lbf/sq. ft.] [430-lbf/sq. ft.] [1000-lbf/sq. ft.] <Insert value>** cohesive and adhesive strength based on field testing according to ASTM E736.
 - 3. Thickness: As required for fire-resistance design indicated, measured according to requirements of fire-resistance design or ASTM E605, whichever is thicker, but not less than 0.375 inch.
 - 4. Combustion Characteristics: ASTM E136.
 - 5. Surface-Burning Characteristics: Comply with ASTM E84.
 - a. Flame-Spread Index: **[10] <Insert number>** or less.

- b. Smoke-Developed Index: [10] <Insert number> or less.
- 6. Compressive Strength: Minimum [10 lbf/sq. in.] [100 lbf/sq. in.] [300 lbf/sq. in.] <Insert value> according to ASTM E761.
- 7. Corrosion Resistance: No evidence of corrosion according to ASTM E937.
- 8. Deflection: No cracking, spalling, or delamination according to ASTM E759.
- 9. Effect of Impact on Bonding: No cracking, spalling, or delamination according to ASTM E760.
- 10. Air Erosion: Maximum weight loss of [0.025 g/sq. ft.] <Insert value> in 24 hours according to ASTM E859.
- 11. Fungal Resistance: Treat products with manufacturer's standard antimicrobial formulation to result in [no growth on specimens per ASTM G21] [or] [rating of 10 according to ASTM D3274 when tested according to ASTM D3273].

2.3 AUXILIARY MATERIALS

- A. Provide auxiliary materials that are compatible with sprayed fire-resistive material and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.
- B. Substrate Primers: Primers approved by sprayed fire-resistive material manufacturer for the required fire-resistance design.
- C. Bonding Agent: Product approved by sprayed fire-resistive material manufacturer.
- D. Topcoat: Suitable for application over sprayed fire-resistive material; of type recommended in writing by sprayed fire-resistive material manufacturer for each fire-resistance design.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for substrates and other conditions affecting performance of the Work and according to each fire-resistance design.

3.2 PREPARATION

- A. Cover other work subject to damage from fallout or overspray of fire protection materials during application.
- B. Prime substrates where included in fire-resistance design and where recommended in writing by sprayed fire-resistive material manufacturer unless compatible shop primer has been applied and is in satisfactory condition to receive fire protection.

3.3 APPLICATION

- A. Construct fire protection assemblies that are identical to fire-resistance design indicated and products as specified, tested, and substantiated by test reports; for thickness, primers, sealers, topcoats, finishing, and other materials and procedures affecting fire protection Work.
- B. Comply with sprayed fire-resistive material manufacturer's written instructions for mixing materials, application procedures, and types of equipment used to mix, convey, and apply fire protection; as applicable to particular conditions of installation and as required to achieve fire-resistance ratings indicated.
- C. Spray apply fire protection to maximum extent possible. After the spraying operation in each area, complete the coverage by trowel application or other placement method recommended in writing by sprayed fire-resistive material manufacturer.
- D. Do not install enclosing or concealing construction until after sprayed fire-resistive material has been applied, inspected, and tested and corrections have been made to deficient applications.

3.4 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
 - Sprayed fire-resistant materials.
- B. Fire protection will be considered defective if it does not pass tests and inspections.
 - 1. Remove and replace fire protection that does not pass tests and inspections, and retest.
 - 2. Apply additional fire protection, per manufacturer's written instructions, where test results indicate insufficient thickness, and retest.
- B. Prepare test and inspection reports.

3.5 CLEANING

- A. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.

3.6 REPAIRS

- A. Repair fire protection damaged by other work before concealing it with other construction.
- B. Repair fire protection by reapplying it using same method as original installation or using manufacturer's recommended trowel-applied product.

END OF SECTION 078100