SPECIAL SPECIFICATION

SECTION 07810S

APPLIED FIREPROOFING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Fireproofing of interior structural steel, and fireproofing of exterior exposed structural steel. Prepare fireproofing for application of finish specified elsewhere.

1.02 RELATED SECTIONS

A. Section 05120S - Structural Steel.

B. Section 05210S - Steel Joists.

C. Section 05310S - Steel Deck.

D. Section 05400S – Light Gauge Metal Framing

E. Section 7270 – Fire Stop and Smoke Stop Systems.

F. Section 09250 - Gypsum Drywall: Gypsum board fireproofing.

G. Section 09210 - Gypsum Plaster: Gypsum plaster fireproofing.

1.03 REFERENCES

A. ASTM C 665 - Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

B. ASTM C 847 - Metal Lath.

C. ASTM E 84 - Surface Burning Characteristics of Building Materials.

D. ASTM E 119 - Fire Tests of Building Construction and Materials.

E. ASTM E 605 - Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members.

F. ASTM E 736 - Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.

G. ASTM E 760 - Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members.

H. ASTM E 761 - Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members.

I. ASTM E 859 - Air Erosion of Sprayed Fire-Resistive Materials Applied to Structural Members.

J. ASTM E 937 - Corrosion of Steel by Sprayed Fire-Resistive Material Applied to Structural Members.

K. ASTM G 21 - Determining Resistance of Synthetic Polymeric Materials to Fungi.

L. FM - Approval Guide.

M. UL - Fire Resistance Directory.

N. WH - Directory of Listed Products.

1.04 PERFORMANCE REQUIREMENTS

A. Applied (Sprayed-On) Fireproofing Systems: Provide UL fire rated assemblies to hourly ratings as follows:

1. Interior Beams: Design No. N771, 3 hours.

2. Interior Floors: Design No. N771, 3 hours.

3. Interior Roof Deck: Design No. N771, 3 hours.

B. Air Erosion: Maximum allowable weight loss of fireproofing shall be 0.025-gram per square foot when tested in accordance with ASTM E 859.

C. Corrosion: Applied fireproofing shall not contribute to corrosion of steel test panels when tested in accordance with ASTM E 937.

D. Mold Resistance: Material to show resistance to fungi growth when tested in accordance with either ASTM C 665 requirements for fungi resistance of insulation or ASTM G 21.

1.05 SUBMITTALS

A. Product Data: Submit data indicating product characteristics, performance criteria, and limitations of use.

B. Test Reports: Indicate the following:

1. Compressive Strength: ASTM E 761.

2. Dry Density: ASTM E 605.

3. Bond Strength of Fireproofing: ASTM E 736.

4. Bond Impact: ASTM E 760.

5. Fire test reports of fireproofing application to substrate materials, including primers, similar to Project conditions, conducted in conformance to ASTM E 84 and ASTM E 119.

6. Air Erosion: ASTM E 859.

7. Corrosion: ASTM E 937.

8. Mold Resistance: ASTM C 665 or ASTM G 21.

C. Manufacturer's Installation Instructions: Submit information which includes any special procedures, and conditions requiring special attention.

D. Manufacturer's Certificate: Certify applied fireproofing products meet or exceed specified requirements. Certify applied fireproofing products contain no asbestos or other finely-divided particulate matter that can be released as an airborne health hazard during or after application.

E. Manufacturer's Field Reports: Indicate compliance with manufacturer's installation instructions and Contract Documents.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the Work of this section, with minimum three years documented experience and approved by manufacturer.

1.07 PRE-INSTALLATION MEETING

A. Convene minimum one week prior to commencing Work of this section.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Maintain minimum ambient and substrate temperature of 40 degrees F during and for minimum 24 hours after application of fireproofing, unless otherwise recommended by manufacturer.

B. Provide ventilation in areas to receive fireproofing during application and 24 hours afterward, to dry applied material.

C. Provide temporary enclosure to prevent spray from contaminating air.

1.09 SEQUENCING

A. Sequence Work in conjunction with placement of ceiling hanger tabs, partition track, mechanical component hangers, and electrical components.

B. Do not allow application of sprayed-on fireproofing to underside of roof deck until roofing is completely installed and weathertight, penthouses are complete, roof top mechanical units have been placed, and construction roof traffic has ceased.

1.10 WARRANTY

A. Provide five-year manufacturer warranty for applied fireproofing.

PART 2 - PRODUCTS

2.01 APPLIED FIREPROOFING

A. Manufacturers:

1. Grace Construction Products.
2. Isolatek International.
3. Mandoval Vermiculite Products, Inc.
4. Pyroc.

B. Fireproofing:

1. Low Density Cementitious Type: Factory mixed, cementitious material blended for uniform texture with vermiculite or lightweight synthetic aggregate, and conforming to the following requirements:

   a. Type: As recommended by manufacturer for concealed interior applications.

   b. Compressive Strength: ASTM E 761, minimum 10 pounds per square inch.

   c. Dry Density: ASTM E 605, minimum average density of 15 pounds per cubic foot.

   d. Bond Strength: ASTM E 736, 200 pounds per square inch when set and dry.

   e. Bond Impact: ASTM E 760, no cracking, flaking or delamination.

   f. Surface Burning Characteristics: Maximum flame spread of 0 and maximum smoke developed of 0, per ASTM E 84.

2.02 ACCESSORIES

A. Primer, Bonding Agent, and Coating: Of type recommended by fireproofing manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify surfaces are ready to receive fireproofing.

B. Verify clips, hangers, supports, sleeves, and other items required to penetrate fireproofing are in place.

C. Verify ducts, piping, equipment, or other items that would interfere with application of fireproofing have not been installed.

D. Verify voids and cracks in substrate have been filled. Verify projections have been removed where fireproofing will be exposed to view as a finish material.

E. Verify roof traffic has ceased and roof mounted equipment is in place.

3.02 PREPARATION

A. Perform tests as recommended by fireproofing manufacturer in situations where adhesion of fireproofing to substrate is in question.

B. Remove incompatible materials that could affect bond by scraping, brushing, scrubbing, or sandblasting.

C. Prepare substrates to receive fireproofing.

D. Apply fireproofing manufacturer's recommended bonding agent on primed steel.

E. Protect surfaces not scheduled for fireproofing and equipment from damage by overspray, fall-out, and dusting.

F. Close off and seal duct work in areas where fireproofing is being applied.

3.03 APPLICATION

A. Apply primer adhesive and fireproofing.

B. Apply fireproofing in sufficient thickness to achieve required fire ratings, with as many passes as necessary to cover with monolithic blanket of uniform density and texture.

C. In exposed locations, trowel surface smooth and form square edges, using tools and procedures recommended by fireproofing manufacturer.

D. Apply overcoat sealer at a rate recommended by fireproofing manufacturer.

E. Patch damaged work.

3.04 FIELD QUALITY CONTROL

A. Independent Testing Agency to:

1. Inspect installed fireproofing after application and curing for integrity, prior to its concealment.

2. Ensure actual thicknesses, densities, and bond strengths meet requirements for specified ratings.

3. Re-inspect installed fireproofing for integrity of fire protection, after installation of subsequent Work.

3.05 MANUFACTURER'S FIELD SERVICES

A. Observe site conditions, conditions of surfaces and installation, quality of workmanship, and initiate instructions when necessary

B. Manufacturer's Field Reports: Document above observations; include environmental conditions under which fireproofing materials were installed.

3.06 CLEANING

A. Remove excess material, overspray, droppings, and debris.

B. Remove fireproofing from materials and surfaces not required to be fireproofed.

C. At exposed fireproofing, clean surfaces that have become soiled or stained, using manufacturer's recommended procedures.

END OF SECTION