Guide Specification

Normal Density Fireproofing Material

Southwest Fireproofing Products
Spray-Applied Fire Resistive Materials

Normal Density Fireproofing Material

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SECTION 07812 – APPLIED FIREPROOFING (NORMAL DENSITY)

Part I - GENERAL

1.1 SCOPE OF WORK:

A. Work required by this section includes the furnishing of all labor, materials, equipment and other services to provide complete installation of applied fireproofing as required by the Project drawings and specifications and in conformance with building code requirements of authorities having jurisdiction.

1.2 RELATED SECTIONS:

A. Work included in other specification sections may impact the work required to meet the fire resistance requirements under this section. Related sections include, but may not be limited to, those listed below.

1. Structural Metal Framing Section 05100
2. Metal Decking Section 05300
3. Concrete Section 03050
4. Roof Insulation Section 07220
5. Lath & Plaster Section 09206
6. Gypsum Board Section 09250

NOTE TO SPECIFIER: Construction details resulting from work required by the related sections may influence the thickness requirements of fireproofing materials and the validity of the fire ratings. Fire Resistive Designs by ULI or others provide necessary design detail data.

1.3 QUALITY ASSURANCE:

A. Application Contractor: Fireproofing application contractor shall be acceptable to the manufacturer of the fireproofing materials based on the contractor’s experience and qualifications.

B. Fireproofing Material Characteristics: Fireproofing materials shall have the performance characteristics necessary to maintain the specified fire resistance under the prevailing service conditions of various Project locations identified herein.

C. Fire Resistance Ratings: Fireproofing materials shall be tested and listed for use in Fire Resistant Construction Designs which will provide fire resistance in accordance with the Fire Resistance Rating Schedule on the General Information Sheet of the Project Drawings.

D. Fire Resistive Designs: Fire resistive designs shall be those published in the Underwriters Laboratories “Fire Resistance Directory”, published directories of other testing agencies acceptable to U. S. Model Building Codes, or provided in other written form by the testing organization.

E. Pre-Application Coordination: General Contractor, Fireproofing Contractor, Independent Testing Laboratory and other construction team members as determined by the Architect shall attend a pre-application coordination meeting to review the Fireproofing Material and Thickness Schedule, substrate acceptability, application procedures, inspection procedures and other coordination issues.
1.4 REFERENCES:

C. ASTM E136 – Behavior of Materials in a Vertical Tube Furnace at (750° C) 1400° F.
D. ASTM E605 – Thickness and Density of Sprayed Fire-Resistive Material Applied to Structural Members.
E. ASTM E736 – Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.
H. ASTM E761 – Compressive Strength of Sprayed Fire-Resistive Materials Applied to Structural Members.
I. ASTM E859 – Air Erosion of Sprayed Fire-Resistive Materials Applied to Structural Members.
J. ASTM E937 – Corrosion of Steel by Sprayed Fire-Resistive Materials Applied to Structural Members.

1.5 SUBMITTALS: (Refer to Section 01340.)

A. Manufacturer’s Data: Submit manufactures published data on the selected materials including Product Brochures, Data Sheets, Physical Characteristic Test Results and Installation Instructions.
B. Fire Resistive Designs: Submit a schedule of ASTM E119 fire resistive designs from the “Fire Resistance Directory” by ULI, or designs from other qualified testing agencies, selected to meet the Fire Resistance Rating Schedule specified for the Project.
C. Fireproofing Thickness Schedule: Submit a Thickness Schedule for the fireproofing including the building elements to be protected, hourly rating requirements and fireproofing thickness to be applied.

PART 2 - PRODUCTS

2.1 CEMENTITIOUS FIREPROOFING:

A. All products shall be spray-applied cementitious fireproofing materials or accessory products for use with cementitious fireproofing. Products shall have a base of gypsum cement with the necessary aggregates, fillers and additives factory blended by the manufacturer to assure proper composition.
B. Mineral fiber based products and products containing asbestos are not acceptable.
2.2 ACCEPTABLE MANUFACTURERS:
A. Applied Fireproofing shall be Southwest Fireproofing Products as manufactured by
Southwest Fireproofing Products Co., Albuquerque, NM
A/D Fire Protection Systems Inc., Columbia, NJ
A/D Fire Protection Systems Inc., Toronto, Ontario, Canada
Aislantes Y Acusssicos, Mexico, D F, Mexico.

2.3 ACCEPTABLE PRODUCTS:
A. Normal Density Cementitious Fireproofing shall be Southwest Fireproofing Products
Type 5GP™ or Type 5EF™, as determined by Fire Resistive Design Selection.

NOTE TO SPECIFIER: Type 5GP™ is listed in most Fire Resistive designs, but Type
5EF™ is required in certain Designs for electrified floor systems.

Normal Density Cementitious Fireproofing shall be a gypsum cement based product and
shall have physical properties that meet or exceed those listed below when tested in
accordance with the referenced test methods.

1. Surface Burning Characteristics per ASTM E84: Maximum flame spread of 0 and
maximum smoke developed of 0.

2. Fire Resistance Classification per ASTM E119: Fireproofing materials are to have
been tested in accordance with ASTM E119 by Underwriters Laboratories Inc. (ULI)
or other organizations recognized by the U. S. Model Building Codes for this
purpose.

3. Combustibility Classification per ASTM E136: Fireproofing materials shall be
classified as Non-Combustible.

4. Dry Density per ASTM E605: Minimum average density of 240 kg/m³ (15 pcf), with
minimum individual measurements of 224 kg/m³ (14 pcf).

5. Cohesion/Adhesion Strength per ASTM E736: Minimum of 975 kg/m² (200 psf) when
applied to uncoated or galvanized steel.

6. Effect of Deflection per ASTM E759: No cracking or delaminating of material.

7. Impact Resistance per ASTM E760: No cracking or delaminating of material.

8. Compressive Strength per ASTM E761: Minimum of 2,400 kg/m² (500 psf) at 10
percent deformation.

9. Air Erosion per ASTM E859: Maximum weight loss of 0.05 g/m² (0.005 g/ft²).

10. Corrosion Resistance per ASTM E937: No evidence of corrosion or bond failure.

B. Accessory Products shall be as required by the selected Fire Resistive Designs or as
recommended by the manufacturer of the applied fireproofing material.

C. Water for mixing cementitious fireproofing shall be clean, suitable for domestic use and
free of chemical contaminants that adversely affects the fireproofing setting time or
physical properties. Water quantity and flow rate to the mixing site shall be adequate to
accommodate the required fireproofing mixing rates.
PART 3 – EXECUTION

3.1 MATERIAL DELIVERY AND STORAGE:
   A. Materials shall be delivered in original unopened packages bearing name of manufacturer, product identification, and Underwriters Laboratories Inc. label.
   B. Store materials under cover and off the ground or other damp surface and in a dry area.
   C. Discard materials that are damaged from improper storage or exposed to water by any means before actual use.

3.2 APPLICATION ENVIRONMENT:
   A. Do not apply fireproofing when temperature of substrate or surrounding air temperature is below 4.5°C (40°F) for 24 hours prior to, during and after application.
   B. Provide sufficient ventilation, with fresh air intake, to avoid moisture build up or condensation in areas receiving fireproofing until after fireproofing has cured and dried.

3.3 PROTECTIVE MEASURES:
   A. Provide temporary enclosures for spraying operations to prevent contamination of air or nearby property.
   B. Protect adjacent surfaces and equipment from damage by overspray, fall-out and dusting-off of fireproofing.
   C. Close off and seal ductwork in areas where fireproofing is being applied.
   D. Protect applied fireproofing from damage.
   E. Coordinate installation with other trades to avoid cutting and patching of installed fireproofing.

3.4 PRE-INSTALLATION EXAMINATION:
   A. Verify that surfaces to receive fireproofing are free of oil, grease, dirt, loose paint, mill scale or other matter that would impair bond. Do not proceed until defects are corrected. Where necessary the cleaning of steel surfaces to receive fireproofing shall be the responsibility of the general contractor.
   B. Verify that painted steel surfaces to be fireproofed comply with fire resistive design requirements or ULI requirements for painted or primed steel, including any necessary bond tests.
   C. Verify completion of preparatory work by others that is to be covered by fireproofing, including clips, hangers and other attachments.
   D. Verify that ducts, piping, equipment or other items that would interfere with application of fireproofing are not positioned until fireproofing application is completed.
   E. For application to underside of roof deck, verify that roofing application is completed and roof traffic has ceased.
   F. For application to metal floor decking, verify that concrete work above is completed.

3.5 PREPARATION:
   A. At contractor’s option, attach metal lath or non-metallic mesh to one side of each steel joist web member in manner acceptable by approved Fire Resistive Designs.
   B. Install accessory products required by Fire Resistive Designs, manufacturer or project specifications prior to application of fireproofing.
3.6 APPLICATION:
   A. Apply fireproofing in accordance with manufacturer’s recommendation to comply with fire rating requirements and approved fire resistance designs.
   B. Spray-apply cementitious fireproofing using as many coats as necessary to obtain required thickness and uniform density.
   C. Completely cover members scheduled to be fireproofed.
   D. Fill areas between fluted steel deck and beam top flange with fireproofing as required by Fire Resistive Designs.

3.7 PATCHING:
   A. Examine members for complete coverage, correct unacceptable work and patch.
   B. Patch areas damaged or cut by subsequent work.
   C. All patching and repairing of sprayed fireproofing, due to damage by other trades, shall be performed under this section and paid for by the trade(s) responsible for the damage.

3.8 CLEANING:
   A. Remove equipment and thoroughly clean all surfaces of overspray deposits of fireproofing materials.

3.9 FIELD QUALITY CONTROL:
   A. Inspection and testing as specified in Section 01410.

END OF SECTION