

OKLAHOMA STATE UNIVERSITY - BUILDING DESIGN STANDARDS

PART 1 GENERAL

1.01 REFERENCES:

A. Codes/Standards:

1. NFPA requirements for fire resistance ratings of specified areas.
2. Underwriters Laboratories, Inc. (UL): Conform to approved UL designs as published in UL Fire Resistance Directory, in accordance with ASTM E 119.
3. American Society for Testing and Materials (ASTM) latest editions:
 - a. ASTM E 84: Test for Surface Burning and Characteristics of Building Materials.
 - b. ASTM E 119: Fire Tests of Building Construction and Materials.
 - c. ASTM E 605: Thickness and Density of Sprayed Fire-Resistive Material Applied to Structural Members.
 - d. ASTM E 736: Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members.
 - e. ASTM E 759: Effect of Deflection on Sprayed Fire-Resistive Materials Applied to Structural Members.
 - f. ASTM E 760: Impact on Bonding of Sprayed Fire-Resistive Materials Applied to Structural Members.
 - g. ASTM E 761: Compressive Strength of Sprayed Fire-Resistive Materials Applied to Structural Members.
 - h. ASTM E 859: Air Erosion of Sprayed Fire-Resistive Materials Applied to Structural Members.

1.02 SUBMITTALS:

A. Test Reports:

1. Submit manufacturer's laboratory test reports on each required test of in-place fireproofing products with performance requirements indicated, including asbestos content where applicable.

OKLAHOMA STATE UNIVERSITY - BUILDING DESIGN STANDARDS

2. Submit test reports for sprayed-on fireproofing from a qualified independent testing agency employed and paid by manufacturer. Provide reports indicating that physical properties of proposed sprayed-on fireproofing products comply with specified requirements based on comprehensive testing of current product formulations according to the following requirements:
 - a. Testing is performed on sprayed-on fireproofing materials randomly selected from bags bearing the applicable classification marking of UL or another inspecting and testing agency acceptable to Oklahoma State University.
 - b. Testing is performed on specimens of sprayed-on fireproofing materials that comply with laboratory testing requirements specified and are otherwise identical in every respect to installed fireproofing including application of sealers, topcoats, tamping, troweling, rolling, and water overspray, if any of these are used in final application.
 3. Qualified independent testing agency shall perform testing on laboratory specimens that it witnessed during preparation and conditioning. Include in test reports a full description of preparation and conditioning of laboratory test specimens.
 - a. Test reports without the above information are not acceptable.
- B. Field Test Reports:
1. Owner employed testing agency will promptly report field test results and inspections to Architect and Contractor.

1.03 QUALITY ASSURANCE:

- A. Installer Qualifications:
1. Licensed by manufacturer of fireproofing materials.
 2. Experienced in similar applications of sprayed fireproofing materials on a minimum of five projects.
- B. Certificates:
1. Manufacturer's certification that materials meet or exceed specification requirements.
 2. Applicator's certification that application has been completed as specified to meet fire resistance ratings and thickness requirements.

OKLAHOMA STATE UNIVERSITY - BUILDING DESIGN STANDARDS

C. Testing Agency Qualifications:

1. Testing agency must demonstrate that it has the experience and capability to conduct testing indicated based on evaluation of submitted criteria conforming to ASTM E 699.

D. Single Source Responsibility:

1. Obtain sprayed-on fireproofing materials from a single manufacturer for each different product required.

E. Fire Performance Characteristics:

1. Provide materials and construction which are identical to those tested for the following fire performance characteristics, per test method indicated, by UL or other testing and inspecting organizations acceptable to the Oklahoma State University Department of Environmental Health and Safety.
 - a. Fire Resistance Ratings: As indicated by reference to design designation in UL "Fire Resistance Directory" for fire-resistance rated assemblies in which sprayed-on fireproofing serves as direct-applied protection, tested per ASTM E 119.
 - b. Surface Burning Characteristics: As indicated for each sprayed-on fireproofing product required, tested per ASTM E84 and listed in UL "Building Materials Directory".

F. Asbestos Content:

1. No detectable asbestos fibers are permitted as determined per method specified in 40 CFR Part 763, Subpart F, Appendix A, Section 1, Polarized Light Microscopy.

1.04 SEQUENCING AND SCHEDULING:

A. General:

1. Schedule and coordinate fireproofing with other work so that it will not be exposed to weather or other damaging conditions. Do not expose to abrasion and other damage likely to occur during subsequent work or install prior to installation of enclosing or concealing work. Provide time for inspection and testing and subsequent correction of defective fireproofing.
2. Do not apply to underside of roof assembly until roofing installation is complete. Prohibit roof traffic during application and drying.

OKLAHOMA STATE UNIVERSITY - BUILDING DESIGN STANDARDS

3. Do not apply to metal decking supporting concrete until concrete has been placed.
4. Do not apply to open web members until piping through web openings is complete and installed with adequate clearance as required by UL.
5. Do not begin applying fireproofing until clips, hangers, supports, sleeves, and other item penetrating fireproofing are in place.

1.05 WARRANTY:

- A. Submit a written warranty, executed by Contractor and co-signed by Installer, agreeing to repair or replace sprayed-on fireproofing that has failed within the specified warranty period. Failures include, but are not limited to the following:
 1. Cracking, flaking, eroding in excess of specified requirements, peeling, and delaminating of sprayedon fireproofing from substrates due to defective materials and workmanship.
 2. Not covered under the warranty are failures attributable to damage by occupants and Owner's maintenance personnel, exposure to environmental conditions other than those investigated and approved during fireresponse testing, and to other causes not reasonably foreseeable under conditions of normal use.
- B. Warranty Period: Two years from date of the Notice of Acceptance.

PART 2 PRODUCTS

2.01 MATERIALS:

- A. Cementitious Fireproofing:
 1. Monokote as manufactured by W. R. Grace and Co.
 2. Cafco 300 as manufactured by Isolatek International Corp.
 3. Cafco "Blaze Shield II" as manufactured by Isolotek.
 4. An approved equal.

2.02 PERFORMANCE CRITERIA:

- A. Dry Density: ASTM E 605 test method for each performance criterion, 15 pcf average, 14 pcf minimum.

OKLAHOMA STATE UNIVERSITY - BUILDING DESIGN STANDARDS

- B. Deflection: ASTM E 759, test for cracking and delamination showing no cracking, spalling or delamination.
- C. Impact Resistance: ASTM E 760 to show no cracking, spalling or delamination.
- D. Bond Strength: ASTM E 736. Minimum bond strength of 150 lbf per sq. ft., 3/4" minimum thickness.
- E. Air Erosion: ASTM E 859. Maximum allowable weight loss of 0.025 grams per sq. ft. of fireproofing material.
- F. Compression: ASTM E 761. Not less than 5.21 lbf per sq. in., 3/4" minimum thickness, 15 pcf minimum dry density.
- G. Fire Hazard Rating per ASTM E 84:
 - 1. Flame Spread: 10 maximum.
 - 2. Fuel Contributed: 5 maximum.
 - 3. Smoke Developed: 0 maximum.

INCLUDE A SCHEDULE IN THE SPECIFICATIONS OR ON THE DRAWINGS THAT IDENTIFIES EACH ASSEMBLY TYPE OR MEMBER TYPE, THE UL DESIGN NUMBER AND THE HOUR RATING REQUIRED.

END OF SECTION 07815