

Zonolite® Mono-Kote® Direct-To-Steel Fire Protection

July, 1966

Mono-Kote is the trade name for a fire protection material developed by Zonolite Division, W. R. Grace & Co. specifically for fast application, high fire resistance, and low cost. The material is spray applied by any one of several plastering machines. Mono-

Kote is a cementitious, mill-mixed material requiring only the addition of water at the job. It is applied directly to steel, concrete and other surfaces requiring fire protection.



Technical Data

Applied Dry Density:	1.5 lbs. per bd. ft. (~ 15%).
Bond Strength to Steel:	More than 500 lb. per sq. ft. when set and dry.
Bond Strength to Concrete:	More than 500 lb. per sq. ft. when set and dry.
Sound Attenuation:	The combination of beams and ceiling when fireproofed with Mono-Kote gives sound absorption of .50 to .85 depending upon the ratio of beam area to flat area. This is of value to the designer in accomplishing attenuation objectives, especially when the fireproofed area is part of a plenum above a finished ceiling.
Compressive Strength:	(2 in. cubes): More than 70 psi.
Air Erosion Resistance:	Independent laboratory test subjected standard, machine-applied Mono-Kote surface to winds exceeding hurricane velocity . . . over 100 M.P.H. for 87 hours . . . with no erosion. Copies of test description available.
Fire Resistance:	Mono-Kote has been tested and rated according to ASTM E-119 by the Underwriters' Laboratories, Inc. The material bears the U.L. label under a quality control inspection program. Fire resistance ratings and details for varied structural systems are available on request. To insure that architects and engineers have the benefit of the most recent ratings, it is suggested that they contact the local Zonolite office. Up to five hour ratings are available for steel beams. Ratings are also available on cellular, flat, or fluted, or blended steel floor systems and columns.
Specification: (Short Form)	Fire protection material shall be Mono-Kote as manufactured by the Zonolite Division, W. R. Grace & Co. or its processing Distributors, applied by machine to the thickness and in the areas shown on the drawings. The method of mixing and application shall conform to the manufacturer's recommendation.

See Reverse Side for Long Form Specification.

Advantages

FAST APPLICATION, EASE OF INSPECTION — Mill-mixed Mono-Kote is machine applied . . . Requires no tamping—attains uniform density and hardness by nature of the cementitious setting-type binder (gypsum plaster).

PUTS FIRE PROTECTION WHERE IT BELONGS, on the steel, allowing complete freedom of ceiling and plenum design and flexibility for future alterations.

NO NEED TO "WRAP" BEAMS — Mono-Kote ap-

plies directly to beams. No need to cage beams with lath.

HARD SETTING — Ideal for air plenums — Mono-Kote provides a monolithic, firm surface. (See Technical Data above)

NON-IRRITATING — Ingredients do not cause burning or irritation to the skin.

STRONG BOND — Mono-Kote adheres strongly to steel or concrete, with no priming adhesive required.



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ARCHITECTURAL GUIDE SPECIFICATION

1. GENERAL CONDITIONS

All applicable revisions of the General Conditions and Special Conditions shall form a part of this Specification Section, except as may be modified herein.

2. SCOPE

- a) Work included — The work required under this section consists of furnishing all labor, materials and equipment necessary for sprayed fireproofing of structural steel members and metal decking, as indicated in the drawings and as specified herein, and clean-up subsequent to that application.
- b) Work not included —
 - 1) Structural steel encased in concrete.
 - 2) Trowelled plaster fireproofing is specified under the Plastering Section.
 - 3) The cleaning of the surfaces to receive sprayed fireproofing.
 - 4) In the event of sprayed fireproofing application in cold weather, the supply of temporary heat shall be by others, as defined in Section _____ of the specifications.

3. EXAMINATION & COORDINATION

- a) The contractor shall study the contract drawings and specifications with respect to the work, as shown and specified hereinafter, to assure its completeness. Supplementary items necessary to complete the work, though not definitely shown or specified, shall be brought to the architect's attention, and shall be included. The contractor's attention is directed to the drawings and specifications for both structural steel and metal decking, so that he may properly determine the exact scope of the work required.
- b) The contractor shall examine all surfaces to which the sprayed fireproofing is to be applied, and shall notify the General Contractor, in writing, if any conditions exist which would be detrimental to the proper and expeditious installation of the work. Starting of work, within an area, will be construed as acceptance of the conditions of that area.
- c) All clips, hangers, supports, sleeves and other attachments to the fireproofing bases, as covered under other sections of the specifications, are to be placed by others prior to the application of the fireproofing material, where these attachments can be anticipated in advance.
- d) Ducts, piping or conduit or other suspended equipment that could interfere with the uniform application of the fireproofing material are to be positioned after the application of the sprayed fireproofing.
- e) The contractor shall cooperate in the coordination and scheduling of the work of this section to avoid delays in the job progress.

4. SAMPLES

Samples of sprayed fireproofing shall be submitted for approval in accordance with the applicable provisions of the Special Conditions. These samples shall be representative of the material as applied in accordance with Acceptance & Performance Criteria as stated below.

5. ACCEPTANCE & PERFORMANCE CRITERIA

- a) The sprayed fireproofing shall have been tested by Underwriters' Laboratories, Inc. in accordance with the procedures of A. S. T. M. E119. The structural steel members shall be protected with adequate fireproofing thicknesses and densities to provide the following fire resistance ratings:

Steel Columns _____ Hours
Primary steel members (Girders) _____ Hours
Secondary steel members (Beams) _____ Hours

(Note: Secondary steel members are those which support only the floor system, and are spaced at 1/2 the column spacing or less.)

- b) The sprayed fireproofing beneath the deck assembly together with adequately proportioned concrete fill above the metal decking, shall provide a _____ Hour fire resistant deck assembly as substantiated by a fire test in accordance with the procedures of A. S. T. M. E119, and performed by Underwriters' Laboratories, Inc.
- c) Minimum bond strength between the fireproofing material and the structural steel or galvanized decking shall be _____ P. S. F.
- d) The fireproofing material shall not be subject to losses from the finished application by sifting, flaking or dusting. This performance shall be measured by the results of a test for erosion resistance when subjected to high velocity air flow across the surface of dried samples. The samples thus tested must be representative of machine applied material similar to that which can be expected on the project. The air velocity shall be not less than _____ feet per minute, and the duration of the test shall be at least _____ hours.
- e) Documentation of the above performance shall be submitted with the bid, in order that all parties will fully understand the intention of application performance at that time.

6. MATERIALS

- a) The sprayed fireproofing shall be cementitious setting-type, and shall be Mono-Kote as manufactured by Zonolite Division — W. R. Grace & Co., or its processing distributors.
All manufactured materials shall be mill-mixed and shall be delivered in original, unopened packages bearing the name of the product, the manufacturer's name and the Underwriter's Laboratories, Inc. Label. The materials shall be stored off the ground, under cover, and away from damp surfaces. Materials shall be kept dry until ready for use. Materials that have been exposed to water before actual use shall be discarded.
- b) Water shall be clean, fresh and free from organic and mineral impurities which would be harmful to the sprayed fireproofing materials.

7. INSTALLATION

- a) Application of sprayed fireproofing shall be in accordance with the printed instructions of the material manufacturer and the fire test report information.
- b) Only experienced applicators, approved by the materials manufacturer and Architect shall be allowed to place the materials. Upon request a qualified manufacturer's representative can be present for initial application to guide and assist applicator's personnel.
- c) All surfaces to which sprayed fireproofing will be applied shall be thoroughly cleaned of oil, grease, dirt, loose paint, mill scale or any other matter which would impair bond.
- d) Temperatures and enclosure conditions shall be as specified by the materials manufacturer.
- e) All patching and repairing of sprayed fireproofing, due to cutting by other trades, shall be performed under this section and paid for by the trade(s) that performed the cutting.

8. CLEAN-UP

After completion of fireproofing work, equipment shall be removed and all wall and floor areas cleaned of deposits of sprayed fireproofing materials.

9. BID INFORMATION

Each bidder shall submit with his bid:

- a) Full report(s) of Underwriters' Laboratories, Inc. fire tests including written material and detailed drawings of the tested assembly.
- b) Materials manufacturer's printed instructions for methods and procedures for application.
- c) Bond test data for uncoated, coated and galvanized steel applications.
- d) Results of tests of material performance when subjected to high velocity air flow.