04506835

PLAINTIFF'S EXHIBIT WRG-373

Zonolite®

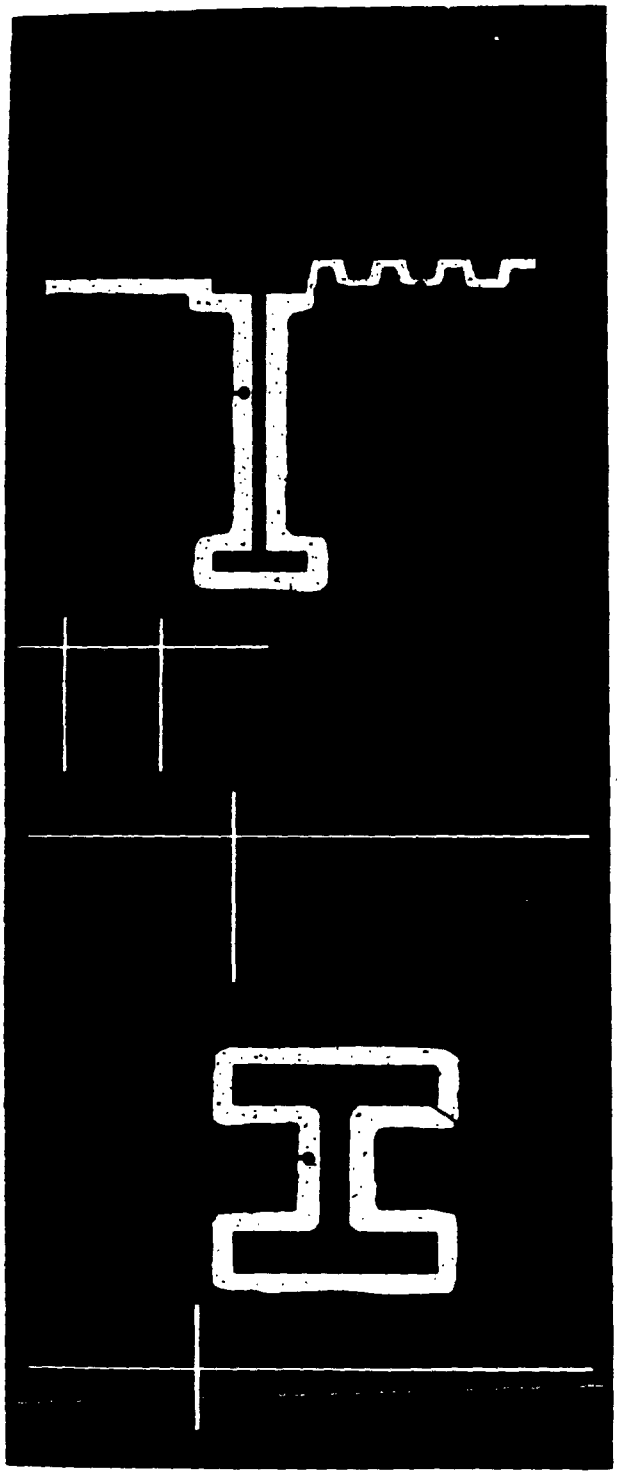
Direct-to-steel Fire Protection



04502836

Mono-Kote®

cementitious spray-applied fireproofing



Mono-Kote is the trade name for a fire protection material developed by Construction Products 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 (plaster), 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.



Machine applied cementitious Mono-Kote withstands air erosion, prevents "dusting" in air-conditioning and ventilating systems

technical data

FIRE RESISTANCE. Mono-Kote has been fire tested and rated by Underwriters' Laboratories, Inc., in accordance with test method ASTM E-119. Fire ratings up to 4 hours have been achieved. Each bag of material bears the UL label verifying compliance with UL's quality control inspection program and the appropriate fire resistance rating.

IN 1970, A MAJOR REVISION TO TEST METHOD E-119 WAS ACCEPTED BY ASTM AND UL. BASICALLY, THE REVISION (1) INTRODUCES A NEW SYSTEM FOR RATING THE HOURLY PERFORMANCE OF ASSEMBLIES AND STRUCTURAL MEMBERS AND (2) PROVIDES FOR TWO RATINGS FROM THE SAME FIRE TEST. THE UNDERWRITERS' LABORATORIES INDEX OF FIRE RESISTANCE RATINGS WILL, IN GENERAL, REFER TO TWO RATINGS — ONE BASED ON TIME-TEMPERATURE PERFORMANCE AND THE OTHER BASED ON A COMBINATION OF STRUCTURAL AND LESSER TIME-TEMPERATURE PERFORMANCE CRITERIA. BECAUSE LOCAL BUILDING CODES MAY NOT YET HAVE ADOPTED THIS NEW UL CRITERIA, CONTACT THE JURISDICTIONAL MUNICIPAL AUTHORITY FOR VERIFICATION.

Mono-Kote has been tested for other properties such as adhesion, corrosion resistance, deflection, bond impact, surface hardness, air erosion resistance, damagability, resistance, etc. The test results comply with and in most instances exceed, Government Services Administration requirements.

FIRE HAZARD. Tested and reported in accordance with ASTM E-84 by Underwriters' Laboratories, Inc. Flame Spread-10, Fuel Contributed-5, Smoke Developed 0.

DRY DENSITY. Approximately 18-20 p.c.f.

SPECIFICATION SUGGESTION. Sprayed fireproofing material shall be Mono-Kote as manufactured by Construction Products Division, W. R. Grace & Co. or its processing distributor. It shall be applied by machine to the thickness required by local codes and in the areas shown on the drawings. The method of mixing and application shall comply with the manufacturer's recommendations.

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GRA

specifications

1. SCOPE

a) Work Included

Provide all labor, materials and equipment required for complete installation of all sprayed fireproofing and related work as shown on the drawings or specified herein, and in accordance with all applicable requirements of the Contract Documents.

b) Work Not Included

1. Structural steel encased in concrete.
2. Trowelled plaster fireproofing as specified under appropriate section.
3. The cleaning of the surfaces to receive sprayed fireproofing.

c) Codes and Regulations

This specification shall be supplemented by the applicable requirements of the Building Codes and all authorities having jurisdiction. Conflicts and/or discrepancies between Contract Documents, ordinances, etc., noted by the subcontractor shall be immediately brought to the architect's attention.

2. MATERIALS

a) The sprayed fireproofing shall be plaster cementitious setting-type, and shall be Mono-Kote as manufactured by Construction Products 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 manufacturer's name and the Underwriters' 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.

3. ACCEPTANCE AND PERFORMANCE CRITERIA

a) The sprayed fireproofing shall have been tested by Underwriters' Laboratories, Inc. in accordance with the procedures of ASTM E-119. The structural steel members shall be protected with proper fireproofing thicknesses and densities to provide the following fire resistance ratings:

Steel columns ..... _____ -Hours

Primary steel members (Girders) ..... _____ -Hours

Secondary steel members (Beams) ..... _____ -Hours

b) The sprayed fireproofing beneath the deck assembly together with properly 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 ASTM-119, and performed by Underwriters' Laboratories, Inc. or other such recognized testing agency.

c) The fireproofing material shall not be subject to losses from the finished application by sifting, flaking or dusting. Its 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.

Note to Specifier:

Recommended Quality Criteria:

TESTS

a) The architect will select and the owner will pay an independent testing laboratory to sample and verify the density of the direct-to-steel fireproofing as applied.

b) Contractor shall control thickness, utilizing a workable depth gauge to meet minimum thickness as required. He shall cooperate with the owner's inspector in furnishing samples for tests.

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. 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) 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 free of oil, grease, dirt, loose paint, mill scale or any other matter which would impair bond.

d) 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.

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.

6. TEMPERATURE AND VENTILATION

When the prevailing outdoor temperature at the building site is less than 40°F, an interior temperature of 40°F shall be maintained for 24 hours before and 24 hours after application of Mono-Kote.

The plastering contractor shall provide natural ventilation to properly dry the Mono-Kote during and subsequent to its application. In glazed buildings, this shall be accomplished by keeping windows open approximately 2" top and bottom (or side pivoted windows approximately 4") to provide air circulation; and in enclosed areas or buildings lacking openings for natural ventilation, by circulating exterior air and exhausting it to the outside by use of temporary circulators, exhaust fans or the air-conditioning system.

7. CLEAN-UP

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

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