

ZONOLITE MONO-KOTE

DIRECT-TO-STEEL FIRE PROTECTION

June, 1964

WRG 001531

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:	24 lbs. per cu. ft. or 2 lbs. per bd. ft. ($\pm 15\%$).
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.
Light Reflectivity:	50%. When finished surface with higher light reflectivity is desired, Zonolite acoustical textures may be used.
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. 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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RECOMMENDED GUIDE SPECIFICATION

01 SCOPE:

- a. The work covered by this section of the specification includes:
 - (1) Furnishing and installing the materials for the direct application of Zonolite Mono-Kote as specified herein, complete, in accordance with this section of the specifications and the applicable drawings, and subject to the general terms and conditions of the contract.
 - (2) Cleaning subsequent to application, including the removal of all waste and surplus material.
- b. The work not covered in this section of the specification is the cleaning of surfaces to receive Zonolite Mono-Kote.

02 MATERIALS:

- a. Fire resistive material shall be Zonolite Mono-Kote as manufactured by the Zonolite Division, W. R. Grace & Co. or its Processing Distributors.
- b. Water shall be clean, fresh, suitable for domestic consumption, and free from such amounts of mineral or organic substance as would affect the set of the fire resistive material.

03 DELIVERY AND STORAGE:

- a. All manufactured material shall be delivered in the original packages bearing the name of the manufacturer and the brand.
- b. Mono-Kote and finish materials shall be kept dry until ready for use. It shall be kept off the ground, under cover and away from sweating walls and other damp surfaces.

04 MIXING:

- a. Zonolite Mono-Kote shall be mixed by machine and the mixer shall be clean and free of particles of previously used materials. While the mixer is in continuous operation, water shall be placed in the mixer and Zonolite

Mono-Kote shall then be added. The mixing time shall not be less than 3 minutes. Water temperatures shall be at least 55°F.

05 APPLICATION:

- a. Zonolite Mono-Kote shall be applied in one or more coats to the thicknesses necessary to provide the fire resistance ratings indicated on the following schedule. It shall not be applied to surfaces on which there is dirt, dust, oil, loose paint, and other materials which would impair adhesion.
- b. Material shall not be re-tempered. Frozen, caked or lumpy materials shall not be used. Each batch shall be mixed separately.

06 TEMPERATURE AND VENTILATION:

- a. Requirements for temperature and ventilation found in Vermiculite Institute Standard Specification for Vermiculite Plastering and for Acoustical Plastic shall apply. Temperature within plastered rooms shall be maintained at not less than 55°F. for not less than one week prior to plaster application and until the plaster is dry. Heat shall be uniformly distributed. Ventilation shall be provided introducing exterior air and exhausting it to the exterior.

07 CUTTING AND PATCHING:

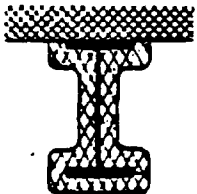
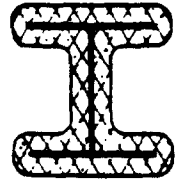
- a. Cutting, patching and repairing of damaged or unsatisfactory fire resistive material shall be provided as directed by the architect.

08 CLEANING:

- a. After the application of fire resistive materials has been approved by the architect, the contractor shall remove his equipment and shall clean finished, exposed, or other surfaces as required.

FIRE RESISTANCE RATINGS for steel floors, roofs decks, columns, beams

(All ratings Underwriters' Laboratories, Inc. unless otherwise noted)

SYSTEM	DESCRIPTION	RATING	SYSTEM	DESCRIPTION	RATING
	2 1/2" sand concrete fill. 1/2" ZONOLITE MONO-KOTE following contour of underside of deck with an additional 1/2" across top of flute.	3 hrs.		3 1/2" sand concrete fill. ZONOLITE MONO-KOTE applied directly to underside of steel floor 1/2" below corrugations.	4 hrs.
	2 1/2" sand concrete fill. ZONOLITE MONO-KOTE 1/2" thick applied to underside of steel floor as shown.	3 hrs.		2 1/2" sand concrete fill. ZONOLITE MONO-KOTE 1/2" thick applied directly to underside of steel floor as shown.	3 hrs.
	2 1/2" sand concrete fill. ZONOLITE MONO-KOTE 1/2" thick applied to underside of steel floor as shown.	2 hrs.		ZONOLITE MONO-KOTE applied direct to structural steel beams and girders.	
	2 1/2" sand concrete fill. ZONOLITE MONO-KOTE 1/2" below filled flutes to underside of steel floor as shown.	2 hrs.		ZONOLITE MONO-KOTE applied directly to structural steel columns.	
	2 1/2" sand-gravel concrete. ZONOLITE MONO-KOTE 1/2" thick applied to underside of steel deck as shown, with additional 1/2" at top of flutes 1 1/2" under trench header ducts.	3 hrs.		2 1/2" sand-concrete fill. ZONOLITE MONO-KOTE applied directly to underside of steel floor with 1/2" under flat plate, 1/2" on sides, 1/2" at top of flutes and 1" under filled flutes under 36" trench header duct.	2 hrs.
				1 1/4" 5 hrs. 1 1/2" 4 hr. 1 3/4" 3 hr. 1 1/2" 2 hr. 1 1/4" 1 hr.	
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				ZONOLITE MONO-KOTE applied directly to structural steel columns. 2 1/2" 4 hrs. 1 1/2" 3 hrs. 1 1/4" 2 hrs.	

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