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Exhibits No. 8112

PLAINTIFF'S
EXHIBIT

WRG-77



Zonolite[®]

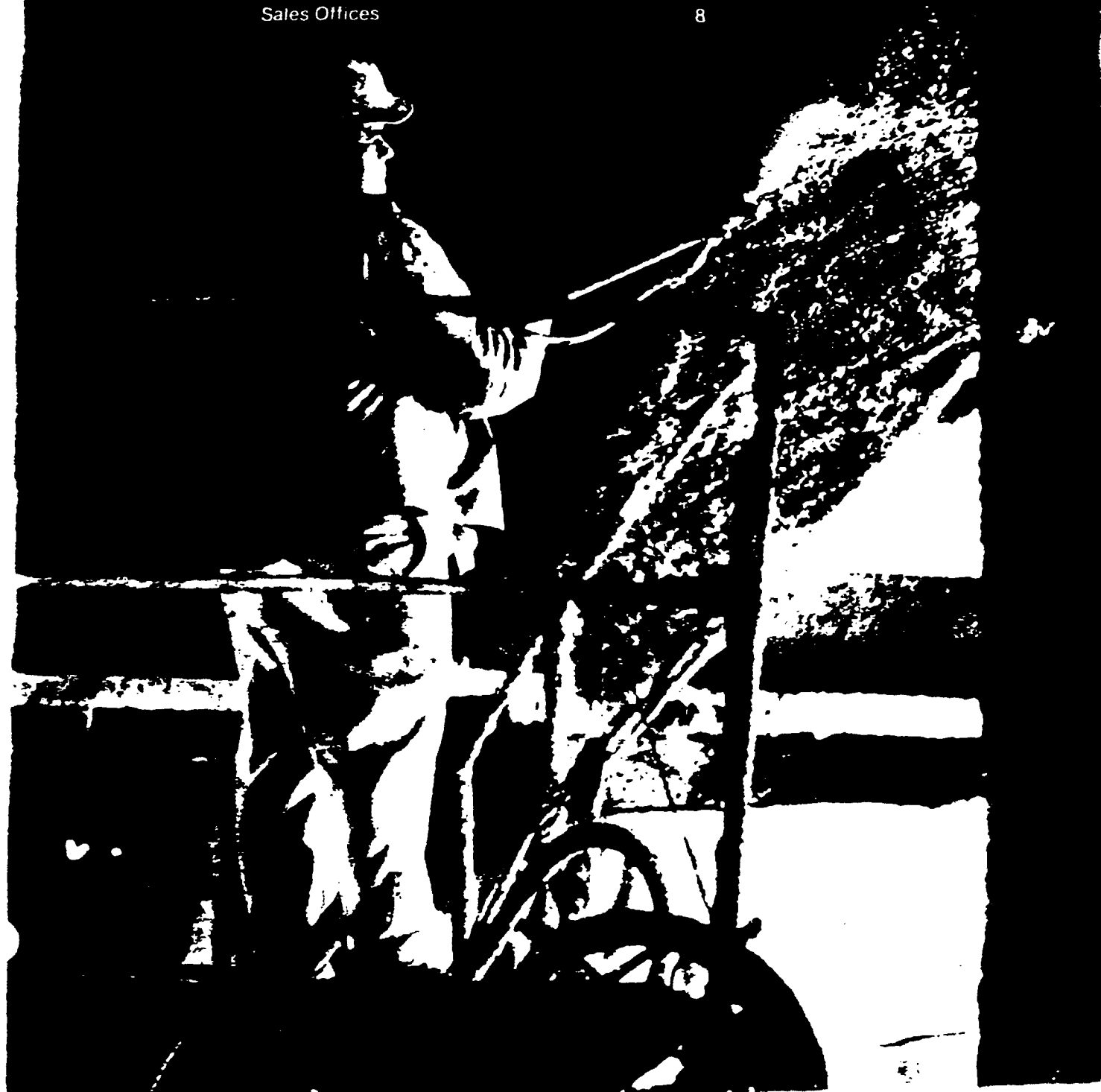
MONOKOTE[®]
FIREPROOFING

GRACE

CONSTRUCTION PRODUCTS DIVISION W. R. Grace & Co.

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Zonolite[®] MONOKOTE[®] FIREPROOFING

SPRAY-APPLIED PLASTER (CEMENTITIOUS)
STRUCTURAL FIRE PROTECTION

MONOKOTE Fireproofing

MONOKOTE[®] fireproofing has been developed by the Construction Products Division, W.R. Grace & Co., specifically for fast application, high fire resistance, and low cost. MONOKOTE is spray-applied by any one of several plastering machines. MONOKOTE fireproofing 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.

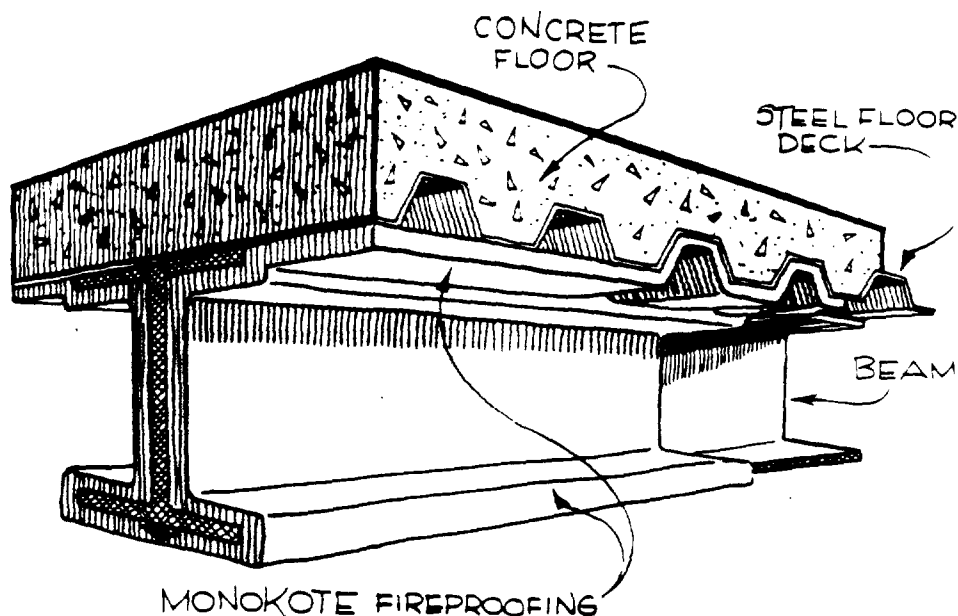
MONOKOTE fireproofing is in compliance with United States Environmental Protection Agency (EPA) Regulation 40 C.F.R., Chapter 1, Subsection 61:22E, promulgated by EPA on April 6, 1973.

Benefits

Fireproofing—preserving the structural integrity of buildings under fire conditions—should be regarded as an integral part of building design. MONOKOTE fireproofing gives basic, dependable structural protection. By sheathing the structural members with a durable, protective coating, MONOKOTE prevents or minimizes fire damage and increases occupant safety. MONOKOTE fireproofing becomes an integral part of the structure, giving constant protection for the life of the building.

Dry Density

Approximately 17 pcf:
Underwriters Laboratories Inc.
lists 15 pcf as minimum density.





ADVANTAGES OF MONOKOTE FIREPROOFING

Low Flame Spread

MONOKOTE fireproofing has been tested and classified by Underwriters Laboratories Inc. in accordance with ASTM E84:

flame spread	10
fuel contributed	5
smoke developed	0

Fire Protection Performance

MONOKOTE fireproofing has been tested and classified by Underwriters Laboratories Inc. in accordance with ASTM E119 for fire resistance ratings from 1 to 4 hours in over 50 individual UL classifications (see page 5). Confirmation of performance in actual building fires is documented.

Permanent

MONOKOTE fireproofing is a plaster type (cementitious) fireproofing that sets to a hard protective coating, relatively resistant to damage. Should any damage occur, MONOKOTE fireproofing is easily repaired.

MONOKOTE fireproofing provides constant protection throughout the life of the building. It is as permanent as the structure itself. Each bag contains the UL label verifying compliance with UL's quality control inspection program and the appropriate fire resistance ratings.

Simple

The ability of MONOKOTE fireproofing to protect is not dependent on a number of complex elements. It requires only the addition of water at the job site and is spray-applied by any one of several plastering machines.

MONOKOTE fireproofing is available in the U.S. and Canada from manufacturing plants serving all major market areas.

Low Cost

Application is rapid and economical.

Consistent and Uniform

MONOKOTE fireproofing is premixed into a wet slurry before being sprayed and therefore sets to a uniform and consistent monolithic coating. In-place characteristics can easily be verified for thickness and density.

Reliable

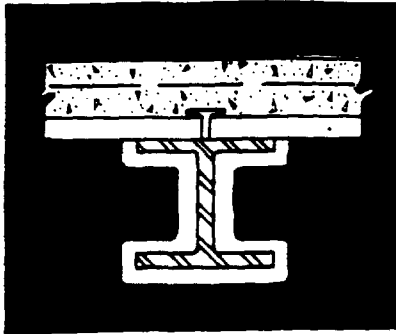
MONOKOTE fireproofing has been tested for properties such as adhesion, corrosion resistance, deflection, bond impact, surface hardness, air erosion resistance, damageability resistance, etc.; results comply with and, in most instances, exceed General Services Administration (GSA) requirements.

MONOKOTE fireproofing measures up to the American Iron and Steel Institute (AISI) primary requisites for an ideal fireproofing material.*

*1974 AISI "Fire-Resistant Steel Frame Construction," (Second Edition) p. 12.

"To qualify as both safe and dependable, fire-protection materials for modern steel-framed buildings should display the following characteristics:

- noncombustibility and the added attribute of not producing smoke or toxic gases when subjected to elevated temperatures;*
- thermal protective capability when tested in accordance with the Standard Fire Test—ASTM E119;*
- product reliability giving positive assurance of consistent and uniform protection characteristics;*
- availability in a form that permits efficient and uniform application;*
- sufficient bond strength and durability to prevent either dislodgement or surface damage during normal construction operations; and*
- resistance to weathering or erosion resulting from atmospheric conditions."*



MONOKOTE UL FIRE CLASSIFICATIONS

For complete listing of Underwriters Laboratories fire resistance classifications for MONOKOTE fireproofing refer to Zonolite Data Sheet MK-134C or UL's "Fire Resistance Index".

Column Ratings:

Designs X527, X701, X704, Y708, X722 and X723.

Beam Ratings:

Design Series D700, D900, P700 and P900

Designs N706, N708, N401 and N404

These beam ratings were determined from the structural and temperature performance of the tested beams in accordance with E119-71 (and subsequently) either (1) from an assembly (floor or roof) test incorporating a beam or (2) from an individual beam test ("Tests of Loaded Restrained Beams").

Floor Ratings:

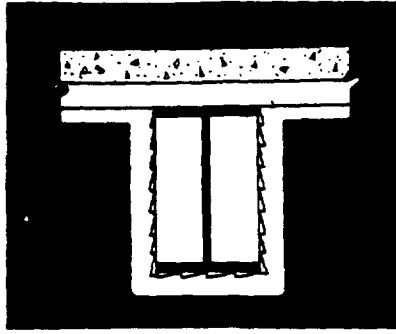
Design Series D700 and D900
Designs G701, J701, and J704 and J705

Roof Ratings:

Designs P919, P908, P901, P708, P703, P702, P701, P677, P676 and P675, R700*

For beam, floor, and roof ratings determined prior to E119-71, refer to "Vermiculite Fire-Resistance Ratings (July 1970)" and to the January 1971 UL "Buildings Materials List".

*Underwriters Laboratories of Canada
"List of Equipment and Materials
(Volume II—Building Construction)"



MONOKOTE FIRE PROTECTION

Fire Test Method ASTM E119

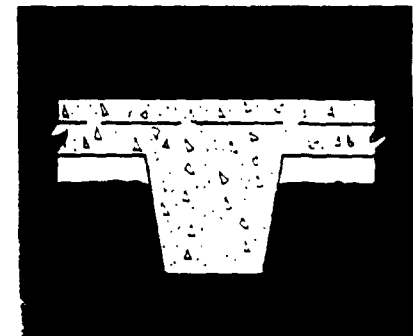
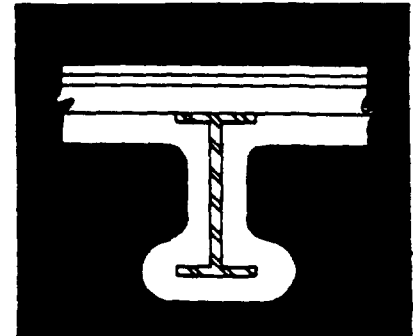
Structural fire resistance is the predicted time period that a material or system can withstand a standard fire exposure, usually expressed in terms of hours. Fire resistance ratings are the results of standard fire test exposures in accordance with ASTM E119, "Standard Methods of Fire Tests of Building Construction and Materials."

E119 Criteria

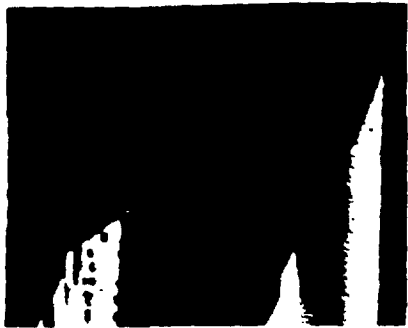
Current revisions to E119 provide a system for rating the hourly performance of assemblies and individual structural members. The Underwriters Laboratories Directory of Fire Resistance Ratings refers to two ratings - one based on time-temperature performance (unrestrained) and the other based on a combination of structural and lesser time-temperature performance criteria (restrained).

Fireproofing Requirements

The MONOKOTE fireproofing thickness required to achieve a particular fire resistance classification (rating) depends upon local requirements. Because local building codes may not yet have adopted recent revisions to the E119 criteria, contact your nearest office of the



Construction Products Division, W.R. Grace & Co., or processing distributor, for specific MONOKOTE fireproofing thicknesses and local fire resistance criteria.



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 as specified under appropriate section.
3. The cleaning of the surfaces to receive sprayed fireproofing.

2. Material

a) The sprayed fireproofing material shall be MONOKOTE fireproofing as manufactured by the Construction Products Division, W.R. Grace & Co., or its processing distributors. All manufactured material shall be delivered in original, unopened packages bearing the name of the manufacturer, the brand, and the UL label verifying compliance with UL's quality control inspection program and the appropriate fire resistance ratings.

The materials shall be kept dry until ready for use. The packages of material shall be kept off the ground, under cover, and away from sweating walls and other damp surfaces. Material that has been exposed to water before actual use shall be discarded. Stock is to be rotated and used before its expiration date.

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 fireproofing material.

3. Acceptance and Performance Criteria

a) The sprayed fireproofing shall have been tested by Underwriters Laboratories in accordance with the procedures of ASTM E119. The structural steel members shall be protected with proper fireproofing thicknesses at densities to provide the following fire resistance ratings:

Steel columns	_____ Hours
Primary steel members (Girders)	_____ Hours (Restrained)
	_____ Hours (Unrestrained)
Secondary steel members (Beams)	_____ Hours (Restrained)
	_____ Hours (Unrestrained)

b) The sprayed fireproofing beneath the deck assembly together with properly proportioned concrete fill above the metal decking shall provide a _____ hour (restrained/unrestrained) fire resistant deck assembly as substantiated by a fire test in accordance with the procedures of ASTM E119, and performed by Underwriters Laboratories 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. 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.

Note to Specifier: Recommended Quality Criteria

(i) 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. The UL Fire Resistance Directory (1977) states: "Densities shown may be obtained by removing at least 6 inch square sections randomly selected from the building, subjecting them to 120 F in an oven to constant weight; usually 24 to 48 hours, followed by accurate weighing, measuring, and calculation of the density in lbs per cu ft."

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

4. 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) 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. Painted steel surfaces may require a test application of the sprayed fireproofing to determine that the paint formulation will not impair adhesion.

c) Application of sprayed fireproofing to the underside of the roof deck assemblies shall occur only after roofing application is complete and roof traffic has ceased.

d) All clips, hangers, supports, sleeves and other attachments to the fireproofing substrates, 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.

5. Temperature and Ventilation

When the outdoor temperature at the building site is less than 40 F, an air and substrate temperature to 40 F shall be maintained for 24 hours before and 24 hours after application of fireproofing material. Provisions shall be made for natural ventilation to properly dry the fireproofing during and subsequent to its application. In enclosed areas or buildings lacking openings for natural ventilation, interior air shall be circulated and exhausted to the outside by use of temporary circulators, exhaust fans, or the air-conditioning system.

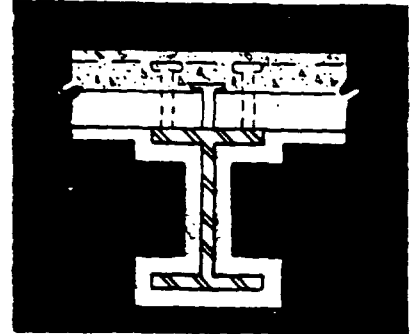
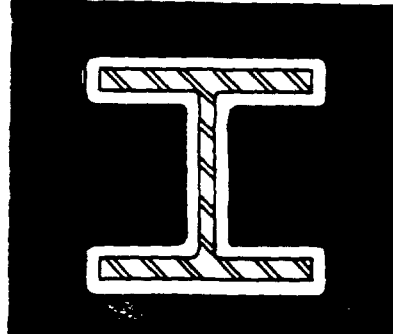
6. Clean-up

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

Specification (short form)

Sprayed fireproofing material shall be MONOKOTE fireproofing as manufactured by the Construction Products Division, W.R. Grace & Co., or its processing distributor. It shall be applied by machine to the thickness required by local

code specifications and as indicated on all drawings. The method of mixing and application shall comply with the manufacturer's recommendations as set forth in current literature.





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(904) 355-8431
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ROBINSON INSULATION CO.

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12th St., North & River Dr.
Great Falls, Montana 59403
(406) 453-1291

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Albuquerque, New Mexico 87107
(505) 345-1633

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Salt Lake City, Utah 84110
(801) 328-0117

VERMICULITE PRODUCTS

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Styrene Foam Insulation only.

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