Monokote Type Z-106

Medium Density Cementitious Fireproofing

Product Information

Monokote Z-106 Medium Density Cementitious Fireproofing manufactured by Arabian Vermiculite Industries has been developed by Grace Construction Products of W.R. Grace and Company-Conn. to meet specialized commercial and industrial fireproofing requirements. Type Z-106 is a Portland cement-based, mill mixed material requiring only the addition of water on the job site for application. Type Z-106 is spray applied directly to structural steel (beams and columns) and steel decking, providing up to 4 hours of fire resistance. In-place physical characteristics are excellent for high traffic areas requiring resistance to physical abuse and/or humidity.



Applications

Monokote Z-106 can be used for interior applications where high traffic, high humidity and high damage resistance is desired, i.e. parking garages, mechanical rooms, elevator shafts and swimming pool areas.

Features

Monokote Z-106 offers the following advantages to the architect, owner, applicator and building occupant.

Factory Pre-Mixed: Ready to use. No job site proportioning required. Simply add water in a standard paddle type plaster mixer and apply with conventional plastering equipment.

Re-Spray: Type Z-106 is UL Classified for use with post-removal lock down encapsulates on columns, beams and galvanized fluted deck.

Non-Toxic: The factory mixed blend of common Portland cement and inert materials, requires only the addition of water for mixing and application.

Permanent: When set and dry, Type Z-106 is fully passive fire protection. Type Z-106 maintains its in-place performance characteristics of durability and fire resistance for the design life of the structure.

Durability: Its hardness and durability help resist accidental physical damage.

Moisture Resistant: The Portland cement base affords excellent fire protection characteristics in areas subjected to high humidity.

Economical: Low material cost per square foot combined with direct spray-on application saves time and money.

Recommended Specifications - Medium Density Products

Physical Properties	Values	Test Method
Dry Density	352 kg/m^3 (22 pcf)	ASTM E 605
Bond Strength (minimum average)	4,882 kg/m^2 (1000 psf)	ASTM E 736
Air Erosion	0.000 gm/m^2 (0.000 gm/ft^2)	ASTM E 859
Compressive Strength @ 10% Deformation	0.48 Mpa (70 psi)	ASTM E 761
Hardness (Shore D)	10	ASTM D 2240
Surface Burning Characteristics	Flame Spread 0 Smoke Developed 0	ASTM E 84
Yield	2.32m^2 at 25mm thickness (25 bd ft/bag)	
Color	Grey/beige	

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Underwriters Laboratories Inc. Classifications

System	Hourly Ratings	Design No.
Floor Beams	1, 1 ½, 2, 3, 4 1, 1 ½, 2, 3, 4	N720 N781
Roof Beams	1, 1 ½, 2, 3, 4 1, 1 ½, 2, 3, 4	S734 S735
Floor Joists	1, 1 ½, 2, 3, 4 1, 1 ½, 2, 3	N736 N777
Roof Joists	1, 1 ½, 2, 3 1, 1 ½, 2, 3	S728 S736
Columns	1, 1 ½, 2, 3, 4 ¾, 1, 1 ½, 2, 3, 4	X738 X794
Floor Ceiling Assembly	4 1, 1 ½, 2, 3, 4 1, 1 ½, 2, 3 1, 1 ½, 2, 3, 4 1, 1 ½, 2, 3 2 1, 1 ½, 2, 3, 4	D744 D760 D780 D782 D925 J701 J712
Roof Ceiling Assembly	1, 1 ½, 2 1, 1 ½, 2 1, 1 ½, 2 1, 1 ½, 2 1, 1 ½, 2	P740 P725 P732 P733 P921
Walls	4 1, 2, 3, 4 1, 1 ½, 2, 3	U202 U475 U703

Delivery and Storage

1. All material to be used for fireproofing shall be delivered in original unopened packages bearing the name of the manufacturer, the brand and proper Underwriters Laboratories, Inc. labels for fire hazard and fire resistance classifications.

2. The material shall be kept dry and until ready for use. Packages of material shall be kept off the ground, under cover and away from sweating walls and other damp surfaces. All bags that have been exposed to water before use shall be discarded. Stock or material is to be rotated and used before its expiration date.

Steel and Concrete Surfaces

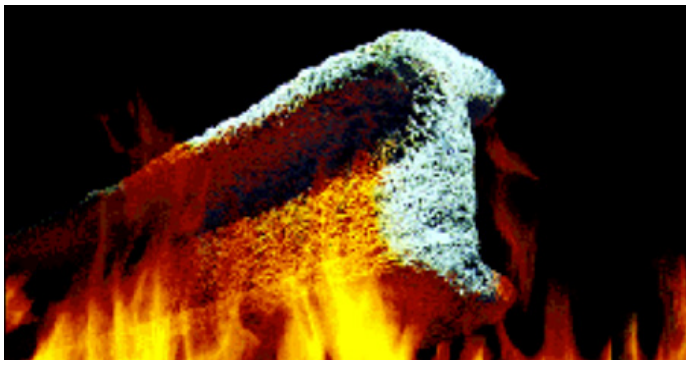
1. Prior to the application of Monokote Type Z-106 fireproofing, an inspection shall be made to determine that all steel and concrete surfaces are acceptable to receive fireproofing. The steel to be fireproofed shall be free of oil, grease, excess rolling compounds or lubricants, loose mill scale, excess rust, non-compatible primer, lockdown agent or any other substance that will impair proper adhesion. Where necessary, the cleaning of steel surfaces to receive fireproofing shall be the responsibility of the general contractor.

2. Prior to application of Monokote Type Z-106, a bonding agent, approved by the fireproofing manufacturer shall be applied to all concrete substrates to receive Type Z-106.

3. The project architect shall determine if the painted/primed structural steel to receive fireproofing is compatible with Monokote Type Z-106.

4. No fireproofing shall be applied prior to completion of concrete work in steel decking.

5. Fireproofing to the underside of roof deck assemblies shall be done only after roofing application is complete and roof traffic has ceased.



Mixing

1. Monokote Type Z-106 Fireproofing shall be mixed by machine in a conventional, plaster type mixer or a continuous mixer specifically modified for cementitious fireproofing. The mixer shall be kept clean and free of all previously mixed material. The mixer speed in a conventional mixer shall be adjusted to the lowest speed which gives adequate blending of the material and a mixer density of 610-690 kg/m^3 (38-43 pcf) of material.

2. Using a suitable metering device and a conventional mixer, all water shall be first added to the mixer as the blades turn. Mixing shall continue until the mix is lump-free with a creamy texture. All material is to be thoroughly wet. Target density of 610-690 kg/m^3 (38-43 pcf) is most desirable. Over-mixing Type Z-106 will reduce pumping rate and will negatively effect in-place density and mechanical properties.

Application

a. Application of Type Z-106 fireproofing can be made in the following sequence:

    1. For thickness of approximately 13mm (1/2 in.) or less, apply in one pass.

    2. For thickness of 16mm (5/8 in.) or greater, apply subsequent passes after the first coat has set.

b. Type Z-106 fireproofing material shall not be used if contains partially set, frozen or caked material.

c. Type Z-106 shall have a minimum average dry in-place density of 352 kg/m^3 (22 pcf).

d. Type Z-106 are formulated to be mixed with water at the job site.

e. Type Z-106 is applied directly to the steel at various rates of application which will be job dependent, using standard plastering type equipment or continuous mixer/pump units. A spray gun with a properly sized orifice and spray shield, and air pressure at the nozzle of approximately 0.14 MPa (20 psi) will provide the correct hangability, density and appearance. NOTE: If freshly sprayed Type Z-106 and Z-106/HY does not adhere properly, it is probably due either to a too wet mix, poor thickness control, or an improperly cleaned substrate.

Temperature and Ventilation

a. An air substrate temperature of 4.4°C (40°F) minimum shall be maintained for 24 hours prior to application, during application and for a minimum of 24 hours after application of Type Z-106

b. Provisions shall be made for ventilation to properly dry the fireproofing after application. In enclosed areas lacking natural ventilation, air circulation and ventilation must be provided to achieve a minimum total air exchange rate of 4 times per hour until material is substantially dry.

Field Tests

1. The architect may select, and the owner will pay for an independent testing laboratory to sample and verify the thickness and density of the fireproofing in accordance with the provisions of ASTM E605 (current edition), “Standard Test Method for Thickness and Density of Sprayed Fire Resistive Material Applied to Structural Members” or Uniform Building Code Standard No. 7-6 “Thickness and Density. Determination for Spray Applied Fireproofing”.

2. The architect will select, and the owner will pay an independent testing laboratory to randomly sample and verify the bond strength of the fireproofing in accordance with the provisions of ASTM E736.

    a. Results of the above tests will be made available to all parties at the completion of pre-designated areas which shall have been determined at a pre-job conference.

Safety

1. Monokote Z-106 is slippery when wet. The general contractor and applicator shall be responsible for posting appropriate cautionary SLIPPERY WHEN WET signs.

    Signs should be posted in all areas in contact with wet fireproofing material. Anti-slip surfaces should be used on all working surfaces.

2. A Material Safety Data Sheet for Monokote Type Z-106 is available upon request.