

This is a Generic Document.

**METHOD STATEMENT FOR THE
CORRECT APPLICATION OF
MONOKOTE MK-6/HY
(DOCUMENT NUMBER
SCT/MS/MONOKOTE MK-6HY- 001)**

1.0 MATERIALS.

Material shall be MONOKOTE Type MK-6/HY as manufactured and supplied by Arabian Vermiculite Industries (AVI) Dammam, Saudi Arabia.

2.0 THICKNESSES MONOKOTE.

Materials shall be applied in dry film thicknesses as recommended by AVI to meet the desired fire rating requirements of the project specification. No thickness shall be less than 9.0mm as per the site requirements / specifications.

3.0 DELIVERY AND STORAGE.

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. The material shall be kept dry 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 of material is to be rotated and used before its expiration date.

4.0 APPLICATION.

4.1.a It shall be ensured by Main Contractor that all roofing works and concrete flooring works on profiled metal deck are completed prior to the start of MONOKOTE application.

b. All Fire proofing works must and will commence before erection of any all MEP Services.

4.2 Surfaces not requiring fireproofing will be protected against over-spray by providing masking by Main Contractor.

4.3 Steel surface temperature shall be above dew point.

- 4.4 0°C and rising. It should however be below 50 °C prior to the application of MONOKOTE. In case of higher substrate temperature the steel surface shall be cooled down with water to ensure that same is below 50 °C.
- 4.5 The steel surface to receive fireproofing will be free of oil, grease, excess rolling compounds, loose mill scale or any other substance that will impair the adhesion of MONOKOTE to the steel surface. Applicator will ensure that the steel surface to receive Monokote is acceptable for this application.
- 4.6 Steel members where the sizes of Flange or Web exceed the following limits specified by UL will have mechanical breaks provided with expanded diamond metal lath fixed to these surfaces with Hilti fired/welded pins so that the clear spans do not exceed the following limits. Expanded metal lath will be 0.9 kg/m² with the width of lath on steel member not to be less than 89mm:
- Beam flange width is in excess of 305mm
 - Column flange width is in excess of 406mm
 - Beam or Column depth is in excess of 406mm
 - Pipe outer diameter or Tube width is in excess of 305mm
- 4.7 MONOKOTE MK-6/HY shall be applied by spray on to clean steel as per the procedure delineated in the material data sheet. Thicknesses will be applied in single coat so long the material hangs well on to the steel substrate. Higher thicknesses will be applied in multi-coats. As a general rule apply thicknesses in excess of 16mm in multi-coats. Wet thickness measurements shall be taken during and after the application to ensure application of recommended thicknesses.
- 4.8 Provision shall be made for ventilation to properly dry the fireproofing after application.

5.0 FIELD QUALITY CONTROL.

Field checks will be carried out for Applied Thickness, Material Bond and In-Place dry density of the applied Monokote MK-6/HY as per the AWCI Document.

6.0 CLEANING.

Post application all areas around that have been affected by material over-spray, will be cleaned and empty bags/waste materials shall be moved away from the work place.

7.0 SAFETY.

Monokote 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.

8.0 REPAIR PROCEDURE.

8.1 CRACKS REPAIR.

- Cut V-groove going right up to the depth of the crack.
- Clean the surface of any loose material.
- Fill up the V-groove with freshly mixed Monokote to finish level with the existing thickness around.
- Hand patching is accepted for an area of 144 square inch. Any larger surface will be spray repaired.

8.2 DAMAGE REPAIR.

- Cut off and remove the damaged portion of applied Monokote right up to the sound adhering Monokote all around.
- Clean the surface of any loose Monokote.
- In case the steel is primed, ensure that the primer has not got damaged. If damaged, repair the primer.
- Apply one coat of Firebond wherever it is existing.
- Spray or Hand apply Monokote material prepared fresh to fill up the opened area of steel to make it level with the existing sound Monokote coating all around.
- Hand patching is accepted for an area not exceeding 144 square inch. Larger surface than this will be spray applied only.



Monokote[®] Fireproofing

Type MK-6/HY

Product Data and Application Instructions

Product Information/Description

Monokote[®] Type MK-6/HY is a single component, mill mixed fireproofing plaster which requires only the addition of water on the job site to form a consistent, pumpable slurry. Type MK-6/HY is designed for use on structural steel columns, beams, joists, trusses and floor and roof decking.

Features/Benefits

Monokote[®] Type MK-6/HY offers many significant advantages to the architect, owner, applicator and building occupant. These include:

- Proven in-place performance
- Low in-place cost
- Fast, efficient application
- UL tested and factory inspected
- Universal Building Code compliance (ICBO, SBCCI, BOCA, NBCC)

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 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 of material is to be rotated and used before its expiration date.

Steel and Concrete Surfaces

- a) Prior to the application of Monokote[®] Type MK-6/HY, an inspection shall be made to determine that all steel surfaces are acceptable to receive fireproofing. The steel to be fireproofed shall be free of oil, grease, excess rolling compounds, loose mill scale, excess rust, non-compatible primer, lock down agent or any other substance that will impair proper adhesion. When necessary, the cleaning of steel surfaces to receive fireproofing shall be the responsibility of the general contractor.
- b) The project architect shall determine if the painted/primed structural steel to receive fireproofing has the material tested in accordance with ASTM E119, to provide the required fire resistance rating.
- c) Many fire resistance designs allow the use of painted metal floor or roof deck in place of galvanized decking. Painted decking must be UL listed in the specific fire resistance designs and must carry the UL classification marking.
- d) Prior to the application of Monokote[®] Type MK-6/HY, a bonding agent, approved by the fireproofing manufacturer, shall be applied to all concrete surfaces to receive Monokote[®] Type MK-6/HY.
- e) Fireproofing to the underside of roof deck assemblies shall be done only after roofing application is complete and roof traffic has ceased.
- f) No fireproofing shall be applied prior to the completion of concrete work on steel decking.

Performance Characteristics

Physical Properties	Value	Test Method
Dry Density, minimum average	240 kg/m ³ (15 pcf)	ASTM E 605, UBC STD 7-6
Bond Strength	16.2 kPa (339 psf)	ASTM E 736
Compression, 10% Deformation	68.9 kPa (1,440 psf)	ASTM E 761
Air Erosion	0.000 g/m ² (0.000 g/ft ²)	ASTM E 859
High Velocity Air Erosion	No continued erosion after 4 hours	ASTM E 859, UMC STD 6-1
Corrosion	Does not contribute to corrosion	ASTM E 937
Bond Impact	No cracking, spalling or delamination	ASTM E 760
Deflection	No cracking, spalling or delamination	ASTM E 759
Resistance to Mold Growth	No growth over 60 days	ASTM G 21
Surface Burning Characteristics	Flame Spread 0	ASTM E 84
	Smoke Developed 0	
Combustibility	Less than 5 MJ/m ² total, 20 kW/m ² peak heat release	ASTM E 1354
Impact Penetration	3.3 cm ³	Developed by City of San Francisco
Abrasion Resistance	8.3 cm ³	
Packing	48 lbs (21.7) kg per bag (average)	

Mixing

- a) Monokote[®] Type MK-6/HY 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 shall be adjusted to the lowest speed which gives adequate blending of the material and a mixer density of 640-720 kg/m³ (40-45 pcf) of material.
- b) 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 688 ± 16 kg/m³ (43 ± 1 pcf) is most desirable. Over-mixing Monokote[®] Type MK-6/HY will reduce pumping rate.

Application

- a) Application of Monokote Fireproofing can be made in the following sequence:
 1. For thickness of approximately 13mm (1/2 inch) or less, apply in one pass.
 2. For thickness of 16mm (5/8 inch) or greater, apply subsequent passes after the first coat has set.
- b) Spatterkote[™] SK-3 or Firebond Adhesive shall be applied to all flat plate cellular deck units and below all bottomless trench headers prior to application of Monokote[®] Type MK-6/HY. Spatterkote[™] SK-3 shall be applied in accordance with the manufacturer's application instructions.
- c) Spatterkote[™] SK-3 or Firebond Adhesive shall be applied to roof decking where required prior to application of Monokote[®] Type MK-6/HY.
- d) Monokote fireproofing material shall not be used if it contains partially set, frozen or caked material.
- e) Monokote shall have a minimum average dry, in-place density of 240 kg/m³ (15 lb/ft³).
- f) Monokote is formulated to be mixed with water at the job site.
- g) Monokote Accelerator is to be used with Monokote[®] Type MK-6/HY to enhance set characteristics and product yield. The Monokote Accelerator is injected into the Monokote[®] Type MK-6/HY at the spray gun. Monokote Accelerator shall be mixed and used according to manufacturer's recommendations.
- h) Monokote 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 38 kPa (20 psi) will provide the correct hangability, density and appearance. NOTE: If freshly sprayed Monokote 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 and substrate temperature above 4.4 °C (40 °F) shall be maintained for 24 hours prior to application, during application and for a minimum of 24 hours after application of Monokote.
- b) Provisions shall be made for ventilation to properly dry the fireproofing after application. In enclosed areas lacking natural ventilation must be provided to achieve a minimum total air exchange rate of 4 times per hour until the material is substantially dry.



Field Test

- a) The architect will 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 E 605-93, "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".
- b) 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 E 736.

Safety

- a) Monokote 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.
- b) A Material Safety Data Sheet for Monokote[®] Type MK-6/HY is available upon request.



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