Monokote® MK-6®/HY®
Cementitious, Spray-applied Fireproofing

Description
Monokote® 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. MK-6/HY is designed for use on structural steel columns, beams, joists, trusses and floor and roof decking.

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

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.

Steel and Concrete Surfaces
- Prior to the application of Monokote 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 or lubricants, loose mill scale, excess rust, noncompatible primer, lock down 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.
- The project architect shall determine if the painted/primed structural steel to receive fireproofing has been tested in accordance with ASTM E119, to provide the required fire resistance rating.
- Many Fire Resistance Designs allow the use of painted metal floor or roof deck in place of galvanised decking. Painted decking must be UL listed in the specific fire resistance designs and must carry the UL classification marking. Consult your local Grace sales representative for details.

Prior to application of Monokote MK-6/HY, a bonding agent, approved by the fireproofing manufacturer, shall be applied to all concrete substrates to receive MK-6/HY.

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

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

Other trades shall not install ducts, piping, equipment, or other suspended items until the fireproofing is completed and inspected.

Other trades shall install clips, hangers, support sleeves, and other attachments required to penetrate the fireproofing, prior to application of the fireproofing material.

Mixing
Monokote 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 mixer density of 640 – 720 kg/m³ (40 – 45 pcf) of material.

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. Overmixing Monokote will reduce pumping rate.

Application
Application of Monokote Fireproofing can be made in the following sequence:
- For thickness of approximately 13 mm (½ in.) or less, apply in one pass.
- For thicknesses of 16 mm (5/8 in.) or greater, apply subsequent passes after the first coat has set.
- Spatterkote® SK-3 shall be applied to all flat plate cellular deck units and below all bottomless trench headers prior to application of MK-6/HY. Spatterkote shall be applied in accordance with manufacturer’s application instructions.
- Spatterkote SK-3 shall be applied to roof decking where required prior to application of Monokote.

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**Performance Characteristics**

<table>
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<tr>
<th>Physical Properties</th>
<th>Recommended Specifications</th>
<th>Test Method/Notes**</th>
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<tbody>
<tr>
<td>Dry density, minimum average</td>
<td>240 kg/m³ (15 pcf)</td>
<td>ASTM E605</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UBC STD 7-6</td>
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<tr>
<td>Bond strength</td>
<td>16.2 KPa (339 psf)</td>
<td>ASTM E736</td>
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<tr>
<td>Compression strength @ 10% deformation</td>
<td>88.9 KPa (1,440 psf)</td>
<td>ASTM E761</td>
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<tr>
<td>Air erosion</td>
<td>0.000 g/m² (0.000 g/ft²)</td>
<td>ASTM E659</td>
</tr>
<tr>
<td>High velocity air erosion</td>
<td>No continued erosion after 4 hours</td>
<td>ASTM E659</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UMC-STD 6-1</td>
</tr>
<tr>
<td>Corrosion</td>
<td>Does not contribute to corrosion</td>
<td>ASTM E937</td>
</tr>
<tr>
<td>Bond impact</td>
<td>No cracking, spalling or delamination</td>
<td>ASTM E760</td>
</tr>
<tr>
<td>Deflection</td>
<td>No cracking, spalling or delamination</td>
<td>ASTM E759</td>
</tr>
<tr>
<td>Resistance to mold growth</td>
<td>No growth after 28 days</td>
<td>ASTM G21</td>
</tr>
<tr>
<td>Surface burning characteristics</td>
<td>Flame spread = 0</td>
<td>ASTM E84</td>
</tr>
<tr>
<td></td>
<td>Smoke developed = 0</td>
<td></td>
</tr>
<tr>
<td>Combustibility</td>
<td>Less than 5 MJ/m² total, 20 kw/m² peak heat release</td>
<td>ASTM E1354</td>
</tr>
<tr>
<td>Impact penetration</td>
<td>3.3 cm³</td>
<td>Developed by City of San Francisco</td>
</tr>
<tr>
<td>Abrasion resistance</td>
<td>8.3 cm³</td>
<td>Developed by City of San Francisco</td>
</tr>
</tbody>
</table>

- Monokote Fireproofing material shall not be used if it contains partially set, frozen or caked material.
- Monokote shall have a minimum average dry, in-place density of 240 kg/m³ (15 lbs/ft³).
- Monokote is formulated to be mixed with water at the job site.
- Monokote Accelerator is to be used with Monokote MK-6/HY to enhance set characteristics and product yield. The Monokote Accelerator is injected into the Monokote MK-6/HY at the spray gun. Monokote Accelerator shall be mixed and used according to manufacturer’s recommendations.
- 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**
- An air and 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 Monokote.
- 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 the material is substantially dry.

**Field Tests**
- The architect will select an independent testing laboratory (for which the owner will pay) to sample and verify the thickness and density of the fireproofing in accordance with the provisions of ASTM E605-93, “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.”
- The architect will select an independent testing laboratory (for which the owner will pay) to randomly sample and verify the bond strength of the fireproofing in accordance with the provisions of ASTM E736.
- 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**
- 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.
- A Material Safety Data Sheet for Monokote MK-6/HY is available upon request. Please contact your local Grace representative.

**www.graceconstruction.com**

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