

**SELECTION & SPECIFICATION DATA**

<b>Generic Type</b>	A portland cement based, Spray-applied Fire Resistive Material (SFRM) designed for the fire protection of structural steel in general purpose areas with prolonged exposure to physical abuse, moisture and high humidity.
<b>Description</b>	A 640 kg/m <sup>3</sup> (40 lb./ft <sup>3</sup> ) density (average) SFRM intended for the fire protection of structural columns, beams, joists, decks, walls, roofs, girders, floors and pre-cast concrete units. It is tested and certified for fire resistance ratings up to 4 hours. It was specifically formulated for high humidity areas such as mechanical rooms, elevator shafts and parking garages and is resistant to damage and moisture. Southwest Type 7HD is a trademark of the Southwest Fireproofing Products Company.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Damage resistant and permanent</li> <li>• Noncombustible</li> <li>• High build</li> <li>• Moisture resistant</li> <li>• Asbestos-free – complies with EPA and OSHA regulations.</li> <li>• Mineral Wool free – no airborne fibers.</li> <li>• Styrene free – no toxic decomposition gases.</li> <li>• Economical – Maintains project on budget.</li> <li>• Design flexibility with over 100 UL designs.</li> </ul>
<b>Colour</b>	<p>Gray</p> <p>Product color may vary due to variations in color or portland cement.</p>
<b>Finish</b>	Textured
<b>Primer</b>	Primers are not required or recommended. If a primer is specified, or steel is primed, bond strength must meet minimum UL criteria. A/D Type TC-55 Sealer is used as a primer/bonding agent to meet this requirement where specified. Southwest Type DK3 (spatter coat) must be used as a primer/bonding agent on cellular decks and roof decks per UL design requirements. Contact Carboline Technical Service for further information. Southwest Fireproofing materials neither promote nor prevent corrosion. Fireproofing should not be considered part of the corrosion protection system.
<b>Application Thickness</b>	16 mm (5/8")
<b>Limitations</b>	Not intended for permanent direct exposure to weather, exterior use or excessive physical abuse beyond normal construction cycles. Not recommended for use as refractory cement or where operating temperatures exceed 93°C (200°F).
<b>Topcoats</b>	Not required. In corrosive atmospheres, consult Carboline Technical Service for selection of coating suitable for the operating environment.

**SUBSTRATES & SURFACE PREPARATION**

<b>General</b>	Prior to application, all substrates must be clean and free of loose scale, dirt, oil, grease, condensation, or any other substance that would impair adhesion. Mechanical attachment utilizing metal lath is required for applications to deck surfaces due to the increased weight of this product when compared to normal and medium density products. Contact Carboline Technical Service for further information. Fireproofing shall be applied to the underside of roof deck assemblies only after all roofing work has been completed, and all roof traffic has ceased. Also be sure that all roof work is completed and water tight before commencing installation of fire protection. Roof traffic shall be limited to maintenance after fire protection is applied and cured. No fireproofing shall be applied prior to completion of concrete work on steel floor decking.
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### SUBSTRATES & SURFACE PREPARATION

<b>Painted/Primed Steel Decks</b>	Apply to painted/primed steel decking only if permitted by the UL design. If the painted/primed deck is not an approved substrate, metal lath must first be secured to the deck surfaces in accordance with the UL requirements.
<b>Painted/Primed Steel Joists</b>	Painted steel joists do not require adhesive, lath or fastening devices. It is acceptable to apply directly to steel joists.
<b>Painted/Primed Structural Steel</b>	Painted/primed structural steel is generally not approved by UL as an acceptable substrate for SFRMs unless the paint or primer was included in the fire test and/or UL listed for SFRM applications to structural steel. UL has established conditions that must be satisfied for application to primed or painted structural steel, including: minimum bond strength criteria; dimensional limitations for the structural members; use of a bonding agent or adhesive such as A/D Type TC-55 Sealer; use of metal lath to provide a mechanical bond; or, use of mechanical breaks of metal lath strips or steel pins and disks. Refer to the UL Fire Resistance Directory-Volume 1 for details or contact Carboline Technical Service before applying to any painted/primed steel beams or columns.

### PERFORMANCE DATA

Test Method	Results
ASTM D2240 Shore D Hardness	40
ASTM E136 Combustibility	Passed (non-combustible)
ASTM E605 Density <sup>1</sup>	40 pcf (640 kg/m <sup>3</sup> ) Average 35 pcf (577 kg/m <sup>3</sup> ) Minimum
ASTM E736 Cohesion/Adhesion	17,000 psf (813 kPa)
ASTM E759 Deflection	Passed
ASTM E760 Impact	Passed
ASTM E761 Compressive Strength	640 psi (4,412 kPa)
ASTM E84 Surface Burning	Flame Spread: 0 Smoke Development: 0
ASTM E859 Air Erosion	0.00 g/ft <sup>2</sup> (0.00 g/m <sup>2</sup> )
ASTM E937 Corrosion	Passed
ASTM G21 Fungi Resistance	Passed (no growth)

<sup>1</sup> Applied density is dependent upon equipment and application parameters. Air dry at ambient conditions to constant weight. Do not force cure. Use ASTM E605 Positive Bead Displacement method utilizing #8 lead shot. Test density in accordance with AWCI Technical Manual 12-A (Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials, an Annotated Guide).

All values derived under controlled laboratory conditions.  
Test reports and additional data available upon written request.

### MIXING & THINNING

<b>Mixer</b>	<ol style="list-style-type: none"><li>1. Use a minimum 340-453 liter, (12-16 cubic foot) heavy-duty mortar mixer capable of rotating at 40 rpm with rubber tipped blades that wipe the sides.</li><li>2. Use continuous feed mixer. Contact Carboline Technical Service for recommendation. Densities may vary when using this type of mixing equipment.</li></ol>
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**MIXING & THINNING**

<b>Mixing</b>	Always mix with clean potable water. The mixer shall be kept clean and free of any previously mixed materials which may cause premature setting of product. A 2 bag mix is recommended for paddle type mixers. Mix time should be approximately 1½ minutes at 40 rpm. Do not over mix. The material volume should not go over center bar of mixer. Use 24-28 liters) of water per 22.7 kg (50 lb) bag. Add water to the mixer first with blades stopped. With mixer turned on, add material to the water and begin mixing.
<b>Density</b>	For information and recommendations obtaining the proper density and yield, contact the local Carboline representative or Carboline Fireproofing Technical Service.

**APPLICATION EQUIPMENT GUIDELINES**

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

<b>Pump</b>	<p>This material can be pumped with a wide range of piston, rotor stator and squeeze pumps designed to pump cement &amp; plaster materials including:</p> <ul style="list-style-type: none"> <li>Essick - model# FM9/FM5E (Rotor Stator/2L4)</li> <li>Putzmeister - model# S5EV(Rotor Stator/2L6)</li> <li>Hy-Flex - model# HZ-30E(Rotor Stator/2L6)</li> <li>Hy-Flex - model# H320E (Piston)</li> <li>Strong Mfg. - model# Spraymate 60 (Rotor Stator/2L6)</li> <li>Airtech - model# Swinger (Piston)</li> <li>Mayco - model# PF30 (Dual Piston)</li> <li>Thomsen - model# PTV 700 (Dual Piston)</li> </ul> <p>Marvel kit must be removed from piston pumps.</p>
<b>Ball Valves</b>	Ball valves should be located at the manifold and at the end of the surge hose to facilitate cleaning of the pump and/or hoses.
<b>Material Hose</b>	Use 4.5m to 7.6m of 75mm (3") I.D. or larger surge hose from the manifold. Follow with a 400 mm tapered fitting to a 50 mm (2") I.D. hose to the spray area. Taper to 4.5 m to 6 m of minimum 25 mm (1-1/4" or 1") whip hose.
<b>Standpipe</b>	Use 75mm (3") I.D. aluminum tubing with quick external disconnections. Elbows should be 75 mm I.D. with minimum 1.0m / 36".
<b>Nozzle/Gun</b>	Use a minimum 25 mm (1") I.D. plaster type nozzle with shut off valve, swivel and air shut off valve.
<b>Orifice Size and Shields</b>	12.5 mm (1/2") maximum I.D. "blow-off" tips (mini shields optional)
<b>Compressor</b>	Compressor on pump must be capable of maintaining minimum 40 psi (275 kPa) and 9 to 11 cfm at the nozzle.
<b>Air Line</b>	Use 16mm (5/8") I.D. hose with a minimum bursting pressure of 100 psi (689 kPa).

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### APPLICATION PROCEDURES

**General** | Thicknesses of 20mm (3/4") or less can be applied in one pass. When additional coats are required to reach specified thickness, apply subsequent coats after prior coat has set. If preceding coat has dried, dampen the surface with water prior to application of additional coats. Type DK3 (spatter coat) shall be applied to all cellular floor units and to all roof deck systems where indicated by the UL design. For complete application instructions, refer to the Southwest Fireproofing Products Field Application Manual.

**Field Tests** | Test for thickness and density in accordance with the applicable building code, AWCI Technical Manual 12-A (Standard Practice for the Testing and Inspection of Field Applied Sprayed Fire-Resistive Materials, an Annotated Guide), and ASTM E605 (Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Materials Applied to Structural Members).

**Finishing** | Normally left as a sprayed texture finish.

### APPLICATION CONDITIONS

Condition
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### CURING SCHEDULE

Surface Temp.	Dry to Recoat
25°C (77°F)	4 Hours

Recoat times will vary based upon ambient conditions and air movement. Once the product has set, it is suitable for general purpose areas with high physical abuse and prolonged exposure to moisture and high humidity.

### CLEANUP & SAFETY

**Cleanup** | Pump, mixer and hoses should be cleaned with potable water. Sponges should be run through the hoses to remove any material remaining in the hoses. Wet overspray must be cleaned up with soapy or clean, potable water. Cured overspray material may be difficult to remove and may require chipping or scraping to remove.

**Safety** | Follow all safety precautions on the Material Safety Data Sheet. It is recommended that personal protective equipment be worn, including spray suits, gloves, eye protection and respirators.

**Overspray** | Adjacent surfaces shall be protected from damage and overspray. Sprayed fireproofing materials may be difficult to remove from surfaces and may cause damage to architectural finishes.

**Ventilation** | In enclosed areas, ventilation shall not be less than 4 complete air exchanges per hour until the material is dry.

**TESTING / CERTIFICATION / LISTING**

<b>Underwriters Laboratories, Inc.</b>	<p>Tested in accordance with ASTM E119/UL 263 at Underwriter’s Laboratories, Inc. and listed by UL in the following designs (most commonly used in bold):</p> <p><b>Protected Floor/Ceiling:</b>  <b>D739, D788 (Restrained/Unrestrained)</b>          Additional designs: A702, D701, D703, D704, D705, D706, D708, D709, D710, D711, D712, D715, D716, D722, D723, D725, D726, D727, D728, D729, D730, D740, D742, D743, D744, D745, D746, D747, D748, D750, D751, D752, D753, D754, D756, D758</p> <p><b>Unprotected Floor/Ceiling:</b>  <b>D949 (Restrained/Unrestrained)</b>          Additional designs: D905, D907, D909, D910, D916, D917, D920</p> <p><b>Concrete Floor/Roof:</b>  <b>J718 (Restrained/Unrestrained)</b>          Additional designs: G701, G702, G703, J701, J704, J705, J706, J709, J919, J957, J966</p> <p><b>Beam/Joist:</b>  <b>N791, S740 (Restrained/Unrestrained)</b>          Additional designs: N401, N404, N706, N708, N732, N736, N754, N756, N791, S701, S702, S715, S739</p> <p><b>Protected Roof/Ceiling:</b>  <b>P741 (Restrained/Unrestrained)</b>          Additional designs: P675, P676, P701, P708, P709, P710, P711, P714, P717</p> <p><b>Unprotected Roof/Ceiling:</b>  <b>P921 (Restrained)</b>          Additional designs: P901, P902, P907, P919, P920, P923, P937</p> <p><b>Metal Wall Assembly:</b>  <b>U703 (Restrained/Unrestrained)</b></p> <p><b>Columns:</b>  <b>X771, Y725</b>          Additional designs: X527, X701, X704, X722, X723, X772, X751, X752, X808, X813, X819, X820, X821, X822</p>
<b>City of New York</b>	<p>MEA No. 55-04-M Vol. II (Wall)          MEA No. 56-04-M Vol. II (Beam and Floor/Ceiling)          MEA No. 409-02-M Vol. III (Columns and Roof/Ceiling)</p>

**PACKAGING, HANDLING & STORAGE**

<b>Shelf Life</b>	12 months
<b>Shipping Weight (Approximate)</b>	22.7kg (50 lb)
<b>Storage</b>	Store indoors in a dry environment between 32°F - 125°F (0°C - 52°C) Material must be kept dry or clumping of material may occur.
<b>Packaging</b>	22.7kg (50 lb) bags

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### WARRANTY

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