

Substrates & Surface Preparation

General

Before application of Type 5GP™, all substrates must be clean and free of loose scale, dirt, oil, grease, condensation, or any other substance that would impair adhesion.

Note: For certain designs, mechanical attachment or the application of Type DK-3 Spatter Coat may be required prior to the Type 5GP. Consult 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. No fireproofing shall be applied prior to completion of concrete work on steel floor decking.

Primers

Primers are not recommended or required, except as described below. If a primer is required, contact Carboline Technical Service for recommendations.

Type DK-3 Spatter Coat must be used as a primer/bonding agent on cellular decks and roof decks to meet fire design requirements.

Painted or Primed Steel Decks

Type 5GP may be applied 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 design requirements.

Painted or Primed Structural Steel

Painted / primed structural steel is generally not approved as an acceptable substrate for sprayed fire resistive materials unless specifically tested to meet the minimum inter-coat adhesion requirements. There are 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; use of metal lath to provide a mechanical bond; or, use of mechanical breaks of metal lath strips or steel pins and disks. Contact Carboline Technical Service before applying Type 5GP to any painted / primed steel beams or columns.

Painted or Primed Steel Lattice Joists

Painted steel lattice joists do not require adhesive, lath or fastening devices. It is acceptable to apply Type 5GP™ directly to steel lattice joists.

Application Equipment

The following are general equipment guidelines for the application of this product. Job site conditions may necessitate modifications to these guidelines to achieve desired results.

Mixer

1. Batch Mixer (recommended). Use a minimum 0.3 to 0.45 m³ (12 to 16 ft³) heavy-duty mortar mixer rotating at 40 rpm. Use rubber tipped blades that wipe the sides.
2. Continuous feed mixer. Contact Carboline technical service for recommendation. Densities may vary when using this type of mixing equipment.

Pumps

Type 5GP can be pumped with a wide range of piston, rotor/stator and squeeze pumps designed to pump cement/plaster materials, including:

Mfg.	Model	Type	Size
Essick	FM9/FM5E	Rotor Stator	2L4
Putzmeister	S6EV	Rotor Stator	2L6
Hy-Flex	HZ-30E	Rotor Stator	2L6
Sunspray	EZ88	Rotor Stator	2L6
Strong Mfg.	Spraymate 60	Rotor Stator	2L6
Airtech	Swinger	Piston	N/A
Hy-Flex	H320E	Piston	N/A
Mayco	PF30	Dual Piston	N/A
Thomsen	PTV 700	Dual Piston	N/A

Note: Marvel kit must be removed from piston pumps.

Compressor

Compressor on pump must be capable of maintaining minimum 30 psi (2.1 KPa) and 9 to 11 cfm at the nozzle.

Air-line

Use 16 mm (5/8") I.D. hose with a minimum bursting pressure of 100 psi (6.9 kPa).

Ball Valves

Ball valves recommended to be located at the manifold and at the end of the surge hose to facilitate cleaning of the pump and/or hoses.

Hoses

Use 4 to 8 metres of 75 mm I.D. or larger surge hose from the manifold. Follow with a 400 mm tapered fitting to a 50 mm I.D. hose to the spray area. Taper to 4 to 6 metres of minimum 25 mm I.D. whip hose.

Standpipe

Use 75 mm I.D. aluminum tubing with quick external disconnections. Elbows should be 75 mm I.D. with minimum 900 mm radius.

Nozzle / Gun

Use a minimum 25 mm (1") I.D. plaster type nozzle with shut off valve, swivel and air shut off valve.

Orifice Tips & Shields

14 mm to 16 mm (9/16 to 5/8") I.D. "blow-off" tips with "mini shields".

Southwest™ Type 5GP Application Instructions

Mixing

General Procedure:

Type 5GP™ fireproofing material shall be mixed in a conventional plaster paddle type or continuous mixer designed specifically for cementitious fireproofing. The mixer shall be kept clean and free of any previously mixed materials which may cause premature setting of product. A 3 bag mix is recommended for horizontal paddle type mixers. Mix time should be approximately 1½ minutes at 40 RPM. Do not over mix. If it is necessary to use a mixer smaller than the recommended 0.34 to 0.45 m³ (12 to 16 ft³), material volume should not go over centre bar of mixer.

Use 41.5 to 45.4 litres of water per 22.7 kg (50 lb) bag of Type 5GP. Add water to the mixer first. With blades stopped, add Type 5GP to the water and then mix.

Density Measurement:

Wet density measurements at the nozzle are critical to obtaining correct density and yield (Density and yield comparative information is shown in the table below this section).

Procedure:

1. Place a waxed paper or plastic cup of known capacity** in millilitres (cc) on the scales and tare scales to zero.
2. To obtain the wet density, fill the container of known volume** (such as a 200 ml 'Lily' cup) with sprayed material level with the brim of the cup. Take care to avoid trapping air bubbles or compacting the material in the cup. Record the net weight.
3. Divide the net weight in grams by the net capacity of the cup in cc, to establish the wet density in kilograms per litre (kg/ltr). IE if a 200 ml cup weighs 180 grams then the wet density = 180/200 = 0.9 kg/ltr.
4. Finally to obtain the wet density in pounds per cubic foot (pcf) multiply the wet density in kg/ltr by 61.35. IE 0.9 kg/ltr = 0.9 x 61.35 = 55.2 pcf wet density.

**If the volume of the cup is not known, place it on the scales, tare the scales, fill the cup to the brim with clean water and weigh it. The net content in grams equals the net volume in millilitres (cc).

Type 5GP™ Yield Chart				
H ₂ O used per bag litres	Nozzle Wet Density		Est. theo. coverage m ² per bag at 10mm DFT	Dry Density pcf
	kg / litre	pcf		
41.5 litres	0.798	49.0	8.19	19
	0.757	46.4	8.64	18
	0.710	43.8	9.16	17
	0.673	41.3	9.73	16
	0.631	38.7	10.39	15
43.5 litres	0.825	50.5	8.19	19
	0.778	47.8	8.64	18
	0.737	45.1	9.16	17
	0.692	42.5	9.73	16
	0.648	39.8	10.39	15
45.4 litres	0.846	51.9	8.19	19
	0.802	49.2	8.64	18
	0.756	46.4	9.16	17
	0.712	43.7	9.73	16
	0.667	40.9	10.39	15

The green highlights indicate the optimum water addition ratio and the optimum final dry density at varying water addition ratios

Application Procedure

Thicknesses of 19 mm (3/4") or less can typically be applied in one pass. For thicknesses greater than 19 mm, apply subsequent coats after the prior coat has set. If preceding coat has dried, dampen the surface with water prior to application of additional coats. Type DK-3 (Spatter Coat) adhesive shall be applied to all cellular floor units and to all roof deck systems and where indicated by the relevant design. Use only potable water (drinking quality). Apply product to achieve a uniform texture and thickness as required by relevant design.

Application Conditions & Curing

Fresh Type 5GP must be protected from rain and running water for 24 hours.

Air and substrate temperatures shall be 5°C minimum, and shall be maintained or increased during application and for 24 hours after spraying.

Ventilation in enclosed areas is very important, to assist products to set and dry properly.

Total air exchange should be at least 4 times per hour.

Finish

Type 5GP is normally left as a sprayed texture finish.

Surface may be over sprayed with Type DK or HC to provide a more durable finish. Note: If surface of Type 5GP has dried, dampen the surface with water prior to application of DK-3 or HC..

Protection of Adjacent Surfaces

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.

Field Tests

Testing shall be for thickness and density in accordance with the applicable fire design and relevant standards and codes, such as:- ASFP Technical Guidance Document – TGD 15 "Code of practice for the installation & inspection of sprayed non-reactive coatings for the fire protection of structural steelwork"

*Section 6 - Quality Plan, Inspection Criteria & Methodology

*Section 7 - Records & Reports.

*Copies available from Carboline Technical Services

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 Type 5GP 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

Read and abide by the MSDS.

Do not breathe dust. Use OSHA approved dust mask.

Safety goggles or glasses should be worn. For eye contact, flush with copious amount of water in accordance with OSHA instructions.

Wash skin with clean water to prevent irritation.

Follow equipment manufacturers' recommendations regarding safety and maintenance.

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