

# Commercial Fireproofing

# System Guide

**Spray-applied Fire Resistive Materials (SFRMs)  
Intumescent Fire Resistive Materials (IFRMs)**



# Gypsum Based Fireproofing

## Southwest Type 5GP™ / Pyrolite® 15

### 15 lbs/ft<sup>3</sup> (240 kg/m<sup>3</sup>) SFRMs For Clean, Bare Steel Substrates

PREP	PRIMER	ADHESIVE	SFRM	DESCRIPTION	SEALER / TOPCOAT	DESCRIPTION
<b>Interior Structural Steel Beams, Columns, Floor Decks, Roof Decks – Carbon Steel</b>						
<b>Applications - Interior General Purpose and Interior Conditioned Space areas. Commercial buildings up to 75 ft. requiring minimum bond strength of 150 psf according to IBC Code section 403 "High Rise Structures"</b>						
SP 1*	No priming required	A/D TC-55** Adhesive/Sealer (per design) -or- Southwest Type DK3™ (Spattercoat)**	Southwest Type 5GP	15 lbs/ft <sup>3</sup> (pcf) (240 kg/m <sup>3</sup> ) gypsum based fireproofing	A/D TC-55 Adhesive/ Sealer (optional)	Adhesive/Sealer (Available in clear, white, blue and black)
SP 1*	No priming required	A/D TC-55** Adhesive/Sealer (per design) -or- Southwest Type DK3 (Spattercoat)**	Pyrolite 15	15 lbs/ft <sup>3</sup> (pcf) (240 kg/m <sup>3</sup> ) gypsum based fireproofing	A/D TC-55 Adhesive/ Sealer (optional)	Adhesive/Sealer (Available in clear, white, blue and black)

## Southwest Type 5MD™ / Pyrolite 22

### 15-22 lbs/ft<sup>3</sup> (240-352 kg/km<sup>3</sup>) SFRMs For Clean, Bare Steel Substrates

PREP	PRIMER	ADHESIVE	SFRM	DESCRIPTION	SEALER / TOPCOAT	DESCRIPTION
<b>Interior Structural Steel, Beams, Columns, Floor Decks, Roof Decks – Carbon Steel</b>						
<b>Applications - Interior General Purpose and Interior Conditioned Space areas. Commercial buildings 75 ft. to 420 ft. requiring minimum bond strength of 430 psf according to IBC Code section 403 "High Rise Structures"</b>						
SP 1*	No priming required**	A/D TC-55** Adhesive/Sealer (per design) -or- Southwest Type DK3 (Spattercoat)**	Southwest Type 5MD (@ 15 pcf)	15-22 lbs/ft <sup>3</sup> (pcf) (240-352 kg/m <sup>3</sup> ) gypsum based fireproofing	A/D TC-55 Adhesive/Sealer (optional)	Adhesive/Sealer (Available in clear, white, blue and black)
SP 1*	No priming required**	A/D TC-55** Adhesive/Sealer (per design) -or- Southwest Type DK3 (Spattercoat)**	Pyrolite 22	22 lbs/ft <sup>3</sup> (pcf) (352 kg/m <sup>3</sup> ) gypsum based fireproofing	A/D TC-55 Adhesive/ Sealer (optional)	Adhesive/Sealer (Available in clear, white, blue and black)
<b>Interior Structural Steel Beams, Columns, Floor Decks, Roof Decks – Carbon Steel</b>						
<b>Applications - Interior General Purpose and Interior Conditioned Space areas. Commercial buildings &gt;420 ft. requiring minimum bond strength of 1,000 psf according to IBC Code section 403 "High Rise Structures"</b>						
SP 1*	No priming required**	A/D TC-55** Adhesive/Sealer (per design) -or- Southwest Type DK3 (Spattercoat)**	Southwest Type 5MD (@ 18 pcf)	15-22 lbs/ft <sup>3</sup> (pcf) (240-352 kg/m <sup>3</sup> ) gypsum based fireproofing	A/D TC-55 Adhesive/ Sealer (optional)	Adhesive/Sealer (Available in clear, white, blue and black)

\* Substrate must be clean and free of all dust, dirt, oil, grease and contaminants prior to application.

\*\* Primers are not required or recommended. If a primer is specified, or steel is primed, bond strength must meet minimum UL criteria. A/D 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.

**Note:** Southwest Type 5MD has a bond strength of >430 psf @ 15 pcf density, >1,000 psf @ 16.5 pcf density and >3,000 psf @ 22 pcf density.

# Portland Cement Based Fireproofing

## Southwest Type 7GP™

22 lbs/ft<sup>3</sup> (352 kg/m<sup>3</sup>) SFRMs For Clean, Bare Steel Substrates

PREP	PRIMER	ADHESIVE	SFRM	DESCRIPTION	SEALER / TOPCOAT	DESCRIPTION
<b>Interior Structural Steel Beams, Columns, Floor Decks, Roof Decks – Carbon Steel</b>						
<b>Applications - For areas exposed to prolonged high humidity conditions such as mechanical rooms, elevator shafts and parking garages requiring high damage and moisture resistance and/or commercial buildings up to and &gt;420 ft. requiring minimum bond strength of up to 1,000 psf according to IBC Code section 403 "High Rise Structures"</b>						
SP 1*	No priming required**	A/D TC-55** Adhesive/Sealer (per design) -or- Southwest Type DK3 (Spattercoat)**	Southwest Type 7GP	22 lbs/ft <sup>3</sup> (pcf) (352 kg/m <sup>3</sup> ) Portland cement based fireproofing	A/D Type TC-55 Adhesive/Sealer (optional)	Adhesive/Sealer (Available in clear, white, blue and black)

## Southwest Type 7HD™ / Pyrocrete® 40

40 lbs/ft<sup>3</sup> (640 kg/m<sup>3</sup>) SFRMs For Clean, Bare Steel Substrates

PREP	PRIMER	ADHESIVE	SFRM	DESCRIPTION	SEALER / TOPCOAT	DESCRIPTION
<b>Interior Structural Steel Beams, Columns, Floor Decks, Roof Decks – Carbon Steel</b>						
<b>Applications - For areas exposed to prolonged high humidity conditions such as mechanical rooms, elevator shafts and parking garages requiring high damage and moisture resistance and/or commercial buildings up to and &gt;420 ft. requiring minimum bond strength of up to 1,000 psf according to IBC Code section 403 "High Rise Structures"</b>						
SP 1*	No priming required**	A/D TC-55** Adhesive/Sealer (per design) -or- Southwest Type DK3 (Spattercoat)**	Southwest Type 7HD *** with lath where required	40 lbs/ft <sup>3</sup> (pcf) (640 kg/m <sup>3</sup> ) Portland cement based fireproofing	A/D TC-55 Adhesive/ Sealer (optional)	Adhesive/Sealer (Available in clear, white, blue and black)
SP 1*	No priming required**	A/D TC-55** Adhesive/Sealer (per design) -or- Southwest Type DK3 (Spattercoat)**	Pyrocrete 40*** with lath where required	40 lbs/ft <sup>3</sup> (pcf) (640 kg/m <sup>3</sup> ) Portland cement based fireproofing	Carboguard® 1340 -or- Carboguard 1340 + Carbothane® 133 Series (optional)	Penetrating epoxy sealer/topcoat  Satin finish high build urethane

\* Substrate must be clean and free of all dust, dirt, oil, grease and contaminants prior to application.

\*\* Primers are not required or recommended. If a primer is specified, or steel is primed, bond strength must meet minimum UL criteria. A/D 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.

\*\*\* If steel is primed, bond strength must meet minimum UL criteria. If minimum bond strength is not met, lath must be utilized and/or as required by the particular UL design. Southwest Type 7 HD and Pyrocrete 40 require metal lath for roof decks and floor decks. Refer to UL design for details or contact Carboline Technical Service for further information.

# Portland Cement Based Fireproofing

## Pyrocrete 40 / Pyrocrete 241

40-55 lbs/ft<sup>3</sup> (640-881 kg/m<sup>3</sup>) SFRMs For Primed Steel Substrates

PREP	PRIMER	DESCRIPTION	SFRM	DESCRIPTION	SEALER / TOPCOAT	DESCRIPTION
<b>Exterior and Interior Structural Steel Beams, Columns, Floor Decks, Roof Decks – Carbon Steel</b>						
<b>Applications - For exterior areas or interior areas exposed to prolonged high humidity conditions such as mechanical rooms, elevator shafts and parking garages requiring high damage and moisture resistance and/or commercial buildings up to and &gt;420 ft. requiring minimum bond strength of up to 1,000 psf according to IBC Code section 403 "High Rise Structures"</b>						
SP 3*	Qualified Carbozinc® Series -or- Carboguard Series -or- Carbomastic® Series	Primer system must be prequalified Consult Carboline for appropriate primer	Pyrocrete 40 with lath where required**	40 lbs/ft <sup>3</sup> (pcf) (640 kg/m <sup>3</sup> ) Portland cement based fireproofing	Carboguard 1340 -or- Carboguard 1340 + Carbothane 133 Series (optional)	Penetrating epoxy sealer/topcoat -or- Penetrating epoxy sealer/topcoat + Satin finish high build urethane
SP 3*	Qualified Carbozinc Series -or- Carboguard Series -or- Carbomastic Series	Primer system must be prequalified Consult Carboline for appropriate primer	Pyrocrete 241 with lath where required**	55 lbs/ft <sup>3</sup> (pcf) (881 kg/m <sup>3</sup> ) Portland cement based fireproofing	Carboguard 1340 -or- Carboguard 1340 + Carbothane 133 Series (optional)	Penetrating epoxy sealer/topcoat -or- Penetrating epoxy sealer/topcoat + Satin finish high build urethane

\* Substrate must be clean and free of all dust, dirt, oil, grease and contaminants prior to application.

\*\* If steel is primed, bond strength must meet minimum UL criteria. If minimum bond strength is not met, lath must be utilized and/or as required by the particular UL design. Pyrocrete 40 and Pyrocrete 241 require metal lath for roof decks and floor decks. Refer to UL design for details or contact Carboline Technical Service for further information.

# Thermal Barrier Protection

## Southwest Type 7TB™ / Pyrocrete 239

22-28 lbs/ft<sup>3</sup> (352-448 kg/km<sup>3</sup>) SFRMs Thermal Barriers Over Foam Plastic Insulation

PREP	INSULATION	PRIMER	SFRM	DESCRIPTION	SEALER / TOPCOAT	DESCRIPTION
<b>Interior thermal barrier for foam plastic insulation</b>						
<b>Applications - Cementitious thermal barrier fire protection material designed for direct application over foam plastic insulation, rigid urethane insulation and polystyrene insulation</b>						
SP 1*	Polystyrene foam insulation -or- Urethane foam insulation	A/D TC-55 Adhesive/ Sealer	Southwest Type 7TB	22 lbs/ft <sup>3</sup> (pcf) (352 kg/m <sup>3</sup> ) Portland cement based fireproofing	A/D TC-55 Adhesive/ Sealer (optional)	Adhesive/Sealer (Available in clear, white, blue and black)
SP 1*	Polystyrene foam insulation -or- Urethane foam insulation	Pyroprime 775 WB	Pyrocrete 239	28 lbs/ft <sup>3</sup> (pcf) (448 kg/m <sup>3</sup> ) Portland cement based fireproofing	Carboguard 1340 -or- Carboguard 1340 + Carbothane 133 Series (optional)	Penetrating epoxy sealer/topcoat -or- Penetrating epoxy sealer/topcoat + Satin finish high build urethane

\* Substrate must be clean and free of all dust, dirt, oil, grease and contaminants prior to application.

# Intumescent Fireproofing

Firefilm® Series / Thermo-Sorb® VOC / Thermo-Sorb 263 / Thermo-Lag® E100  
IFRMs For Interior Use Over Primed Steel Substrates

PREP	PRIMER	DESCRIPTION	INTUMESCENT	DESCRIPTION	TOPCOAT	DESCRIPTION
<b>Interior Structural Steel Beams, Columns - Carbon Steel</b>						
<b>Applications - Interior General Purpose and Interior Conditioned Space areas only</b>						
SP 3*	Qualified** <b>Carbocoat® Series</b> -or- <b>Carbocrylic® Series</b> -or- <b>Carboguard Series</b> -or- <b>Carbomastic Series</b> -or- <b>Carbozinc Series</b>	Primer system must be prequalified Consult Carboline for appropriate primer	<b>Firefilm Series</b> -or- <b>Thermo-Sorb VOC</b> -or- <b>Thermo-Sorb 263</b> -or- <b>Thermo-Lag E100</b> -or- <b>Thermo-Lag E100 S</b>	Water based intumescent -or- VOC compliant solvent based intumescent -or- High solids epoxy based intumescent	Qualified** <b>Carbocoat Series</b> -or- <b>Carbothane Series</b> -or- <b>Carbocrylic Series</b> -or- <b>Carboguard Series</b> -or- <b>Carbomastic Series</b>	Topcoat system must be prequalified Consult Carboline for appropriate topcoat
<b>Interior Structural Steel Beams, Columns - Galvanized Steel</b>						
<b>Applications - Interior General Purpose and Interior Conditioned Space areas only</b>						
SP 3*	<b>Carboguard 893 SG**</b> -or- <b>Rustbond®**</b>	Polyamide Epoxy -or- Polymeric Epoxy Amine	<b>Firefilm Series</b> -or- <b>Thermo-Sorb VOC</b> -or- <b>Thermo-Sorb 263</b> -or- <b>Thermo-Lag E100</b> -or- <b>Thermo-Lag E100 S</b>	Water based intumescent -or- VOC compliant solvent based intumescent -or- High solids epoxy based intumescent	Qualified** <b>Carbocoat Series</b> -or- <b>Carbothane Series</b> -or- <b>Carbocrylic Series</b> -or- <b>Carboguard Series</b> -or- <b>Carbomastic Series</b>	Topcoat system must be prequalified Consult Carboline for appropriate topcoat
<b>Interior Structural Steel Beams, Columns - Previously Primed Substrates</b>						
<b>Applications - Interior General Purpose and Interior Conditioned Space areas only</b>						
SP 3*	Qualified** <b>Carboline primer</b> -or- <b>Rustbond**</b>	Primer system must be prequalified -or- Polymeric Epoxy Amine	<b>Firefilm Series</b> -or- <b>Thermo-Sorb VOC</b> -or- <b>Thermo-Sorb 263</b> -or- <b>Thermo-Lag E100</b> -or- <b>Thermo-Lag E100 S</b>	Water based intumescent -or- VOC compliant solvent based intumescent -or- High solids epoxy based intumescent	Qualified** <b>Carbocoat Series</b> -or- <b>Carbothane Series</b> -or- <b>Carbocrylic Series</b> -or- <b>Carboguard Series</b> -or- <b>Carbomastic Series</b>	Topcoat system must be prequalified Consult Carboline for appropriate topcoat

\* Substrate must be clean and free of all dust, dirt, oil, grease and contaminants prior to application.

\*\* Primers and topcoats must be pre-qualified by Carboline in writing prior to use. Existing primers must also be tested and approved by Carboline. If existing primer does not meet criteria, Carboline can recommend an intermediate coat or surface preparation procedures prior to installing intumescent system.

# Intumescent Fireproofing

## Thermo-Lag E100

### IFRMs For Exterior Use Over Primed Steel Substrates

PREP	PRIMER	DESCRIPTION	INTUMESCENT	DESCRIPTION	TOPCOAT	DESCRIPTION
<b>Exterior Structural Steel Beams, Columns - Carbon Steel</b>						
<b>Applications - Exterior and Interior Environments</b>						
SP 3* -or- SP 6*	<b>Qualified**</b> <b>Carbocoat Series</b> -or- <b>Carbocrylic Series</b> -or- <b>Carboguard Series</b> -or- <b>Carbomastic Series</b> -or- <b>Carbozinc Series</b>	Primer system must be prequalified. Consult Carboline for appropriate primer.	<b>Thermo-Lag E100***</b> -or- <b>Thermo-Lag E100 S***</b>	High solids epoxy based intumescent -or- Solvent based intumescent	<b>Qualified**</b> <b>Carboguard 1340</b> + <b>Carbothane 133 Series</b> -or- <b>Carbomastic 94</b>	Penetrating epoxy sealer/topcoat + Satin finish high build urethane -or- Polyamide Epoxy
<b>Exterior Structural Steel Beams, Columns - Galvanized Steel</b>						
<b>Applications - Exterior and Interior Environments</b>						
SP 3* -or- SP 6*	<b>Carboguard 893 SG**</b> -or- <b>Rustbond**</b>	Polyamide Epoxy- or- Polymeric Epoxy Amine	<b>Thermo-Lag E100***</b> -or- <b>Thermo-Lag E100 S***</b>	High solids epoxy based intumescent -or- Solvent based intumescent	<b>Qualified**</b> <b>Carboguard 1340</b> + <b>Carbothane 133 Series</b> -or- <b>Carbomastic 94</b>	Penetrating epoxy sealer/topcoat + Satin finish high build urethane -or- Polyamide Epoxy
<b>Exterior Structural Steel Beams, Columns - Previously Primed Substrates</b>						
<b>Applications - Exterior and Interior Environments</b>						
SP 3* -or- SP 6*	<b>Qualified**</b> <b>Carboline primer</b> -or- <b>Rustbond**</b>	Primer system must be prequalified -or- Polymeric Epoxy Amine	<b>Thermo-Lag E100***</b> -or- <b>Thermo-Lag E100 S***</b>	High solids epoxy based intumescent -or- Solvent based intumescent	<b>Qualified**</b> <b>Carboguard 1340</b> + <b>Carbothane 133 Series</b> -or- <b>Carbomastic 94</b>	Penetrating epoxy sealer/topcoat + Satin finish high build urethane -or- Polyamide Epoxy

\* Substrate must be clean and free of all dust, dirt, oil, grease and contaminants prior to application. Surface profile requirement depends on specific primer surface preparation requirement and project specification. Consult Carboline Technical Service for details.

\*\* Primers and topcoats must be pre-qualified by Carboline in writing prior to use. Existing primers must also be tested and approved by Carboline. If existing primer does not meet criteria, Carboline can recommend an intermediate coat or surface preparation procedures prior to installing intumescent system. Topcoats for exterior systems must be tested and listed in design.

\*\*\*Thermo-Lag E100 and Thermo-Lag E100 S are utilized to provide 1-3 hour UL 263/ASTM E119 fire protection for exterior and interior steel.

# Clean Room Intumescent Systems

## Firefilm Series / Thermo-Lag E100

### IFRMs For Interior Use In Clean Room And Sterile Environments

PREP	PRIMER	DESCRIPTION	INTERMEDIATE	INTUMESCENT	DESCRIPTION	TOPCOAT	DESCRIPTION
<b>Interior Structural Steel Beams, Columns - Carbon Steel</b> <b>Applications - Interior General Purpose and Interior Conditioned Space areas only</b>							
SP 3*	<b>Carbocoat 8229</b>	Low out-gassing single component phenolic modified alkyd	None	<b>Firefilm Series</b> -or- <b>Thermo-Lag E100</b> -or- <b>Thermo-Lag E100 S</b>	Low out gassing water based intumescent -or- Low out gassing high solids epoxy based intumescent	<b>Sanitile® 845</b>	Low out-gassing aliphatic acrylic polyurethane

\* Substrate must be clean and free of all dust, dirt, oil, grease and contaminants prior to application.

**NOTES:**

1. This document is meant as a general guideline only. For product information and application details, refer to the individual product's datasheet and application manual (latest revision) or contact Carboline Technical Service.
2. Carbothane 133 Series topcoats used with Carboline fireproofing products consists of: Carbothane 133 HB, Carbothane 133 VOC, and Carbothane 133 MC. These are used where VOC regulations dictate. All must be pre-qualified for use for each specific application and environment by Carboline in writing prior to use.
3. Carbocoat Series used with Carboline fireproofing products consists of: Carbocoat 115, Carbocoat 155 VOC, Carbocoat 150 UP, Carbocoat 150 HG, Carbocoat OEM Universal Primer, Carbocoat 8229, Carbocoat 30R, and Carbocoat 8215 VOC. All must be pre-qualified for use for each specific application and environment by Carboline in writing prior to use.
4. Carbocrylic Series used with Carboline fireproofing products consists of: Carbocrylic 120, Carbocrylic 3350, Carbocrylic 3358, Carbocrylic 3359, Carbocrylic 3359 DTM, and Carbocrylic 3359 DTMC. All must be pre-qualified for use for each specific application and environment by Carboline in writing prior to use.
5. Carboguard Series used with Carboline fireproofing products consists of: Carboguard 635, Carboguard 890, Carboguard 890 VOC, Carboguard 893, Carboguard 893 SG, and Carboguard 1340. All must be pre-qualified for use for each specific application and environment by Carboline in writing prior to use.
6. Carbomastic Series used with Carboline fireproofing products consists of: Carbomastic 15, Carbomastic 242, Carbomastic 615, and Carbomastic 94. All must be pre-qualified for use for each specific application and environment by Carboline in writing prior to use.
7. Carbozinc Series used with Carboline fireproofing products consists of: Carbozinc 858, and Carbozinc 859 and Carbozinc 11. Carbozinc 11 requires a polyamide epoxy tie-coat primer. All must be pre-qualified for use for each specific application and environment by Carboline in writing prior to use.
8. Where lath is required, use 3.4 lb/yd<sup>2</sup> galvanized steel or stainless steel lath.
9. Carboline's Surface Cleaner 3 is a water based cleaner that is effective in cleaning and degreasing surfaces prior to painting.
10. Carboline fireproofing products must be installed according to the appropriate test design.



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