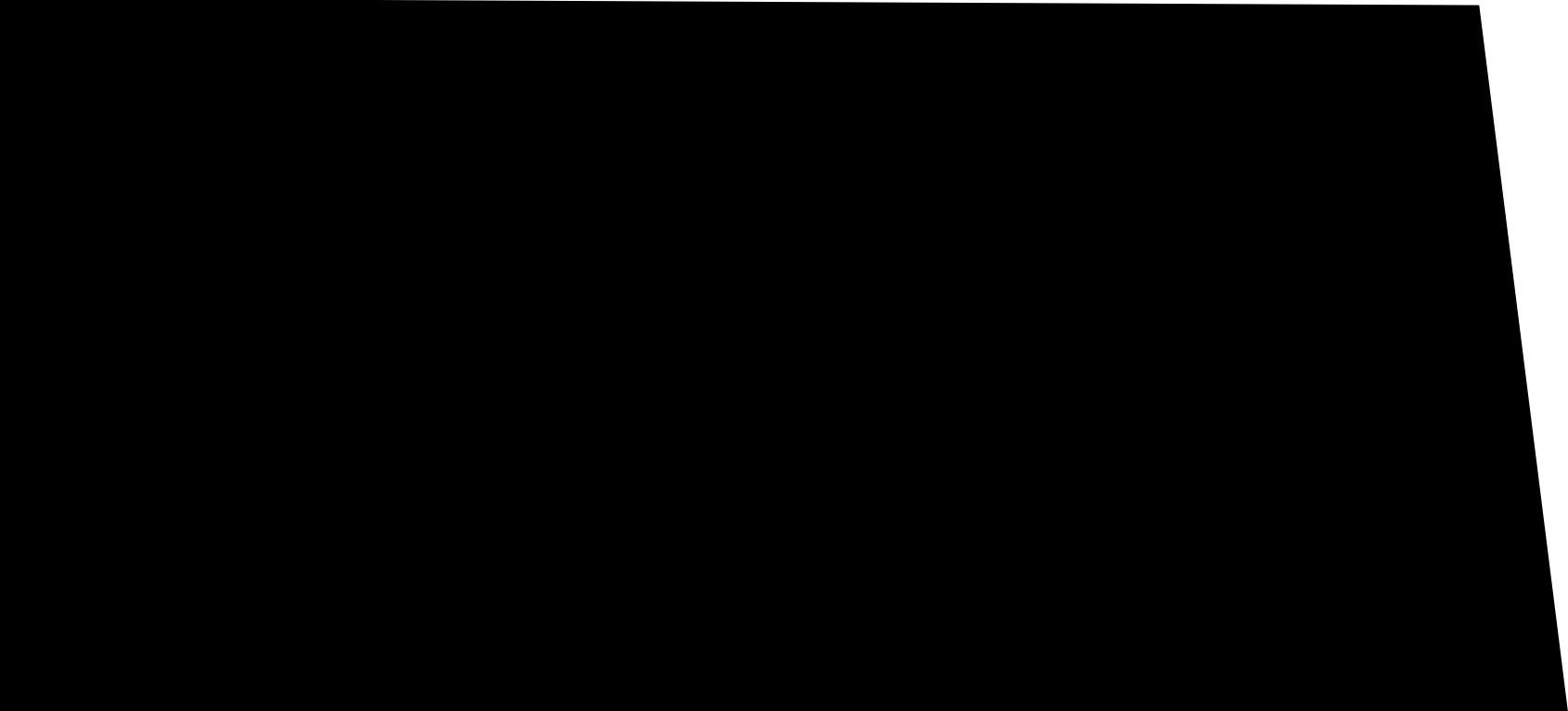


Commercial Fireproofing

Superior Fire Protection for Commercial Applications





Proven Products from an Industry Leader

Carboline is a global leader in providing high performance protective coatings and fireproofing products. Our comprehensive passive fire protection line of Sprayed Fire Resistive Materials (SFRMs) and Intumescent Fire Resistive Materials (IFRMs) offer dependable and proven aesthetically pleasing solutions for commercial applications. Our global reach allows us to consistently provide the highest quality products and services to our customers anywhere in the world.

Certifications/Listing

Our highly regarded passive fire protection products have been fully tested and qualified to meet the most current fire protection and performance standards by world-class organizations such as:



Affiliations



Extensive Testing & Certification

Our Southwest Fireproofing™, Pyrocrete®, Firefilm®, Thermo-Sorb®, Thermo-Lag® and Nullifire® brands have been rigorously tested and certified to trusted industry standards. These products have been subjected to a myriad of destructive exposures to simulate real world performance. Extensive 3rd party certification ensures that our products meet the fire performance and environmental requirements of commercial and light industrial assets. Our products stand the test of time and deliver cellulosic fire protection when needed.

Fire Testing & Certification

Carboline’s Commercial fireproofing products have been certified to the following industry accepted fire test standards:

- > ANSI/UL 263 Cellulosic Fire
- > ASTM E119 Cellulosic Fire
- > NFPA 251 Cellulosic Fire
- > CAN/ULC S101 Cellulosic Fire
- > BS 476: Part 20/21: 1987

Environmental Testing & Certification

In addition to the fire test protocols, all Carboline commercial fireproofing products have been tested and certified to the UL Environmental Program to simulate real world exposures:

- > CO₂/SO₂ atmospheric environment
- > 100% humidity
- > Wet, freeze, thaw cycling
- > UV exposure
- > Continuous salt spray environment

Products are fire tested after cyclic exposures to ensure they retain fire performance. Products are then classified for interior or exterior use.



Leadership in Energy Efficient Design (LEED)

As a global leader in fire protection technology, Carboline is committed to developing and supplying products that contribute toward the design and construction of environmentally sustainable infrastructure. Our commercial fireproofing products have been formulated to meet the new LEED v4 requirements as well as local, regional and national environmental regulations. Our products can contribute towards points under the LEED Green Building Rating System in the following categories:

LEED Credit Contributions					
Category	Energy & Atmosphere	Materials & Resources			Indoor Environmental Quality
LEED Credits	EA Credit: Optimize Energy Performance	MR Credit: Construction & Demolition Waste Management	MR Credit: Building Product Disclosure & Optimization - Sourcing of Raw Materials	MR Credit: Building Product Disclosure & Optimization - Material Ingredients	EQ Credit: Low Emitting Materials
Points	1-18 Points	1-2 Points	1-2 Points	1-2 Points	1-3 Points
Carboline Products	Pyrolite® Series Southwest Type 5™ Series Southwest Type 7™ Series Southwest Type DK 3 Series Southwest Type DK 3™ Pyrocrete Series	Pyrolite Series Southwest Type 5 Series Southwest Type 7 Series Southwest Type DK 3 Pyrocrete Series Pyroprime 775 A/D Type TC-55 A/D Firefilm Series Thermo-Sorb Series Nullifire Series Thermo-Lag Series	Pyrolite Series Southwest Type 5 Series Southwest Type 7 Series Southwest Type DK 3 Pyrocrete Series Pyroprime 775 A/D Type TC-55 A/D Firefilm Series Thermo-Sorb Series Nullifire Series Thermo-Lag Series	Pyrolite Series Southwest Type 5 Series Southwest Type 7 Series Southwest Type DK 3 Pyrocrete Series Pyroprime 775 A/D Type TC-55 A/D Firefilm Series Thermo-Sorb Series Nullifire Series Thermo-Lag Series	Pyroprime 775 A/D Type TC-55 A/D Firefilm Series Thermo-Sorb VOC Thermo-Lag Series

Fire Protection Solutions For Any Specification

The Carboline Company is a world leader in fire protection and high performance coatings. We offer the most comprehensive fireproofing package of Sprayed Fire Resistive Materials (SFRMs) and Intumescent Fire Resistive Materials (IFRMs) available from any single source. Our versatile range of products allow us to provide trusted solutions to meet and exceed any project specification and performance criteria.

Atriums / Glass Curtain Walls

- > Intumescent IFRMs

Plenum Areas / Mechanical Rooms

- > Commercial Density SFRMs
- > Medium Density SFRMs
- > Intumescent IFRMs

Elevator Shafts / Stairwells

- > Medium Density SFRMs
- > High density SFRMs
- > Intumescent IFRMs

Roof Deck / Roof Assembly

- > Commercial Density SFRMs
- > Medium Density SFRMs

Floor / Deck Assembly

- > Commercial Density SFRMs
- > Medium Density SFRMs
- > Intumescent IFRMs

Parking Garages

- > High Density SFRMs
- > Intumescent IFRMs

Interior Concealed Structural Steel

- > Commercial Density SFRMs
- > Medium Density SFRMs

Perimeter Structural Steel

- > Commercial Density SFRMs
- > Medium Density SFRMs

Interior Exposed Structural Steel

- > High Density SFRMs
- > Intumescent IFRMs



Low, Medium & High Density Cementitious Fireproofing

Carboline's cementitious Sprayed Fire Resistive Materials (SFRMs) offer high performance, cost effective fire protection solutions for both concealed and exposed steel structures and assemblies. These durable, wet mix, gypsum and Portland cement based products have been formulated to meet any density specification, performance criteria and IBC building code requirements, providing specifiers the ultimate flexibility in design and construction.

Southwest Type 5GP™

15 pcf (240 kg/m³) commercial density fireproofing with excellent application characteristics. Provides fire protection for interior columns, beams, joists and floor/roof assemblies.

Southwest Type 5MD™

15-22 pcf (240-352 kg/m³) medium density fireproofing with high physical performance and durability. Formulated to meet current IBC high rise bond strength requirements.

Southwest Type 5AR™

15 pcf (240 kg/m³) extended set fireproofing. Developed as a holding material that can be left in equipment and lines up to 4 days without setting, reducing clean up labor and waste.

Southwest Type 7GP™

22 pcf (352 kg/m³) medium density fireproofing with high physical performance for exposed areas where more durable fireproofing is required, such as elevator shafts, mechanical rooms and parking garages.

Southwest Type 7HD™

40 pcf (640 kg/m³) high density fireproofing formulated for high damage resistance in areas with prolonged exposure to physical abuse, moisture and high humidity.

Pyrocrete® 40

40 pcf (640 kg/m³) high density fireproofing for exterior or interior environments where superior physical performance is required.

Pyrocrete® 239

28 pcf (448 kg/m³) medium density fireproofing used for a variety of applications where high durability is required. Can be used as a 15 minute thermal barrier over urethane and polystyrene foam insulation and for noise reduction (NRC: 0.75).

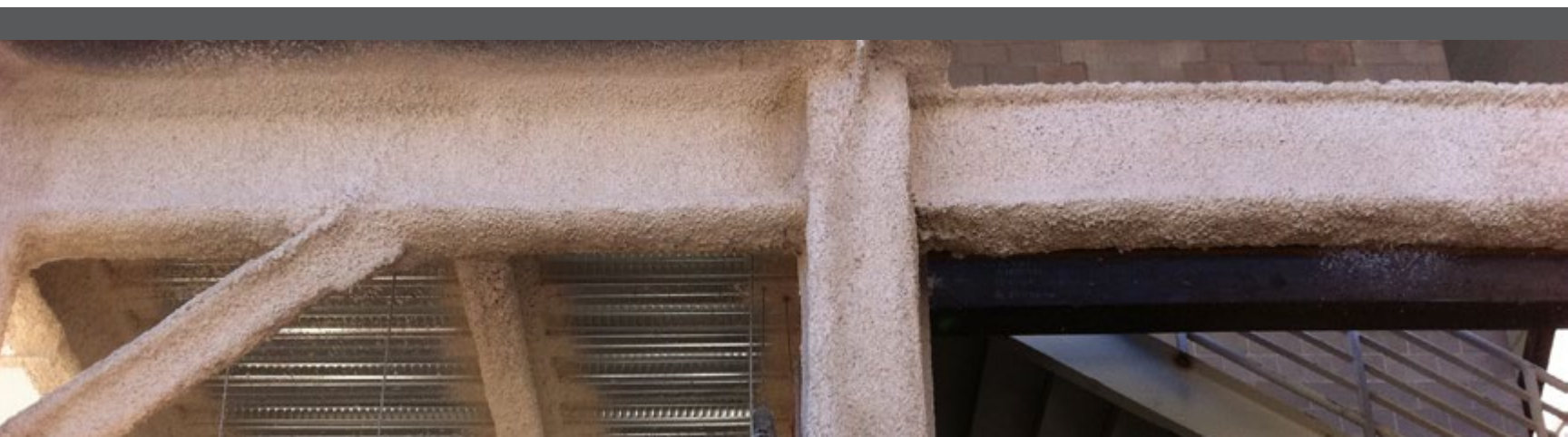
Pyrocrete® 241

55 pcf (881 kg/m³) high density fireproofing for exterior or interior environments where the highest level of physical performance and durability are paramount.

Product Comparison

	Southwest Type 5GP	Southwest Type 5MD	Southwest Type 7GP	Southwest Type 7HD	Pyrocrete 40	Pyrocrete 239	Pyrocrete 241
Density (ASTM E605)	15 pcf (240 kg/m ³)	15-22 pcf (240-352 kg/m ³)	22 pcf (352 kg/m ³)	40 pcf (640 kg/m ³)	40 pcf (640 kg/m ³)	28 pcf (448 kg/m ³)	55 pcf (881 kg/m ³)
Type	Gypsum	Gypsum	Cement	Cement	Cement	Cement	Cement
Environment	Interior	Interior	Interior	Interior	Exterior / Interior	Exterior / Interior	Exterior / Interior
Compressive Strength (ASTM E761)	3,700 psf (177 kPa)	10,354 psf (496 kPa)	38,448 psf (1,840 kPa)	640 psi (4.4 MPa)	502 psi (3.4 MPa)	105 psi (723 kPa)	1,111 psi (7.6 MPa)
Bond Strength (ASTM E736)	>200 psf (>9 kPa)	>1,000 ¹ (>47 kPa)	>2,000 psf (>95 kPa)	17,000 psf (813 kPa)	10,267 psf (491 kPa)	550 psf (26 kPa)	22,026 psf (1,054 kPa)
Meets High Rise Bond Strength Requirement of 150 psf	✓	✓	✓	✓	✓	✓	✓
Meets High Rise Bond Strength Requirement of 430 psf		✓	✓	✓	✓	✓	✓
Meets High Rise Bond Strength Requirement of 1,000 psf		✓	✓	✓	✓	✓	✓

Note: Southwest Type 5MD has a bond strength of >430 psf @ 15 pcf, >1,000 psf @ 18 pcf and >3,000 psf @ 22 pcf.



Decorative, Intumescent Fire Resistive Coatings

Carboline's Intumescent Fire Resistive Materials (IFRMs) offer superior fire protection for commercial and light industrial projects. Our Firefilm, Thermo-Sorb, Thermo-Lag and Nullifire systems allow architects to create unique exposed steel designs with unsurpassed aesthetics, durability and performance where fire resistance ratings are required. Our versatile range of intumescent coatings provide high end architectural finishes and give project planners options to develop specifications to meet all building types, project requirements and conditions.

A/D Firefilm® III

Interior, water based thin film intumescent designed to provide the smoothest aesthetic finish in the industry.

Thermo-Sorb® VOC

Interior, low VOC, solvent based thin film intumescent developed to meet the VOC and LEED requirements. Can be applied in semi exposed, high humidity environments and is less sensitive to inclement weather and lower temperatures.

Nullifire® S606

Interior, solvent based thin film intumescent designed to provide smooth aesthetic finish. Can be applied in semi-exposed, high humidity environments and is less sensitive to inclement weather and lower temperatures.

Thermo-Lag® E100

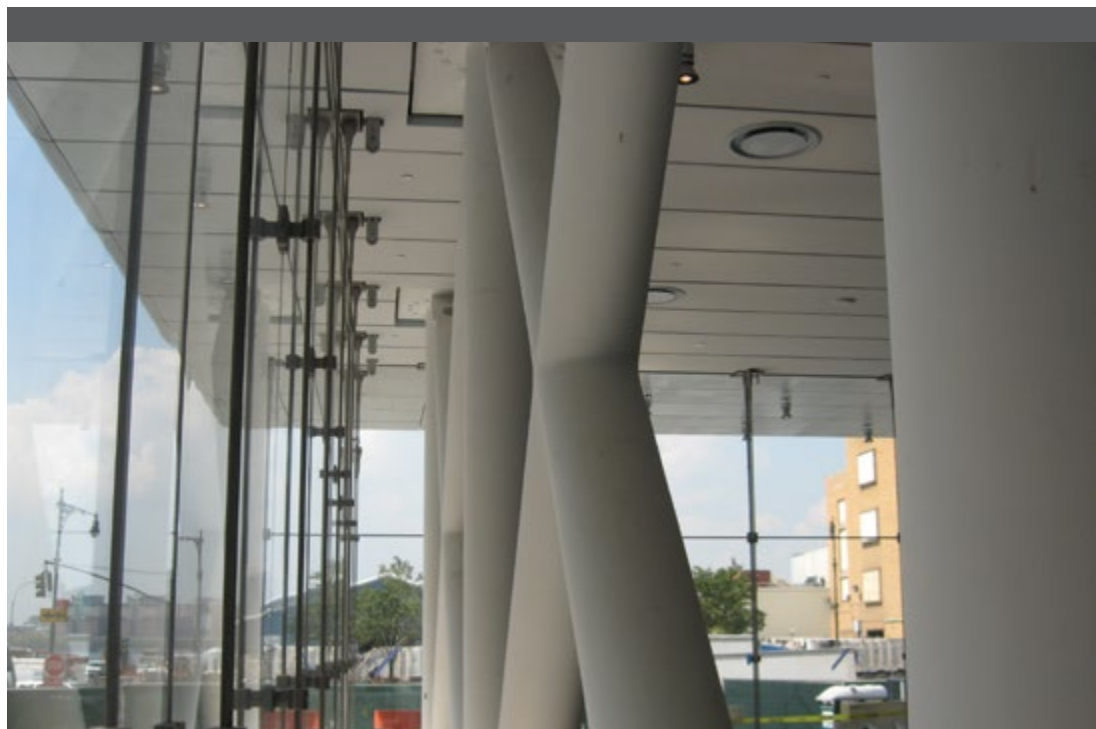
Exterior / interior, epoxy based intumescent designed for high durability, fast application and permanent exposure to exterior environments and where the highest level of physical performance is required. Material can be applied both onsite and offsite for improved project scheduling.

Nullifire® S605

Exterior / interior, solvent based thin film intumescent designed for permanent exposure to exterior environments where a smooth aesthetic finish is required.

Product Comparison

	A/D Firefilm III	Thermo-Sorb VOC	Nullifire S606	Nullifire S605	Thermo-Lag E100
Type	Water based	Solvent Based	Solvent Based	Solvent Based	Epoxy Based
Environment	Interior	Interior	Interior	Exterior / Interior	Exterior / Interior
Finish	Ultra Smooth	Smooth to Slight Texture	Smooth	Smooth	Smooth to Slight Texture
Shore D Hardness (ASTM D2240)	72	70	70	70	60
VOC	20 (g/l)	142 (g/l)	298 (g/l)	292 (g/l)	13 (g/l)
Compressive Strength (ASTM E761)	757 psi (5.2 MPa)	1,187 psi (8.1 MPa)	1,150 psi (5.2 MPa)	1,150 psi (5.2 MPa)	2,330 psi (16.0 MPa)
Bond Strength (ASTM E736)	125 psi (861 kPa)	200 psi (1.3 MPa)	350 psi (2.4 MPa)	250 psi (1.7 MPa)	1,200 psi (8.2 MPa)
Surface Burning (ASTM E84)	Class A	Class A	Class A	Class A	Class A
Suitable For Offsite Application					✓



GLOBAL COATINGS LEADERS™

RIGHT PEOPLE · RIGHT PRODUCTS · RIGHT LOCATIONS



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