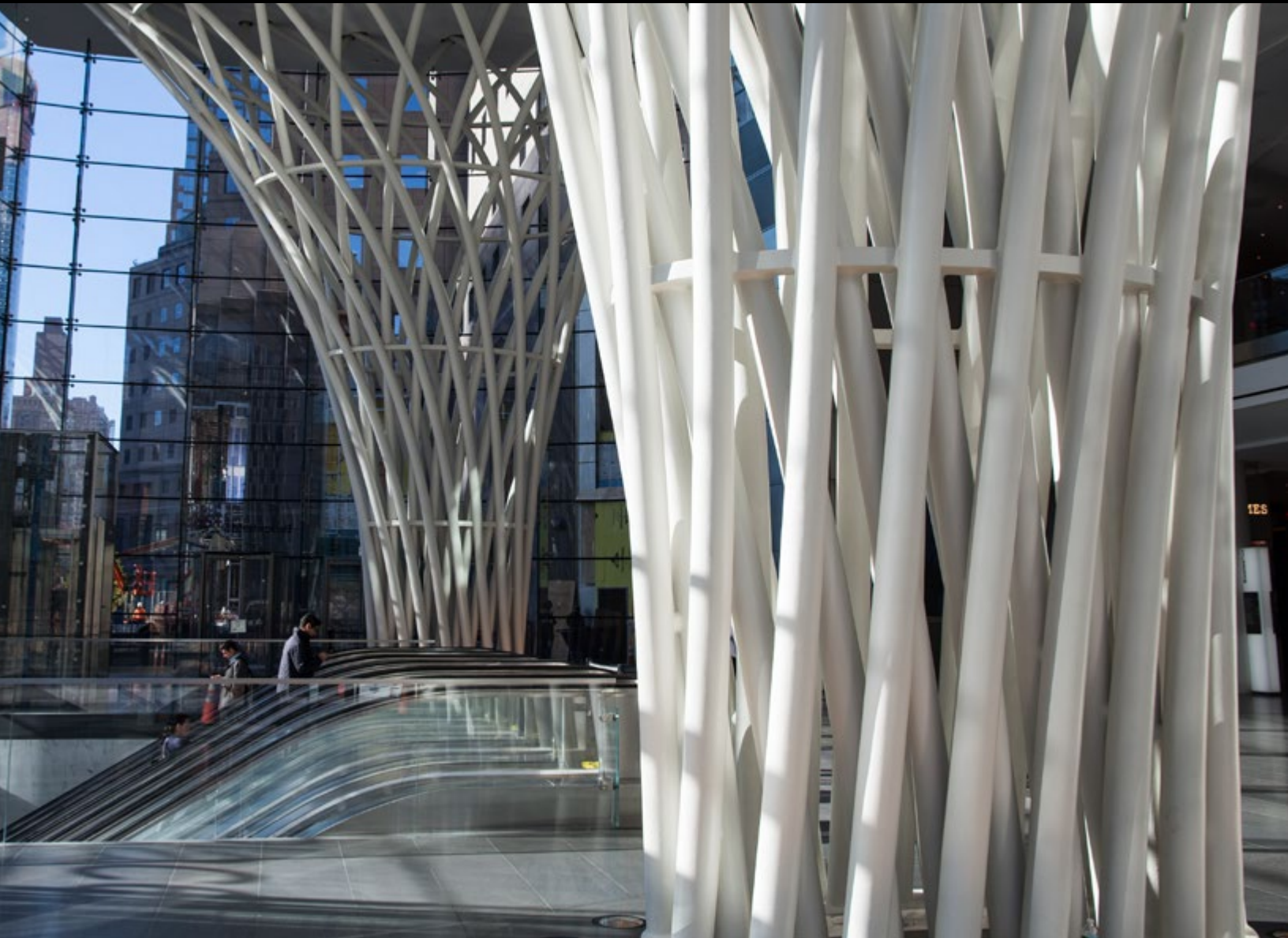


Commercial Fireproofing

Superior Fire Protection for Commercial Applications



Solving our customers' problems is how we got started and after 70 years, it's still our focus at Carboline.

1947

Since 1947, we have been dedicated to delivering innovative coatings, linings, and fireproofing products. We are driven to provide the best solutions, service, and quality to our customers.



Our customers can be confident that behind every sale is a team of some of the most well-respected members of the industry, dedicated and determined to make your project a success.



Our global network of industrial service centers and distribution points is strategically located worldwide to provide the highest level of service and support for your project.



www.carboline.com



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 thoroughly 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®, and Thermo-Lag® 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

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:

- › Emissions / Greenhouse gasses (CO₂, SO₂, etc.)
- › 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:



Declare.

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

- › Thermo-Sorb Series
- › Firefilm Series
- › Thermo-Lag E100

Elevator Shafts / Stairwells

- › Southwest Fireproofing
- › Thermo-Sorb Series
- › Firefilm Series
- › Thermo-Lag E100

Parking Garages

- › Southwest Fireproofing
- › Thermo-Lag E100

Roof Deck / Roof Assembly

- › Southwest Fireproofing

Plenum Areas / Mechanical Rooms

- › Southwest Fireproofing
- › Thermo-Sorb Series
- › Firefilm Series
- › Thermo-Lag E100

Floor / Deck Assembly

- › Southwest Fireproofing
- › Thermo-Sorb Series
- › Firefilm Series
- › Thermo-Lag E100

Interior Concealed Structural Steel

- › Southwest Fireproofing

Perimeter Structural Steel

- › Southwest Fireproofing

Interior Exposed Structural Steel

- › Southwest Fireproofing
- › Thermo-Sorb Series
- › Firefilm Series
- › Thermo-Lag E100





The **WWII D-Day Museum** was named by USA Today as the #1 Best Place to Learn U.S. Military History and designated by Congress as America's official museum about World War II. This National WWII Museum features a rich collection of artifacts that brings history to life.

This project utilized two of our fireproofing products: Thermo-Sorb VOC and Southwest Type 5GP fireproofing. These were chosen because Thermo-Sorb VOC could be applied prior to the window installation, and Southwest Type 5GP was used because of Carboline's stocking capabilities in the New Orleans area.



The **Transbay Transit Center Project** is a visionary transportation and housing project that transforms downtown San Francisco and the San Francisco Bay Area's regional transportation system by creating a "Grand Central Station of the West" in the heart of a new transit-friendly neighborhood.

Thermo-Lag E100 was selected due to the product's exterior ratings, high-end aesthetics, and the ability to be applied offsite. Thermo-Lag E100 was applied to columns, beams, and beam assemblies supporting glass floors. Since there were no UL-rated 3-hour assemblies with a glass floor in existence, we assisted the client in executing a successful fire test program at UL and achieved the necessary certification required for the project. This glass floor assembly utilizing Thermo-Lag E100 is now listed in the UL directory.

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

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 requiring more durable fireproofing, 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

medium density fireproofing is used for a variety of applications where high durability is required. It can be used as a 15-minute thermal barrier over urethane and polystyrene foam insulation and 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 239	Pyrocrete 40	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)	28 pcf (448 kg/m ³)	40 pcf (640 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)	105 psi (723 kPa)	502 psi (3.4 MPa)	1,111 psi (7.6 MPa)
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.



The **FMC Tower** is a 47-story Cira Centre skyscraper in Philadelphia, PA. It stands 730 feet tall and will include a combination of office space, retail and residential units vertically stacked all in one building. It is also home to the FMC Corporation, a specialty chemical company. The top floors will provide 268 luxury apartments and extended-stay suites with panoramic views of the Philadelphia skyline.

Carbolite's Southwest Type 5MD gypsum-based, Spray-applied Fire Resistive Material (SFRM) was selected for its excellent application characteristics, high coverage, and high bond strength, which meets the IBC bond strength requirement of 1,000 psf throughout the building for structures over 420 feet in height.

Decorative, Intumescent Fire Resistant Coatings

Carboline's Intumescent Fire Resistant Materials (IFRMs) offer superior fire protection for commercial and light industrial projects. Our Firefilm, Thermo-Sorb, and Thermo-Lag 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.

Firefilm IV

Interior, water based thin film intumescent designed for high end aesthetics, fast recoat and reduced thickness.

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.

Thermo-Sorb 263

Interior, low VOC, solvent-based thin film intumescent developed to meet the VOC and LEED requirements. Provides a smooth aesthetic finish. It 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.



Product Comparison

	A/D Firefilm III	Firefilm IV	Thermo-Sorb VOC	Thermo-Sorb 263	Thermo-Lag E100
Type	Water-based	Water-based	Solvent-based	Solvent-based	Epoxy-based
Environment	Interior	Interior	Interior	Interior	Exterior / Interior
Finish	Ultra Smooth	Smooth to Slight Texture	Smooth to Slight Texture	Smooth to Slight Texture	Smooth to Slight Texture
Shore D Hardness (ASTM D2240)	70	60	70	63	60
VOC	20 (g/l)	4 (g/l)	142 (g/l)	149 (g/l)	13 (g/l)
Compressive Strength (ASTM E761)	757 psi (5.2 MPa)	367 psi (2.53 MPa) ASTM D695	1,187 psi (8.1 MPa)	pending	2,330 psi (16.0 MPa)
Surface Burning (ASTM E84)	Class A	Class A	Class A	Class A	Class A
Suitable For Offsite Application					✓



World Financial Center is a commercial building in downtown NYC (Manhattan) adjacent to the World Trade Center. This was a very unique application to a tree-like support structure comprised of circular pipe columns. Firefilm was selected due to its excellent application properties, smooth aesthetic finish, and low thickness requirement. Firefilm is a decorative, fiber-free, thin film intumescent coating designed for the fire protection of steelwork for up to a three-hour fire rating, depending on the design.

GLOBAL COATINGS LEADERS™

RIGHT PEOPLE • RIGHT PRODUCTS • RIGHT LOCATIONS



GLOBAL MANUFACTURING PLANTS

CARBOLINE COMPANY
GLOBAL HEADQUARTERS
2150 SCHUETZ ROAD
ST. LOUIS, MO 63146 USA
PH: +1-314-644-1000
WWW.CARBOLINE.COM

ARGENTINA - BUENOS AIRES
EINSTEIN 1095
PARQUE INDUSTRIAL OKS
GARÍN PROV. DE BUENOS
AIRES, ARGENTINA
PHONE: 54-3327-44-2222
FAX: 54-3327-44-2223

BRAZIL - SÃO PAULO
RUA VERGUEIRO 1753/1759,
3RD FLOOR - VILA MARIANA,
SÃO PAULO - SP, 04101-000,
BRAZIL
PHONE: +55 (12) 3221-3000

CHINA - DALIAN
HOU SHI CUN, DA WEI JIA
ZHEN
JIN ZHOU DISTRICT
DALIAN, CHINA 116110
PHONE: 86-411-8789-8441,
8442, 8443, 8444
FAX: 86-411-8789-8445

INDIA - CHENNAI
NO. 356 & 357 SIDCO
INDUSTRIAL ESTATE
AMBATTUR,
CHENNAI 600 098
INDIA
PHONE: 91-22-28500321
FAX: 91-22-28500323

INDONESIA
PT CARBOLINE INDONESIA
SOLUSI
WISMA 77, TOWER 1 - 12TH FL
JL. LETJEN S PARMAN KAV 77
SLIPI, JAKARTA BARAT
INDONESIA 11410
PHONE: +62-21-536-3070

ITALY
VIA M. VIGANO' DE VIZZI,77
20092 CINISELLO BALSAMO
[MI], ITALY
PHONE: +39 02 947592.36
FAX: +39 02 6172687

JAPAN - AMAGASAKI
TERAMOTO UNYU SOKO CO.,
LTD 17
MINAMIHATSUSHIMA-CHO,
AMAGASAKI, 660-0833 JAPAN
PHONE: 81-3-3643-4501
FAX: 81-3-3643-2951

NEW ZEALAND - TAURANGA
91-111 OROPI ROAD
GREERTON
TAURANGA
NEW ZEALAND
PHONE: +64-7-5411-221
FAX: +64-7-541-1310

NORWAY - LIERSTRANDA
P.O. BOX 593
3412 LIERSTRANDA, NORWAY
PHONE: 47-32-857300
FAX: 47-32-857301

SAUDI ARABIA - DAMMAM
1ST INDUSTRY CITY, 28TH
STREET
P.O. BOX 1050
DAMMAM 31431,
KINGDOM OF SAUDI ARABIA
PHONE: +966-3-847-3044
FAX: +966-3-847-3689

SOUTH AFRICA - JOHANNESBURG
8 CRESSSET ROAD
MIDRAND INDUSTRIAL PARK
JOHANNESBURG,
SOUTH AFRICA
PHONE: 27-11-2545500
FAX: 27-11-310-2872

SOUTH KOREA - BUSAN
43-1, JINYOUNG-RI
JINYOUNG-EUB
KIMHAE-CITY, 621-800
KYOUNGSANGNAMDO, KOREA
PHONE: 82-55-343-6441/5
FAX: 82-55-343-6414

THAILAND
DIMET (SIAM) PUBLIC
COMPANY LIMITED.
602 MOO 2 BANGPOO
INDUSTRIAL ESTATE
BANGPOOMAI, MUANG
SAMUTPRAKARN
THAILAND
PHONE: 66-2-323-2800

TURKEY - BURSA
ALI OSMAN SONMES CAD.
NO:4
BURSA, DOSAB 16369 TURKEY
PHONE: 90-224-261-0537

UAE - DUBAI
P.O. BOX 3034
DUBAI, UAE
PHONE: 971-4-347-0460
FAX: 971-4-347-0242

USA - DAYTON
95 AIRPARK VISTA BLVD.
DAYTON, NV 89403
PHONE: 775-246-0760
FAX: 775-246-0763

USA - GREEN BAY
614 ELIZABETH ST
GREEN BAY, WI 54302
PHONE: 920-437-6561
FAX: 920-437-8546

USA - LAKE CHARLES
900 OPELOUSAS STREET
LAKE CHARLES, LA 70601
PHONE: 337-433-0605
FAX: 337-439-0380

USA - LOUISA
321 DUKE ST.
LOUISA VA 23093
PHONE: 540-967-5119
FAX: 540-967-5120

VIETNAM - TINH BINH DUONG
LO D, 4R-CN
KHU CONG NGNIEP MY PHUOC 3
THI XA BEN CAT
VIETNAM
PHONE: (84) 08-3822-7684

