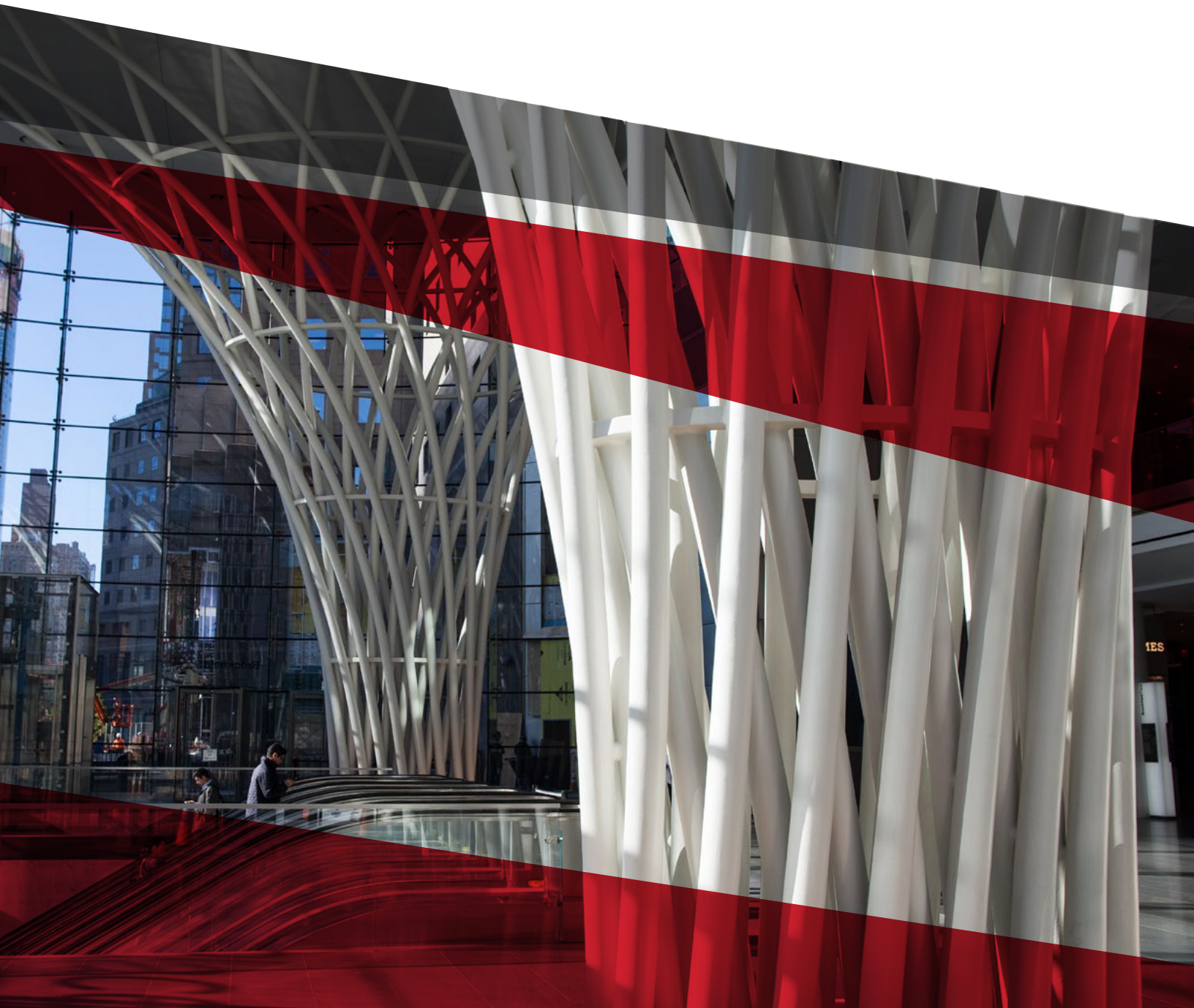
carboline®
Coatings - Linings - Fireproofing

Commercial fireproofing

Superior fire protection for commercial applications



Fire protection solutions for any specification

Carboline offers a comprehensive portfolio of sprayed fire resistive materials (SFRMs) and intumescent fire resistive materials (IFRMs) that meet or exceed any performance criteria for commercial, multi-unit residential, or mixed-use occupancies.

Plenum areas / mechanical rooms
- Southwest series
- Thermo-Sorb series
- Firefilm series
- Thermo-Lag E100

Atriums / glass curtain walls
- Thermo-Sorb series
- Firefilm series
- Thermo-Lag E100

Floor / deck assembly
- Southwest series
- Thermo-Sorb series
- Firefilm series
- Thermo-Lag E100

Elevator shafts / stairwells
- Southwest series
- Thermo-Sorb series
- Firefilm series
- Thermo-Lag E100

Roof deck / roof assembly
- Southwest series

Interior concealed structural steel
- Southwest series

Parking garages
- Southwest series
- Thermo-Lag E100

Interior exposed structural steel
- Southwest series
- Thermo-Sorb series
- Firefilm series
- Thermo-Lag E100

Carboline's passive fire protection (PFP) materials offer proven fire protection in commercial applications. The industry's most flexible and best-performing portfolio of cementitious and intumescent materials protect people, structures, and construction timelines and budgets.

Certifications

Our PFP materials have been thoroughly tested and qualified to meet the most rigorous fire protection and performance standards from world-class organizations such as:

Affiliations

Leadership in Energy Efficient Design (LEED)

Carboline is committed to developing fireproofing materials that contribute toward the design and construction of sustainable structures. Our commercial fireproofing products meet the most recent LEED requirements as well as local, regional and national environmental regulations. Carboline products earn points under the LEED Green Building Rating System in the following categories:

LEED credit contributions			
Category	**LEED credits**	**Points**	**Carboline products**
Energy and Atmosphere	Optimize Energy Performance	1-18 points	Southwest Type 5™ series Southwest Type 7™ series Southwest Type DK 3™ Pyrocrete series
Materials and Resources	Construction & Demolition Waste Management	1-2 points	Southwest Type 5 series Southwest Type 7 series Southwest Type DK 3 Pyrocrete series TC-55 Sealer Firefilm series Thermo-Sorb series Thermo-Lag series
	Sourcing of Raw Materials	1-2 points	Southwest Type 5 series Southwest Type 7 series Southwest Type DK 3 Pyrocrete series TC-55 Sealer Firefilm series Thermo-Sorb series Thermo-Lag series
	Material Ingredients	1-2 points	Southwest Type 5 series Southwest Type 7 series Southwest Type DK 3 Pyrocrete series TC-55 Sealer Firefilm series Thermo-Sorb series Thermo-Lag series
Indoor Environmental Quality	Low-Emitting Materials	1-3 points	TC-55 Sealer Firefilm series Thermo-Sorb VOC Thermo-Lag series

Extensive testing & certification

Our Southwest Fireproofing™, Pyrocrete®, Firefilm®, Thermo-Sorb®, and Thermo-Lag® series 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 third-party certification ensures that our products meet the fire performance and environmental requirements of commercial and light industrial assets.

Fire testing & certification

Carboline's commercial fireproofing products have been certified to the following industry-accepted fire test standards:

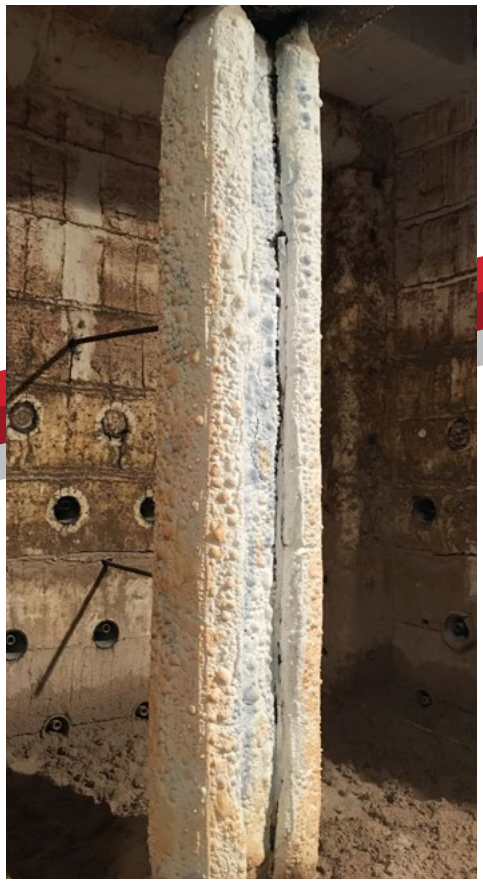
- ANSI/UL 263 cellulosic fire
- ASTM E119 cellulosic fire
- NFPA 251 cellulosic fire
- CAN/ULC S101 cellulosic fire
- UL 1709 hydrocarbon fire
- ISO 22899-1 hydrocarbon jet fire

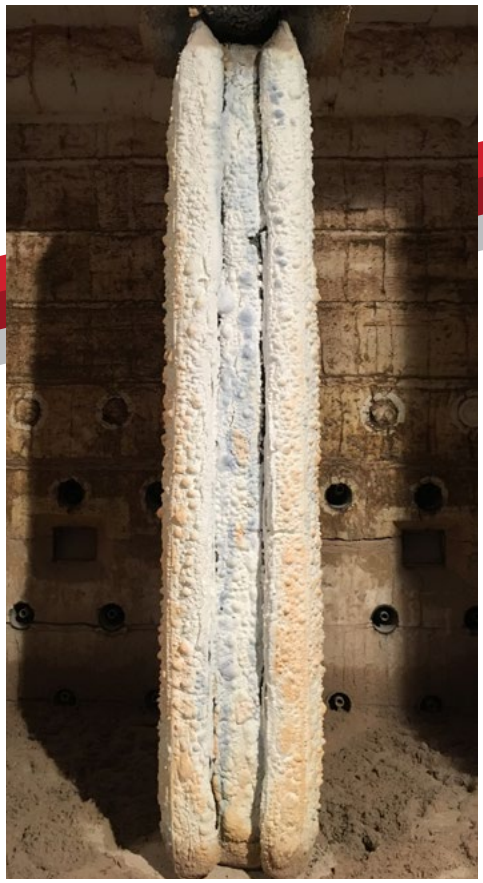
Environmental testing & certification

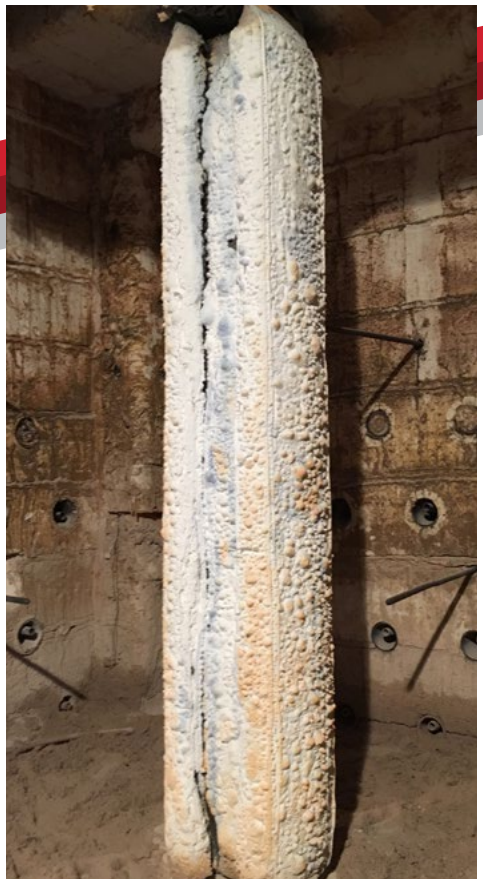
In addition to the fire test protocols, all Carboline commercial fireproofing products have been tested and certified to the UL Environmental Program to simulate real-world exposures:

- Greenhouse gas emissions (CO_2, SO_2, etc.)
- 100% humidity
- Wet, freeze, and 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.





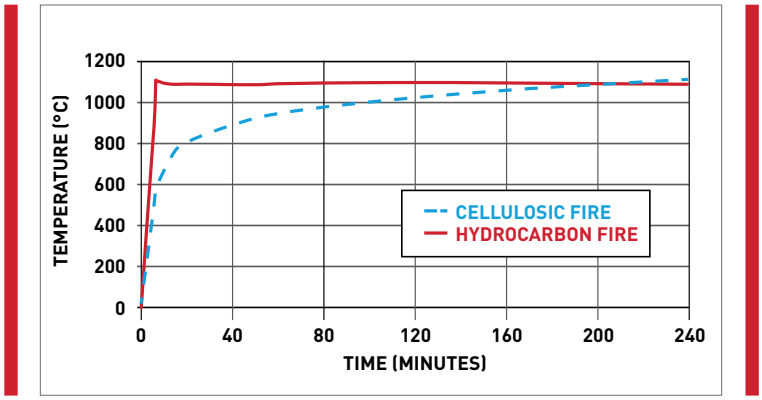


Fire loads have evolved

Mass adoption of synthetic building materials in residential and commercial spaces means that fires burn hotter, they reach maximum temperatures faster, they are harder to fight, and release more toxic smoke.

Risks mount in dense urban areas where new construction must support structured parking plus mixed-use occupancies within one envelope. And they multiply as the transition to electric vehicles and grid-scale energy storage system outpaces our ability to understand and mitigate thermal runaways.

And yet, the fire testing methods that inform today's building codes are based on cellulosic fire curves first introduced over 120 years ago.



Development of a typical cellulosic fire, which consumes mostly natural materials like wood, fabrics, or paper. Material thermal response testing methods still used today rely on cellulosic fire curves substantially unchanged since 1903.

Hydrocarbon fires, such as in an oil refinery or chemical plant, develop faster and reach higher temperatures. Owing to synthetic building materials and furnishings, fires in modern occupied spaces develop more like this.

Read the full guide to learn more.

Guide to modern fire loads: A call for improved residential and commercial passive fire protection standards

Is it time to debate whether cellulosic test standards are still adequate? Recent catastrophic fires show that debate is already settled. But viable alternatives to obsolete cellulosic fire curves already exist.

Low- and medium-density cementitious fireproofing

Carboline's Southwest series cementitious SFRM products offer high-performance, cost-effective fire protection solutions for both concealed and exposed steel structures. They are widely applicable for residential, commercial, institutional, or mixed-use construction.

Southwest Type 5GP™ is a 15 pcf (240 kg/m^3) commercial density fireproofing with excellent application characteristics. Provides fire protection for interior columns, beams, joists and floor/roof assemblies.

Southwest Type 5MD™ is a 15-22 pcf (240-352 kg/m^3) medium density fireproofing with high physical performance and durability. Formulated to meet current IBC high-rise bond strength requirements.

Southwest Type 5AR™ is a 15 pcf (240 kg/m^3) 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™ is a 22 pcf (352 kg/m^3) 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™ is a 40 pcf (640 kg/m^3) high density fireproofing formulated for high damage resistance in areas with prolonged exposure to physical abuse, moisture, and high humidity.

Higher-density materials for ultimate protection

Higher-density, more durable fireproofing materials are necessary in some residential, commercial, institutional, or mixed-use spaces to mitigate risks of more intense fire loads.

Carboline's medium- and high-density Pyrocrete series Portland cement-based products are rated for interior or exterior exposures. They are commonly found in attached or subsurface structured parking where the presence of vehicles poses an enhanced risk of fires that can intensify rapidly.

Pyrocrete 40 is a 40 pcf (640 kg/m^3) high density fireproofing for exterior or interior environments where superior physical performance is required.

Pyrocrete 239 is a medium density fireproofing 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 is a 55 pcf (881 kg/m^3) 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/m³)	15-22 pcf (240-352 kg/m³)	22 pcf (352 kg/m³)	40 pcf (640 kg/m³)	28 pcf (448 kg/m³)	40 pcf (640 kg/m³)	55 pcf (881 kg/m³)
Type	Gypsum	Gypsum	Cement	Cement	Cement	Cement	Cement
Environment	Interior	Interior	Interior	Interior	Exterior / Interior	Exterior / Interior	Exterior / Interior
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 47-story **Cira Centre** skyscraper in Philadelphia, PA, stands 730 feet tall and includes office space, retail and residential units. Its upper floors contain 268 luxury apartments and extended-stay suites with panoramic views of the city skyline.

Carboline's Southwest Type 5MD gypsum-based cementitious fireproofing 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 resistive coatings

IFRMs from Carboline 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.

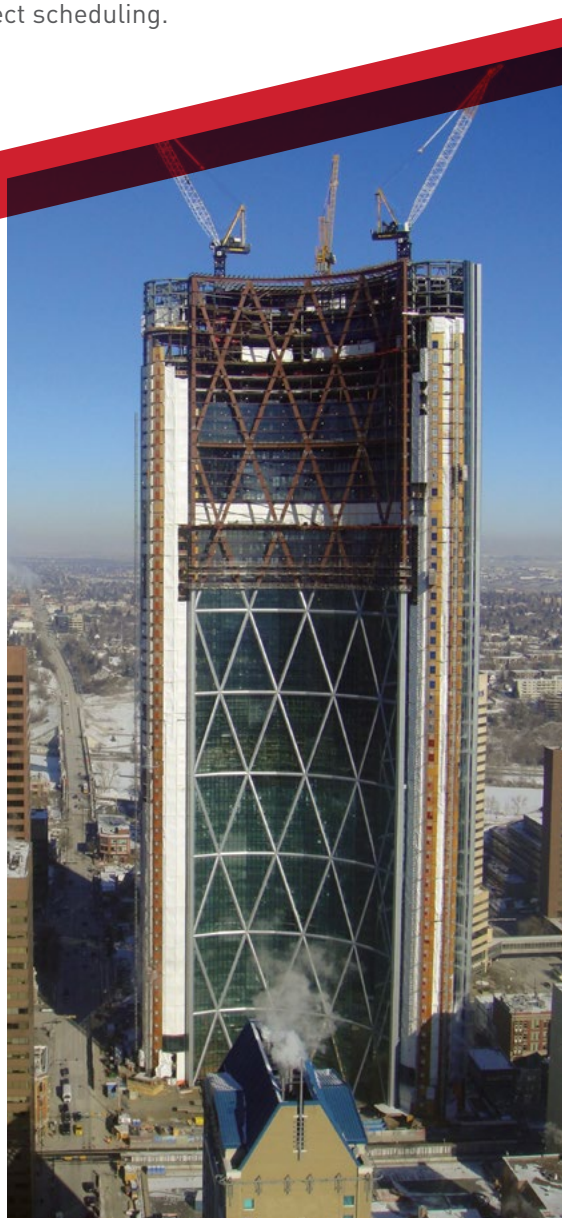
Firefilm III is an interior-rated, water-based, thin-film intumescent material that provides the smoothest aesthetic finish in the industry.

Firefilm IV is an interior-rated, water-based intumescent offering high-end aesthetics in a thinner film with faster recoat times.

Thermo-Sorb VOC is an interior-rated, low-VOC, solvent-based, thin-film intumescent developed to meet VOC and LEED requirements. It can be applied in semi-exposed, high-humidity environments and is less sensitive to inclement weather and lower temperatures.

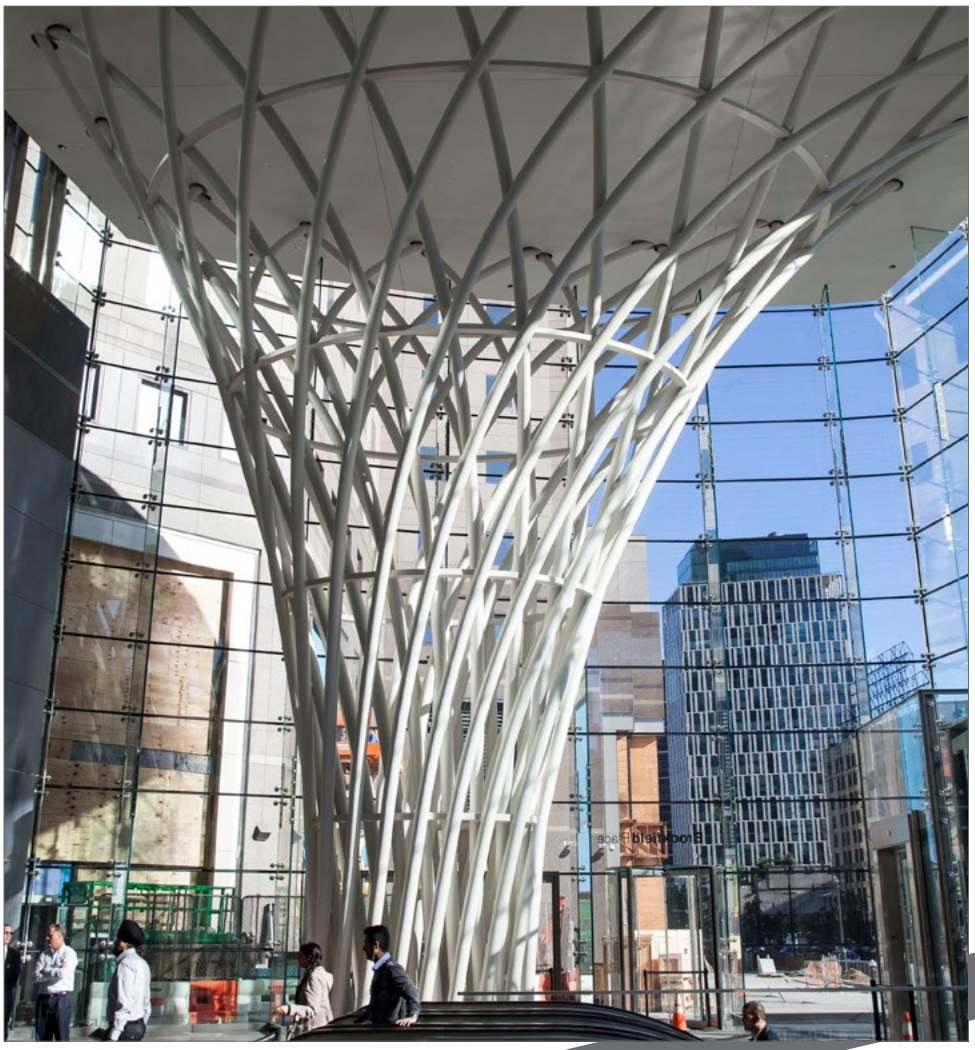
Thermo-Sorb 263 is an interior-rated, low-VOC, solvent-based, thin-film intumescent developed to meet VOC and LEED requirements. It provides a smooth aesthetic finish, can be applied in semi-exposed, high-humidity environments, and is less sensitive to inclement weather and lower temperatures.

Thermo-Lag E100 is an 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

	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
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 New York City, NY, adjacent to the World Trade Center. This was a very unique application to a tree-like support structure constructed 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.

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RIGHT PEOPLE · RIGHT PRODUCTS · RIGHT LOCATIONS

Exceptional products.
Superior technical guidance.

Advancing a more durable, resilient, and sustainable built environment since 1947.

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 are strategically located around the world to provide the highest level of service and support for your project.

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