



Fireproofing

Fire Protection Coatings that meet UL, ASTM, NFPA, ANSI & UNE Standards

Compliance



Why Protect Steel from Fire?

Steel retains approximately 50% of its strength when it reaches 1100°F (600°C). Temperatures during fires can be much hotter - a standard fire test reaches 1300°F (704°C) in the first 10 minutes. If left unprotected, the structure may collapse when exposed to fire.

Building codes require certain beam, column, floor, wall and roof assemblies to have fire resistance ratings which are determined on the basis of standard fire tests. Fire resistance ratings can be accomplished with the application of sprayed fire resistive materials (fireproofing) to those assemblies.



How to select the right Fireproofing protection

Step 1 Select the structure to protect

Use the following table to select the Most appropriate classification for your project

Architectural

- A** = Atrium/Steel
- B** = Elevator Shaft/Stairwell
- C** = Support Structural Steel
- D** = Roof Truss
- E** = Floor/Beam Assembly
- F** = Parking Garage
- G** = Arenas/Mechanical Room
- H** = Drop Ceiling



Industrial

- I** = Tank
- J** = Tank Support Skid
- K** = Electrical Raceway
- L** = Pipe Rack
- M** = Structural Support



Step 2 Select the performance requirement

Use the following table to select how durable you want Your coating system to be. The higher the durability, the longer the time to first major maintenance

Fire Rating

- 1** = Up to 2 hrs Fire Rating
- 2** = Up to 3 hrs Fire Rating
- 3** = Up to 4 hrs Fire Rating



Fire can reach very high temperature

Exposure

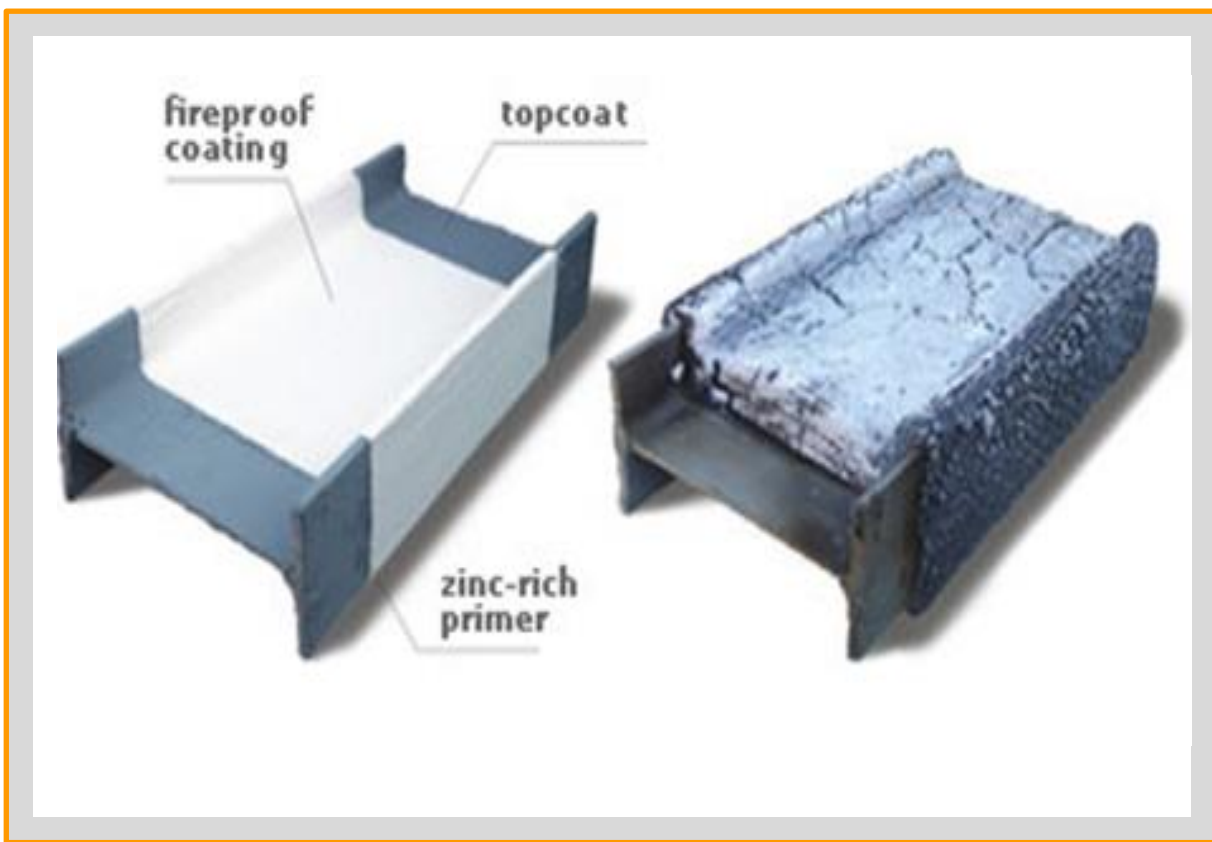
- 4** = Internal Steelwork
- 5** = External Steelwork
- 6** = High Humidity
- 7** = Semi-External Steelwork
- 8** = Steel Exposed to View
- 9** = Steel Hidden from View
- 10** = Highly Decorative Finish
- 11** = Non-Dusting Finish
- 12** = Impact Resistant
- 13** = Suitable for Shop Application
- 14** = Acoustic Requirement



Columns protected according a standard ASTM E119 (UL263)



Intumescent fireproof coating application



Fireproof coating system before and after fire exposure



Columns protected with industrial intumescent coating and top coated with fireproof coating

Step 3 Select the international standard to meet

Intumescent Fireproofing Systems allow designers to express the steel structure as an art form in buildings where fire resistance ratings are required. With multiple product choices and a wide spectrum of primers and finishes, specifications can be developed for all building types, project requirements and conditions.

Project planners now have flexibility to create unique exposed steel designs where fire resistance ratings are required, with aesthetically pleasing, durable and cost effective alternatives.

Fire Condition	Cellulosic (Standard Time Temperature)	Hydrocarbon (Pool)	Jet Fire (Torch Fire)
Max. Temperature	925°C (1697°F)	1100 °C (2012°F)	1100 → 1400 °C (2000 to 2500°F)
Heat Flux	100 kW/m ²	225 kW/m ²	300 kW/m ²
Fire Test Standard	- ASTM E119 - UL263 - BS 476	- UL1709 - ISO 834 Hydrocarbon - BS476 App. D (Hydrocarbon)	- Large Scale - OTI 95 634 (Medium Scale)
Rate of Heat Rise	Slow	Rapid	Instantaneous
Nature of Fire	Benign	Turbulent	Highly Erosive

Step 4 Select the Fireproofing Product



The collapse temperature of the steel is 538°C for vertical, and 446°C for horizontal structures. At these temperatures, the steel structures lose its mechanical strength properties. A cellulosic fire, steel reaches this temperature in 5 minutes. Intumescent paint film chemically and physically decomposes at approximately 250°C, resulting in a fireproof barrier thermal insulating foam, with 20 to 30 times its original thickness, which for its low thermal conductivity, heat propagation delays of existing fire. The intumescent effect duration will depend on the type and thickness of the layers of intumescent paint applied. This can reach 2, 3 y 4 hours, reasonable time to allow adequate evacuation of building occupants

Fire Rating		Ayafire 65 INTU	Ayafire 70/71 INTU	Ayafire 52/50 INTU	Ayafire 67 INTU	Ayafire 100 INTU	Ayafire 70/71 INTU	Ayafire 67 INTU	Ayafire 100 INTU
1	Up to 2 hrs Fire Rating	•	•	•	•	•	•	•	•
2	Up to 3 hrs Fire Rating	•	•	•	•	•	•	•	•
3	Up to 4 hrs Fire Rating	•	•	•	•	•	•	•	•
4	Internal Steelwork	•	•	•	•	•	•	•	•
5	External Steelwork	•	•	•	•	•	•	•	•
6	High Humidity	•	•	•	•	•	•	•	•
7	Semi-External Steelwork	•	•	•	•	•	•	•	•
8	Steel Exposed to View	•	•	•	•	•	•	•	•
9	Steel Hidden from View	•	•	•	•	•	•	•	•
10	Highly Decorative Finish	•	•	•	•	•	•	•	•
11	Non-Dusting Finish	•	•	•	•	•	•	•	•
12	Impact Resistant	•	•	•	•	•	•	•	•
13	Suitable for Shop Application	•	•	•	•	•	•	•	•
14	Acoustic Requirement	•	•	•	•	•	•	•	•
Performance Requirement		Architectural (A, B, C, D, E, F, G, H)					Industrial (I, J, K, L, M)		



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- Customised testing to meet specific customer and project needs
- Extensive in-house test data
- Independent testing and approvals
- In-field testing and proof of performance track record

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