Carboline and A/D fireproofing systems offer solutions for all types of projects where steel is required to be protected from fire. We have the range and depth of product offering to solve the toughest design challenges facing the industry.
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.

Performance Requirements

<table>
<thead>
<tr>
<th>Performance Requirements</th>
<th>A/D FIREFILM III</th>
<th>THERMO-SORB</th>
<th>Nullfire 5005</th>
<th>Nullfire 5006</th>
<th>THERMO-LAG 3000-A/GA</th>
<th>Type 5GP</th>
<th>Type 5MD</th>
<th>Pyrolite 15</th>
<th>Type 7GP</th>
<th>Type 7HD</th>
<th>Pyrocrete 239</th>
<th>Pyrocrete 40</th>
<th>Pyrocrete 240 High Yield</th>
<th>Pyrocrete 241</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 2 hrs Fire Rating</td>
<td>●●●●●●</td>
<td>●●●●●●●●</td>
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<tr>
<td>Up to 3 hrs Fire Rating</td>
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<tr>
<td>Up to 4 hrs Fire Rating</td>
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<tr>
<td>Internal Steelwork</td>
<td>●●●●●●</td>
<td>●●●●●●●●</td>
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<tr>
<td>External Steelwork</td>
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<td>High Humidity</td>
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<td>Semi-External Steelwork</td>
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<tr>
<td>Steel Exposed to View</td>
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<tr>
<td>Steel Hidden from View</td>
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<td>Highly Decorative Finish</td>
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<tr>
<td>Non-Dusting Finish</td>
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<td>Impact Resistant</td>
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<tr>
<td>Suitable for Shop Application</td>
<td>3●●●●●●</td>
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<tr>
<td>Acoustic Requirement</td>
<td></td>
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</tr>
</tbody>
</table>

1 = Intumescent coatings can be easily repaired if damaged.
2 = Suitable during construction only.
3 = Contact Carboline Fireproofing Technical Service for further information.

Columns exposed to a standard ASTM E119 (UL263) fire exposure
A/D FIREFILM on structural steel
Southwest Fireproofing Type SGP on steel beams & decking

architectural intumescent
industrial intumescent
architectural cementitious
industrial cementitious
Carboline Company, a world leader in industrial fire protection and high performance coatings, and A/D Fire Protection Systems, a world leader in intumescent fire resistive coatings, together offer the most complete fireproofing package available from any single source.

**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

![Diagram of fireproofing areas: Atrium/Steel, Elevator Shaft/Stairwell, Support Structural Steel, Roof Truss, Floor/Beam Assembly, Parking Garage, Arenas/Mechanical Room, Drop Ceiling, Tank, Tank Support Skid, Electrical Raceway, Pipe Rack, Structural Support]

**FIREPROOFING PRODUCT SELECTION KEY**

- Architectural Intumescent
- Architectural Cementitious
- Industrial Cementitious
- Industrial Intumescent

We have a team of trained applicators available to apply the products ensuring a high quality of workmanship. In addition, a helpful and knowledgeable technical staff is always available to help you plan your project, or to answer any questions that you may have.

Just Call Us (In USA: 800-848-4645 - In Canada: 800-263-4087)
A/D FIREFILM III, THERMO-SORB, Nullifire, and THERMO-LAG 3000 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.

**Aesthetics:**
- Thin film
- Virtually unlimited colors
- Painted steel appearance
- Smoothest fire protection finish

**Security:**
- Superior bond strength
- Hammer hard
- High impact resistance
- Abrasion resistance
- High compressive strength

**Functionality:**
- Space saving, smaller column footprints for ease of pedestrian movement
- Lightweight
- Low maintenance
- Water, solvent and epoxy-based available

**Approvals:**
- Extensive approvals - UL, ULC, ITS, FM, MEA, LA
- Fire ratings up to 4 hours
- VOC compliant

### Product Comparison

<table>
<thead>
<tr>
<th></th>
<th>A/D FIREFILM III</th>
<th>THERMO-SORB</th>
<th>Nullifire S605</th>
<th>Nullifire S606</th>
<th>THERMO-LAG 3000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fire Ratings (Columns)</strong></td>
<td>Up to 3 hours</td>
<td>Up to 3 hours</td>
<td>Up to 2 hours</td>
<td>Up to 4 hours</td>
<td>Up to 3 hours</td>
</tr>
<tr>
<td><strong>Fire Rating (Beams)</strong></td>
<td>Up to 2 hours</td>
<td>Up to 2 hours</td>
<td>Up to 2 hours</td>
<td>Up to 4 hours</td>
<td>Up to 3 hours</td>
</tr>
<tr>
<td><strong>Generic Type</strong></td>
<td>Water-Based</td>
<td>Solvent-Based</td>
<td>Solvent-Based</td>
<td>Solvent-Based</td>
<td>Epoxy-Based</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>White</td>
<td>White</td>
<td>Pale Green</td>
<td>Pale Pink</td>
<td>Medium Gray</td>
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<tr>
<td><strong>Hardness (Shore D)</strong></td>
<td>72</td>
<td>72</td>
<td>70</td>
<td>70</td>
<td>55</td>
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<tr>
<td><strong>VOC lbs/gal</strong></td>
<td>.17</td>
<td>2.79</td>
<td>2.44</td>
<td>2.49</td>
<td>.53</td>
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<tr>
<td><strong>Primer Required</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td><strong>Topcoat - Interior</strong></td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
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<tr>
<td><strong>Topcoat - General Purpose</strong></td>
<td>Required</td>
<td>Required</td>
<td>Required</td>
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<td>Required</td>
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<tr>
<td><strong>Topcoat - Conditioned Space</strong></td>
<td>Required</td>
<td>Optional</td>
<td>Optional</td>
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<tr>
<td><strong>Suitable for Exterior Applications</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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</tbody>
</table>

*Topcoats available in wide range of colors.*
## Fire Test Designs and Approvals

<table>
<thead>
<tr>
<th>Steel Member</th>
<th>A/D FIREFILM III</th>
<th>THERMO-SORB</th>
<th>Nullifire S605</th>
<th>Nullifire S606</th>
<th>THERMO-LAG 3000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>W-Shape Columns</strong></td>
<td>UL X639, X641, X643, X645, X669, X670, ULC Z608, Z610, Z612, Z617, Z626, Z627</td>
<td>UL X660</td>
<td>UL X629</td>
<td>UL X632</td>
<td>OPL C 301</td>
</tr>
<tr>
<td><strong>Tube Columns</strong></td>
<td>UL X642, X671, X672, X673, ULC Z611, Z628, Z629, Z630</td>
<td>UL X661</td>
<td>UL X630</td>
<td>UL X633</td>
<td>OPL C 304 NPD</td>
</tr>
<tr>
<td><strong>Pipe Columns</strong></td>
<td>UL X642, X645, X673, ULC Z611, Z617, Z630</td>
<td>UL X662</td>
<td>UL X631</td>
<td>UL X634</td>
<td>OPL C 304 NPD</td>
</tr>
<tr>
<td><strong>Beams</strong></td>
<td>WH AD/FCA 120-01, ULC F906, F910, F912, UL D941, D948</td>
<td>UL N619 &amp; D946</td>
<td>UL N609, D784 &amp; D935</td>
<td>UL N610, D785 &amp; D936</td>
<td>OPL B 303</td>
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<tr>
<td><strong>City of Los Angeles</strong></td>
<td>RR 25440</td>
<td>RR 25484</td>
<td>RR 25464</td>
<td>RR 25464</td>
<td>RR 25484</td>
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<tr>
<td><strong>Factory Mutual</strong></td>
<td>Column Protection Methods 3, 4, &amp; 5, Floor/Ceiling Design FM #31</td>
<td>N/A</td>
<td>Column Protection Methods 11, 12 &amp; 13</td>
<td>Column Protection Methods 11, 12 &amp; 13</td>
<td>3029584</td>
</tr>
</tbody>
</table>

**Notes:**
- UL and ULC standards are used for fire safety approvals.
- OPL and NPD designate specific approval standards.
- The numbers represent the corresponding approval codes.

---

**Images:**
- Walt Disney Concert Hall, Los Angeles, CA
  Architect: Frank Gehry
- Harvard Medical School, New Research Building, Boston, MA
  Architect: Architectural Resources Cambridge
- American Museum of Natural History, NY, NY
  Architect: Kenneth E. Nisch, JGA Inc.
Southwest Fireproofing™ and **Pyrolite®**

*...Listed in Over 150 U.L. Designs*

Southwest Fireproofing Type 5GP, 5MD, 7GP, 7HD, Pyrolite 15, 22 and Pyrocrete 239 are listed in over 150 U.L. Designs, offering the specifier flexibility in design and construction. Follow Up Service for consistent quality in every bag.

**Type 5GP™ and Pyrolite® 15:**
- 15 lb. Low density, cementitious, spray on fireproofing for structural steel columns, beams, joists, floor deck, roof deck and walls.
- Single component, user friendly, good film build and manufactured under strict Quality Standards with U.L.
- Used in a variety of commercial applications including hospitals, schools, parking structures, pharmaceutical plants and other commercial buildings.

**Type 5MD™ & Type 7Gp™ and Pyrolite® 22:**
- 22 lb. Medium density, cementitious, spray on fireproofing for structural steel columns, beams, joists, floor deck, roof deck and walls.
- Single component, user friendly, good film build and manufactured under strict Quality Standards with U.L.
- Used in a variety of commercial applications where a more durable fireproofing is required such as, elevator shafts, mechanical rooms, warehouse areas, parking structures.

**Pyrocrete® 239:**
- 28 lb. Medium density, portland cement base fireproofing can be sprayed or trowelled for protection for structural steel columns, beams, joists, floor deck, roof deck or walls.
- Single component, user friendly, good film build and manufactured under strict ISO 9000 Quality Standards with U.L.
- Used in a variety of commercial applications where a more durable fireproofing is required such as, elevator shafts, mechanical rooms, warehouse areas, parking structures.
- U.L. Exterior Rated - Requires no topcoat
- Factory Mutual Approval for 15 minute protection of urethane foam.
- Excellent Acoustical Ratings - NRC (Noise Reduction Co-efficient) 0.75

**Southwest Fireproofing™ Type 7HD™**
Listed in more then 100 UL Designs. Higher density, harder and stronger than general fireproofing, for those demanding building construction uses that require the physical properties of a high density product, but without the extra requirements of petrochemical environments.

### Product Comparison

<table>
<thead>
<tr>
<th>Property</th>
<th>Type 5GP</th>
<th>Pyrolite 15</th>
<th>Pyrolite 22</th>
<th>Type 5MD</th>
<th>Type 7GP</th>
<th>Type 7HD</th>
<th>Pyrocrete 239</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Density</strong></td>
<td>ASTM E605</td>
<td>15 PCF</td>
<td>15.5 PCF</td>
<td>22 PCF</td>
<td>22-26 PCF</td>
<td>22 PCF</td>
<td>40 PCF</td>
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<tr>
<td><strong>Shore “D” Hardness</strong></td>
<td>ASTM D2240</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>20.1</td>
<td>40</td>
<td>15</td>
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<tr>
<td><strong>Bond Strength</strong></td>
<td>ASTM E736</td>
<td>&gt;200 psf</td>
<td>515/314 psf</td>
<td>653 psf</td>
<td>400 psf</td>
<td>&gt;2000 psf</td>
<td>&gt;6000 psf</td>
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<tr>
<td><strong>Compressive Strength</strong></td>
<td>ASTM E761</td>
<td>2,340 psf</td>
<td>2,232 psf</td>
<td>6,019 psf</td>
<td>16,992 psf</td>
<td>17,136 psf</td>
<td>50,400 psf</td>
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<td><strong>Impact Resistance</strong></td>
<td>ASTM E760</td>
<td>Pass</td>
<td>Pass</td>
<td>Pass</td>
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<td><strong>Deflection</strong></td>
<td>ASTM E759</td>
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<td>Pass</td>
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<td>Pass</td>
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<td><strong>Corrosion</strong></td>
<td>ASTM E937</td>
<td>0.00 g/mm</td>
<td>0.00 g/mm</td>
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<td><strong>Flame Spread</strong></td>
<td>ASTM E84</td>
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<tr>
<td><strong>Smoke Development</strong></td>
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Carboline’s Pyrocrete and THERMO-LAG products offer a level of unparalleled performance in the refinery and petrochemical industries. Pyrocrete 241 has been the industry leader for over 30 years and is the most widely specified fireproofing product in the industry today. Pyrocrete 240 High Yield and Pyrocrete 40 offer the same level of fire resistance at a more competitive price. THERMO-LAG has been an industry leader in the epoxy intumescent market for over 15 years. Pyrocrete and THERMO-LAG products are UL “Exterior Rated”, hard, durable and impact resistant.

UL 1709 TEMPERATURE RISE RATINGS:

**Pyrocrete 241**
- XR701- (contour design) 1-4 hour protection
- XR702- (boxed design) 1-4 hour protection
- Three Bar Overblast Test
- Jet Fire Tested and Certified
- Factory Mutual Approved for 2-hour protection of LP Gas Vessels
- Factory Mutual Structures Test including Hose Stream
- Bulkhead Ratings - Tested by FIRTO
  - Approved by: Det Norske Veritas
  - Approved by: Lloyd’s Register of Shipping

**Pyrocrete 240 High Yield**
- XR716- (contour design) 1-4 hour protection
- XR717- (boxed design) 1-4 hour protection

**Pyrocrete 40**
- XR705- (contour design) 1-4 hour protection
- XR706- (boxed design) 1-4 hour protection
- XR707- (contour / no lath design) 1-4 hour protection

THERMO-LAG products are two-component, epoxy-based intumescent fire resistant coatings. THERMO-LAG products are listed or classified by UL, FM, LRS, DNV, ABS, iBMB and other leading certifying authorities.

**THERMO-LAG 3000⁰** THERMO-LAG 3000 is the most efficient epoxy-based intumescent coating in the market based on UL 1709 and offshore certification.
- XR618 - 1-4 hour protection
- XR620 - 1-2.5 hour protection
- Explosion Testing Available
- Jet Fire Tested and Approved
- LRS, DNV, and ABS Certified
- Offshore - 1-3 hour protection
  - I section columns and beams, tubulars, - H-0, H-60, and H-120
  - bulkheads and underdecks

**THERMO-LAG PRODUCTS INCLUDE:**

- THERMO-LAG 3000 : Hydrocarbon Pool Fire Rated
- THERMO-LAG 3000/3002 : Jet Fire Rated
- THERMO-LAG 440 : Tanks and Spheres
- THERMO-LAG 2000 : Bulkhead Protection

**Product Comparison**

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<tr>
<th>Density</th>
<th>ASTM E605</th>
<th>Pyrocrete 241</th>
<th>Pyrocrete 240HY</th>
<th>Pyrocrete 40</th>
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<td>Shore “D” Hardness</td>
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Together, we offer the specifying community and the specialty applicator:

The Most Products
The Best Technology
The Best Ratings
The Best Appearance
The Best Service
The Best Technical Support

low-risk solutions... for high-risk environments