CAFCO® BLAZE-SHIELD® II is a portland cement based spray-applied fire resistive material (SFRM) designed to provide fire resistive ratings for structural steel and concrete in commercial construction.

Applied directly to deck, steel beams, columns or concrete surfaces, the outstanding value and proven fire resistive performance of BLAZE-SHIELD II make it an excellent choice for concealed commercial environments.

BLAZE-SHIELD II is applied exclusively by CAFCO licensed and trained contractors. Our technical staff works closely with building team members to meet all fire protection needs.

Code Compliances
CAFCO BLAZE-SHIELD II satisfies the requirements of the following:
- IBC—International Building Code
- SBCCI—Southern Building Code Congress International (Report No. 9423E)
- ICBO—International Conference of Building Officials (Report No. 1244)
- BOCA—Building Officials and Code Administrators International
- New York City—MEA
- NBC—National Building Code of Canada, Sections 2.5, 3.1.5, and 3.1.7

Major Specifications
BLAZE-SHIELD II complies with the requirements of the following specifications:
- General Services Administration (GSA): AIA/SC/GSA: 07811
- Department of the Navy NAVFACENGCOM Guide Specification NFGS 07810, Sprayed-On Fireproofing
- Veterans Administration (VA): H-08-1
- U.S. ARMY Corps of Engineers. CEGS-07811
- U.S. Environmental Protection Agency (EPA): Regulation 40
- Construction Specification Canada (CSC) TEK-AID

Fire Test Performance
CAFCO BLAZE-SHIELD II has been extensively tested for fire endurance by Underwriters Laboratories, Inc. (UL) and Underwriters Laboratories of Canada (ULC) in accordance with ASTM E119 (UL 263, CAN/ULC-S101).

These tests have resulted in ratings of up to 4 hours for:
- Floor Assemblies
- Beams
- Joists
- Columns
- Roof Assemblies
- Walls and Partitions

BLAZE-SHIELD II has also been tested in accordance with ASTM E84 and CAN/ULC-S102 and has the following Surface Burning Characteristics:
- Flame Spread ............... 0
- Smoke Developed .......... 0

Thermal Properties
The unique formulation of CAFCO® BLAZE-SHIELD® II makes it a very effective thermal insulator. This benefit is important in reducing heat loss, particularly when applied to the underside of a roof deck. The R-value added by BLAZE-SHIELD II may allow a reduction in roof insulation.

Air Erosion Resistance

<table>
<thead>
<tr>
<th>Product</th>
<th>Conductivity (k)*</th>
<th>Resistance (R/inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLAZE-SHIELD II</td>
<td>0.30 BTU in/hr ft °F @ 75°F (0.043 W/mK @ 24°C)</td>
<td>3.33</td>
</tr>
</tbody>
</table>

*When tested in accordance with ASTM C518

Acoustical Properties
As an efficient sound-absorbing material, BLAZE-SHIELD II adds value to the fire protection application in areas where high-noise levels are anticipated. Typical acoustical performance is as follows:

<table>
<thead>
<tr>
<th>Product</th>
<th>Thickness</th>
<th>Base</th>
<th>NRC Rating*</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLAZE-SHIELD II</td>
<td>1/2 inch</td>
<td>Deck &amp; Beam</td>
<td>0.75</td>
</tr>
<tr>
<td>BLAZE-SHIELD II</td>
<td>1 inch</td>
<td>Solid</td>
<td>0.75</td>
</tr>
</tbody>
</table>

*When tested in accordance with ASTM C423

Physical Performance

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>AST Method</th>
<th>Standard Performance*</th>
<th>Tested Performance**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>E605</td>
<td>15 pcf (240 kg/m³)</td>
<td>16 pcf (256 kg/m³)</td>
</tr>
<tr>
<td>Combusitibility</td>
<td>E136</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>Cohesion/Adhesion</td>
<td>E736</td>
<td>150 psf (7.2 kPa)</td>
<td>360 psf (17.2 kPa)</td>
</tr>
<tr>
<td>Deflection</td>
<td>E750</td>
<td>No Cracks or Delaminations</td>
<td>No Cracks or Delaminations</td>
</tr>
<tr>
<td>Bond Impact</td>
<td>E760</td>
<td>No Cracks or Delaminations</td>
<td>No Cracks or Delaminations</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>E761</td>
<td>750 psf (35.9 kPa)</td>
<td>2,380 psf (114 kPa)</td>
</tr>
<tr>
<td>Air Erosion Resistance</td>
<td>E850</td>
<td>Less than 0.025 g/m² (0.27 g/m²)</td>
<td>0.000 g/m² (0.000 g/m²)</td>
</tr>
<tr>
<td>Corrosion Resistance</td>
<td>E937, MIL. Std. 810</td>
<td>Does Not Promote Corrosion of Steel</td>
<td>Does Not Promote Corrosion of Steel</td>
</tr>
<tr>
<td>Sound Absorption</td>
<td>C423</td>
<td>0.75 NRC, 1/2&quot; (13mm) onto deck and beam</td>
<td></td>
</tr>
</tbody>
</table>

* Standard performance based on General Services Administration AIA/SC/GSA:07811 except for density, which is based on UL. Refer to UL design for density requirement.

** Values represent independent laboratory tests under controlled conditions.
PART 1 – GENERAL

1.1 Work Included

1.1.1 Provide all labor, materials, equipment and services necessary for, and incidental to, the complete and proper installation of all spray-applied fire resistive material and related work as shown on the drawings or where specified herein, and in accordance with all applicable requirements of the Contract Documents.

1.1.2 The material and installation shall conform to the requirements of the building code requirements and the requirements of all authorities having jurisdiction.

1.2 Workmanship

1.2.1 Work shall be performed by a firm with expertise in the installation of fire resistive materials. This firm shall be licensed or otherwise approved by the spray-applied fire resistive material manufacturer.

1.2.2 Before proceeding with the fire protection work, approval of the proposed material thicknesses and densities shall be obtained from the architect and other applicable authorities having jurisdiction.

1.3 Related Sections

1.3.1 Section 05100 – Structural Steel.

1.3.2 Section 05300 – Metal Decking.

1.3.3 Section 07812 – Intumescent Coatings.

1.3.4 Section 09200 – Lath and Plaster.

1.3.5 Section 09900 – Painting.

1.3.6 Section 09200 – Lath and Plaster.

1.3.7 Section 09900 – Painting.

1.4 References

1.4.1 Underwriters Laboratories, Inc. (UL) Fire Protection.

1.4.2 Underwriters Laboratories of Canada (ULC) List of Approved Materials.

1.4.3 Uniform Building Code Standard No. 7-6 (current edition).


1.5 Submittals

1.5.1 Manufacturer’s Data. Submit manufacturer’s specifications, including certification as may be required to show material compliance with Contract Documents.

1.5.2 Test Data. Independent laboratory test results shall be submitted for all specified performance criteria.

1.6 Delivery, Storage and Handling

1.6.1 Deliver materials to the project in manufacturer’s unpacked packages, fully identified as to trade name, type and other identifying data. Packaging shall be provided by and U/L UC labels for fire hazards and fire-rates classifications.

1.6.2 Store materials above ground, in a dry location, protected from the weather. Damaged packages found unsuitable for use should be rejected and removed from the project.

1.7 Project Conditions

1.7.1 When the prevailing outdoor temperature at the building is less than 40°F (4°C), a minimum substrate and ambient temperature of 40°F (4°C) shall be maintained prior to, during, and a minimum of 24 hours after application of spray-applied fire resistant material. If necessary for job progress, General Contractor shall provide enclosures with heat to maintain temperatures.

1.7.2 General Contractor shall provide ventilation to allow proper drying of the spray-applied fire resistant material during and subsequent to its application.

1.7.3 Conditions of hydration shall not be less than 4 complete air changes per hour.

1.8 Sequencing/Scheduling

1.8.1 All fire protection work on a floor shall be completed before proceeding to the next floor.

1.9 The Contractor shall cooperate in the coordination and scheduling of fire protection work to avoid delays in job progress.

PART 2 – PRODUCTS

2.1 Acceptable Manufacturers. The spray-applied fire resistive material shall be manufactured under the CAFCO® brand name, by authorized producers.

2.2 Materials

2.2.1 Materials shall be BLAZE-SHIELD® II, an A1, B, or S1 designation. Type II applied to conform to the drawings, specifications and following test criteria.

2.2.2 Deflection: When tested in accordance with ASTM E780, the material shall not crack or delaminate when the concrete topping mechanically tested to which it is applied is subjected to a one time vertical centred loading resulting in a downward deflection of 1/100th of the span.

2.2.3 Bond Impact: When tested in accordance with ASTM E780, the material shall not crack or delaminate from the concrete topping mechanically tested to which it is applied.

2.2.4 Cohesion/Adhesion (bond strength): When tested in accordance with ASTM E780, the material shall not crack or delaminate from the concrete topping mechanically tested to which it is applied. The test shall be in accordance with the procedures of UL 263 (ASTM E119) or Underwriters Laboratories of Canada (ULC) in accordance with the UL 263 (ASTM E119) or CAN/ULC-S101.

2.2.5 Composite Strength: When tested in accordance with ASTM E780, the material shall not deform more than 5% when subjected to a crushing force of 750 psi (52.9 kPa).

2.2.6 Combustion Resistance: When tested in accordance with ASTM E907, the material shall not promote combustion when exposed to a flame size, as follows:

- The material shall not provide an average bond strength of 150 psi (101.2 kPa).
- The material shall meet the minimum individual and average density values as listed in the appropriate UL, U/LC design or as required by the authority having jurisdiction.

2.2.7 The material shall have been tested and classified by Underwriters Laboratories, Inc. (UL) or Underwriters Laboratories of Canada (ULC) in accordance with the procedures of UL 283 (ASTM E119) or CAN/ULC-S101.

2.2.8 Spray-applied fire resistive materials shall be applied at the approved minimum thickness and density to achieve the following ratings:

- Floor assemblies __hr.
- Roof assemblies __hr.
- Beams __hr.
- Columns __hr.
- Joists __hr.
- Cantilevers __hr.
- Unistrut __hr.

2.2.9 Watertight shall be used for the application of spray-applied fire resistive materials.

2.2.10 Spray-applied fire resistive materials shall be free of all forms of asbestos, including amosite, crocidolite, and tremolite.

2.2.11 Material manufacturer shall provide certification of such upon request.

PART 3 – EXECUTION

3.1 Preparation

3.1.1 All surfaces to receive fire protection shall be free of oil, grease, lime mill scale, dirt, paint or any other materials which would impair satisfactory bonding to the surface. Manufacturer shall be contacted for procedures on handling primed/sealed steel. Any cleaning of surfaces to receive spray-applied fire-resistant material shall be the responsibility of the General Contractor or Steel Erector, as outlined in the structural steel or steel deck section.

3.1.2 Cuts, gouges, supports, sleeves and other attachments to the substrate shall be prepared by the manufacturer prior to the application of spray-applied fire resistive material.

3.1.3 The installation of ducts, piping, conduit or other suspended equipment shall not take place until the application of spray-applied fire resistive material is complete in an area.

3.1.4 The spray-applied fire resistive material shall only be applied to steel deck which has been fabricated and erected in accordance with the criteria set by the Steel Deck Institute.

For Further Information

CAFCO® Spray-Applied Fire Resistive Materials are available to trained, licensed contractors around the world from strategically located production and distribution points in the U.S., Canada, Mexico, Europe and the Pacific Basin.

For more detailed product information, visit our website at www.cafo.com or contact us at CAFCO@isolatek.com

The performance data herein reflect our expectations based on tests conducted in accordance with recognized standard methods under controlled conditions. The sale of these products shall be subject to the Terms and Conditions of Sale set forth in the Company’s invoices. Isolatek International is not responsible for property damage, bodily injuries, consequential damages or losses of any kind that arise from or are related to the applicant’s, general contractor’s, owner’s failure to recommend the formulations set forth in Isolatek International’s publications.

CAFCO® BOND-SEAL® Fire Resistant adhesive shall be applied as per the appropriate UL/U/LC fire resistance design and manufacturer’s written recommendations.

3.3 Repairing and Cleaning

3.3.1 All patching of and repair to spray-applied fire resistive material, due to damage by other trades, shall be performed under this section and paid for by the trade responsible for the damage.

3.3.2 After the completion of the work in this section, equipment shall be removed and all surfaces not to be sprayed shall be cleaned to the extent previously agreed to by the applicant and General Contractor.

3.4 Inspection and Testing


Product Availability

CAFCO® Spray-Applied Fire Resistive Materials are available to trained, licensed contractors around the world from strategically located production and distribution points in the U.S., Canada, Mexico, Europe and the Pacific Basin.