PRODUCT DESCRIPTION
CAFCO 300 / ISOLATEK Type 300 is a durable, gypsum based, wet mix, commercial density Spray-Applied Fire Resistive Material (SFRM) designed to provide fire protection to concealed floor and roof assemblies, steel beams, columns, and joists in building construction projects.

In addition to fire resistance, CAFCO 300 / ISOLATEK Type 300 also provides thermal benefits. As a thermal insulator, it is effective in reducing heat loss, particularly when applied to the underside of a roof deck. The R-value added by CAFCO 300 / ISOLATEK Type 300 may also allow a reduction in roof insulation.

CAFCO 300 / ISOLATEK Type 300 is very cost effective; requiring less material to achieve required fire ratings and offers the best fire resistance performance per unit thickness in its class.

PRODUCT ADVANTAGES
• Best fire ratings-minimal thickness
• Lightweight gypsum based material is easy to apply
• Provides additional value as a thermal insulator

Thermal Performance

<table>
<thead>
<tr>
<th>Product</th>
<th>Conductivity(k)*</th>
<th>Resistance (R/inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAFCO 300</td>
<td>0.54 BTU in/hr ft²°F @ 75°F (0.078 W/m•K @ 24°C)</td>
<td>1.85</td>
</tr>
<tr>
<td>ISOLATEK Type 300</td>
<td>1.85</td>
<td></td>
</tr>
</tbody>
</table>

*When tested in accordance with ASTM C518

Physical Performance

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>ASTM Method</th>
<th>Industry Standard Performance*</th>
<th>Laboratory Tested Performance**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>E605</td>
<td>15 pcfd (240 kg/m²)</td>
<td>15 pcfd (240 kg/m²)</td>
</tr>
<tr>
<td>Combustibility</td>
<td>E136</td>
<td>Noncombustible</td>
<td>Noncombustible</td>
</tr>
<tr>
<td>Cone Calorimeter</td>
<td>E1354</td>
<td>No Flaming or Heat Release</td>
<td>No Flaming or Heat Release</td>
</tr>
<tr>
<td>Cohesion/Adhesion</td>
<td>E736</td>
<td>150 psf (7.2 kPa)</td>
<td>406 psf (19.4 kPa)</td>
</tr>
<tr>
<td>Deflection</td>
<td>E759</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>1.440 psf (88.9 kPa)</td>
<td>3.311 psf (158.5 kPa)</td>
</tr>
<tr>
<td>Air Erosion Resistance</td>
<td>E859</td>
<td>Less than 0.025 g/ft² (0.27 g/m²)</td>
<td>0.000 g/ft² (0.000 g/m²)</td>
</tr>
<tr>
<td>Corrosion Resistance</td>
<td>E937</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>0.50 NRC 1&quot; (25 mm) on deck and beam</td>
<td>Passed</td>
</tr>
<tr>
<td>Fungal Resistance</td>
<td>G21</td>
<td>No Growth After 28 Days</td>
<td>Passed</td>
</tr>
</tbody>
</table>

* Standard performance based on MasterSpec®, Section 078100 APPLIED FIREPROOFING. Refer to UL design for density requirement.
** Values represent independent laboratory tests under controlled conditions.

FIRE TEST PERFORMANCE
CAFCO 300 / ISOLATEK Type 300 has been extensively tested for fire resistance and is rated for up to 4 hours for floor assemblies, beams, joists, columns, and roof assemblies.
• Classified by UL in accordance with ANSI/UL 263 (ASTM E119)
• Classified by UL in accordance with CAN/ULC-S101 (ASTM E119)
• Tested in accordance with BS 476 Parts 20 & 21 (Assessed in accordance with 5th Edition ASFP Yellow Book)
• Tested in accordance with EN13381 Parts 1, 3, 4 & 5
• Assessed in accordance with AS1530.4 : 2014 / AS4100 : 1998 (R2016) Amendment 1

CAFCO 300 has also been tested for surface burning characteristics in accordance with ASTM E84 and is rated Class A.
  Flame Spread ....0  Smoke Developed ......0

CODE COMPLIANCES
CAFCO 300 / ISOLATEK Type 300 satisfies the requirements of the following:
• IBC® - INTERNATIONAL BUILDING CODE®
• City of Los Angeles (LADBS, Category 1 Material)
• NBC - National Building Code of Canada
• ICC-ES, AC23 and AC10 Requirements (UL ER13348-01)

MAJOR SPECIFICATIONS
CAFCO 300 / ISOLATEK Type 300 complies with the requirements of the following specifications:
• MasterSpec®, Section 078100 - APPLIED FIREPROOFING (AIA)
• MasterFormat® 2014, Section 07 81 00 Applied Fireproofing (CSC,CSI)
• United Facilities Guide Specification, UFGS 07 81 00
  Spray-Applied Fireproofing (USACE, NAVFAC, AFCEC, NASA)
• Master Construction Specifications, Number 07 81 00
  Applied Fireproofing (VA)
• Code of Federal Regulations, Title 40: Protection of the Environment (EPA)
• PBS-P100 Facilities Standards for the Public Buildings Services (GSA)
• Factory Mutual Approved
PART 1 – GENERAL

1. Work included

1.1 Provide all labor, materials, equipment and services necessary for, and incidental to, the complete and proper installation of all sprayed fire protection and related work as shown on the drawings or where specified herein, and in accordance with all applicable requirements of the Contract Documents

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

1.3 Quality Assurance

1.3.1 A work shall be performed by a firm with expertise in the inspection of the fire protection or similar materials. This firm shall be recognized or otherwise approved by the spray-applied fire resistive material manufacturer.

1.3.2 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.

1.3.3 Related Sections

1.3.3.1 SECTION 09200 – STRUCTURAL STEEL FRAMING

1.3.3.2 SECTION 033101 – THERMAL INSULATION

1.3.3.3 SECTION 071223 – JOINT FIRESTOPPING

1.3.4 References

1.4.1 ASTM E 54 – Surface Burning Characteristics of Building Materials.


1.4.3 ASTM E 880 – Thickness and Density of Sprayed Fire-Resistive Materials Applied to Structural Members.

1.4.4 ASTM E 769: Cohesion/Adhesion of Spray Applied Fire-Resistive Materials Applied to Structural Members.

1.4.5 ASTM E 899 – Air Erosion of Sprayed Fire-Resistive Materials Applied to Structural Members.

1.4.6 ASTM E 937: Corrosion of Steel by Sprayed Fire-Resistive Materials Applied to Structural Members.


1.4.8 Underwriters Laboratories (UL) Fire Resistance Directory.

1.4.9 Underwriters Laboratories of Canada (ULC) List of Equipment and Materials.

1.4.10 IBC® INTERNATIONAL BUILDING CODE® CHAPTER 17 STRUCTURAL TESTS AND SPECIAL INSPECTIONS. Section 1705 Special Inspections.


1.4.12 Submittals

1.4.12.1 Manufacturer’s Data: Submit Manufacturer’s specifications, including certification as may be required to show material compliance with Contract requirements.

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

1.4.13 Delivery, Storage and Handling

1.4.13.1 Deliver materials to the project in manufacturer’s unopened packages, fully identified as to trade name, type and other identifying data. Packaging shall bear the UL labels for fire hazard and fire-resistance classifications.

1.4.13.2 Store materials above ground, in a dry location, protected from the weather. Damaged packages found unsuitable for use must not be used.

1.4.14 Project Conditions

1.4.14.1 When the prevailing outdoor temperature at the building is less than 20°F (-7°C), a minimum substrate and ambient temperature of 40°F (6°C) shall be maintained prior to, during, and a minimum of 24 hours after application of spray-applied fire resistive material. If necessary for job progress, General Contractor shall provide enclosures and heat to maintain proper temperatures and humidity levels.

1.4.14.2 General Contractor must provide appropriate ventilation to allow proper drying of the sprayed fire resistive material. If necessary for job progress, General Contractor shall provide enclosures and heat to meet proper temperatures and humidity levels.

1.4.15 General Contractor must provide adequate ventilation to allow proper drying of the sprayed fire resistive material. If necessary for job progress, General Contractor shall provide enclosure and heat to maintain proper temperatures and humidity levels.

1.4.16 Ventilation must not be less than 4 complete air exchanges per hour until the material is dry. When spraying in enclosed areas such as basements, stairwells, shafts, and small rooms, additional air exchanges may be necessary.

1.4.17 Sequencing/Scheduling

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

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

PART 2 – PRODUCTS

2.1 Acceptable Manufacturers

2.1.1 The spray-applied fire resistive material shall be manufactured under the CAFCO® / ISOLATEK® brand name, by authorized producers.

2.2 Materials

2.2.1 Materials shall be CAFCO 300, (UL/ULC designation: ISOLATEK Type 300) applied to conform to the drawings, specifications and following test criteria:

2.2.1.1 Deflection: When tested in accordance with ASTM E790, the material shall not crack or delaminate when the non-concrete topped galvanized deck to which the material is applied is subjected to a sine wave vertical centerload resulting in a downward deflection of 1/20th of the span.

2.2.1.2 Bond Impact: When tested in accordance with ASTM E769, the material shall not crack or delaminate from the concrete topped galvanized deck to which it is applied.

2.2.1.3 Cohesion/Adhesion (bond strength): When tested in accordance with ASTM E769, the material applied over uncoated or galvanized steel shall have a minimum bond strength of 150 lbf (724 Pa).

2.2.1.4 Air Erosion: When tested in accordance with ASTM E899, the material shall not be subject to losses from the finished application greater than 0.025 square inch per foot (27 grams per square meter).

2.2.1.5 Compressive Strength: When tested in accordance with ASTM E769, the material shall not deform more than 50 percent when subjected to a crushing force of 1.440 psi (68.9 KPa).

2.2.1.6 Corrosion Resistance: When tested in accordance with ASTM E837, the material shall not promote corrosion of steel.

2.2.1.7 Surface Burning Characteristics: When tested in accordance with ASTM E84, the material shall exhibit the following surface burning characteristics:

- Flame Spread: 0
- Smoke Developed: 0

2.2.1.8 Density: When tested in accordance with ASTM E899, the material shall have the minimum and average density values as listed in the applicable UL/ULC design or as required by the authority having jurisdiction.

2.2.2 The material shall have been tested and classified by Underwriters Laboratories (UL) or Underwriters Laboratories of Canada (ULC) in accordance with the procedures of UL 263 (ASTM E119) or CAN/ULC-S101.

2.2.3 Spray-applied fire resistive materials shall be applied at the appropriate minimum thickness and density as shown in the following ratings:

- Floor assemblies: hr.
- Roof assemblies: hr.
- Beams: hr.
- Girders: hr.
- Columns: hr.

2.2.4 Potable water shall be used for the application of spray-applied fire resistive materials.

2.2.5 Spray-applied fire resistive materials shall contain no detectable asbestos. Material manufacturer shall provide certification of such upon request.

PART 3 – EXECUTION

3.1 Preparation

3.1.1 All surfaces to receive spray-applied fire resistive material shall be free of oil, grease, loose mill scale, dirt, paint/primer or other foreign materials which would impair satisfactory bonding to the surface. Material manufacturer shall be contacted for instructions on handling primed/painted steel. Any cleaning of surfaces to receive sprayed fire protection shall be the responsibility of the General Contractor or Steel Erector, as outlined in the structural steel or steel deck section.

3.2.1 Clips, hangers, supports and other attachments to the substrate are to be placed by others prior to the application of spray-applied fire resistive materials. If necessary for job progress, clips, hangers or other suspended equipment shall not take place until the application of spray-applied fire resistive materials is complete in an area.

3.3.1 Spray-applied fire resistive material shall only be applied to steel deck which has been fabricated and is complete in accordance with the criteria set by the Steel Deck Institute.

3.1.2 When roof traffic is anticipated, as in the case of periodic maintenance, roofing shers shall be installed as a walkway to distribute loads.

3.2 Application

3.2.1 Equipment, mixing and application shall be in accordance with the manufacturer’s written specifications.

3.2.2 The application of spray-applied fire resistive material shall not commence until certification has been received by the Contractor that surfaces that receive spray applied fire protection have been inspected by the inspector and are acceptable to receive spray-applied fire resistive material.

3.2.3 All unsuitable substrates must be identified by the installer and made known to the General Contractor and corrected prior to application of the spray-applied fire resistive material.

3.2.4 Spray-applied fire resistive material shall not be applied to steel floor decks prior to the completion of concrete work on that deck.

3.2.5 The application of spray-applied fire resistive material to the underside of roof deck shall not commence until the roofing is completely installed and tight, all penetrates are complete, all mechanical units have been placed, and after construction roof traffic has ceased.

3.2.6 Proper temperature and ventilation shall be maintained as specified in 1.7.1, 1.7.2. and 1.7.2.1.

3.2.7 Provide masking, drop cloths or other suitable coverings to prevent overspray from coming in contact with surfaces not intended to be sprayed.

3.2.8 CAFCO BOND-SEAL (ISOLATEK Type EB) adhesive shall be applied as per the appropriate UL/ULC fire resistance design and manufacturer’s written recommendations.

3.3 Repairing and Cleaning

3.3.1 All patching of and repair of damaged spray-applied fire resistive material 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 applicator and General Contractor.

3.4 Inspection and Testing

3.4.1 The spray-applied fire resistive material shall be tested for thickness and density in accordance with one of the following procedures:

- IBC® INTERNATIONAL BUILDING CODE® CHAPTER 17 STRUCTURAL TESTS AND SPECIAL INSPECTIONS. Section 1705 Special Inspections.

Product Availability

Isolatek International provides passive fireproofing materials under the CAFCO® and FENDOLITE® trademarks throughout the Americas and under the ISOLATEK® trademark throughout the world.

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