Fireproofing for Small Applications
**Three types of spray fireproofing based on “Exposure” Needs**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>APPLICATION</th>
<th>DENSITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial</td>
<td>Concealed</td>
<td>15 - 19pcf</td>
</tr>
<tr>
<td>Medium</td>
<td>Indirect-Exposed</td>
<td>22 - 25pcf</td>
</tr>
<tr>
<td>High</td>
<td>Exterior-Exposed</td>
<td>39 - 50pcf</td>
</tr>
</tbody>
</table>

Baltimore Convention Center
Dry-Mix Cement Based Material Application*

- Cement-Based Binder
- Recycled Slag Rock/Mineral Wool Matrix
- 100% Inorganic
- 50% - 75% Recycled Content (LEED Credits)
- Conveyed Dry & Water Mixed at the Nozzle
- Utilizes 15% - 40% Less Water
- Single Pass Application
- Designed to Withstand Exterior Weather Conditions Throughout the Construction Cycle

* UL Classified “Investigated for Exterior Use”
Wet-Mix Plaster Based Material Application

• Mechanically Conveyed as a Wet Slurry & Dispersed with Air at the Nozzle
• Gypsum - Based Binder
• Applied in Multiple Passes to Build-Up Thickness
• Gypsum-Based System Set-Times Can Be Accelerated to Allow Fast-Track Applications
• Extended-Set Options Can Eliminate Daily Clean-out
Commercial Density SFRMs (15-19pcf)

* • CAFCO® BLAZE-SHIELD® II, Isolatek International
  • CAFCO® 300™, Isolatek International
  • Monokote MK-6HY, W.R. Grace
  • Monokote MK-6s, W.R. Grace
  • Pyrolite 15, Carboline
  • Type 5, Southwest Vermiculite

* UL Classified “Investigated for Exterior Use”

Baltimore Convention Center
Common Spray-Back / Retrofit SFRMs

* • CAFCO® BLAZE-SHIELD® II, Isolatek International

* • CAFCO® 300 SB, Isolatek International

* • Retro-Guard®, W.R. Grace

Spray-Back or replacement fireproofing needs to be easily identified, and is typically light blue, green or blue-green in color.
Spray-Applied Fire Resistive Materials (SFRMs)

Medium Density SFRMs (22-25pcf)

- Gypsum and/or Cement-Based Binder
- Excellent Physical Property Performance
- Ideal for Indirect/Semi-Exposed Applications
- Can Be Trowel Finished
- Designed to Withstand Exterior Weather Conditions Throughout the Construction Cycle.

Newport Office Center #7 in Jersey City, NJ
**Medium Density SFRMs (22-25pcf)**

* • CAFCO® BLAZE-SHIELD® HP - Isolatek International
  • CAFCO® 400 - Isolatek International
  • Monokote Z-106G - W.R. Grace
  • Monokote Z-106 & Z-106HY - W.R. Grace
  • Pyrolite 22 - Carboline
  • Type 5MD & Type 7GP - Southwest Vermiculite

* UL Classified “Investigated for Exterior Use”

Torre Mayor in Mexico
High/Exposed Density SFRMs (39-50pcf)

- Cement-Based Binder *
- Superior Physical Property Performance
- Ideal for Exterior Applications
- Can Be Trowel Applied & Finished
- Suitable for Hydrocarbon Fire Conditions (See “XR” Series UL Design Listings)

* UL Classified “Investigated for Exterior Use”
High/Exposed Density SFRMs (39-50pcf)

* • CAFCO® FENDOLITE® M-II, Isolatek International
* • Monokote Z146, W.R. Grace
* • Pyrocrete 240HY, 241, Carboline
* • Type 1XR, Southwest Vermiculite

* UL Classified “Investigated for Exterior Use”
The material used for patching is of the same type as the material being patched (or approved equal patch material).

All areas to be patched must be cleaned, down to the substrate, of loose, poorly adhered material including dirt and any other foreign material.

The patch material must be keyed into the material surrounding the patch.

There are size limitations for most “hand-patch” applications.

All manufacturer's application instructions and test laboratory guidelines of the Spray-Applied Fire Resistive Material being used to patch the area must be followed.
Head-of-Wall systems require that the steel beam, joist and deck are of an rating equal to that of the wall in which it is abutting or intersecting.

Example of a gypsum wall abutting the lower flange of a protected steel beam.

D1. Spray-Applied Fire Resistive Material* — After installation of the steel attachment clips (Item 2B), steel floor units and structural steel support to be sprayed with the min thickness of material specified in the individual D700, D600, or D900 Series Design. The flutes of the steel floor units are to be filled with material across the entire top flange of the steel beam. Additional material shall be applied to the web of the steel beam on each side of the wall. For a 1 hr Assembly Rating, the thickness of material applied to each side of the steel beam web shall be 11/16 in. (18 mm). For a 2 hr Assembly Rating, the thickness of material applied to each side of the steel beam web shall be 1-1/2 in. (38 mm).

ISOLATEK INTERNATIONAL — Type 300 or Type II
Head-of-Wall systems require that the steel beam, joist and deck are of an rating equal to that of the wall in which it is abutting or intersecting.

Example of a protected steel member intersecting a rated and sealed gypsum wall. The fireproofed steel beam or joist is a critical component of the assembly.
Small Application Equipment, Patch Pumps (examples)

**Wet-Spray**

**Pro Magnum Mini Sprayer – Rotor Stator Pump**

**Essick Mini Sprayer – Rotor Stator Pump**

- Used only on small/patching projects (1-500 bags)
- Maximum output is approximately 80 bags per day.
- 2L4 or 2L3 Rotor Stators

Price $5,000 – 7,000/unit

**Dry-Spray**

**Contractors Consulting Services, BOSS Patch Pump**

- Small project patch pump
- Ideal for small areas
- 1 bag feed rate

Price $7,500 – 8,900/unit
Rigid Board Fire Resistive Material

- Requires No Heat
- Ideal for Cold Weather Applications
- Mechanically attached via screws, pins, clips, noggin

- Columns
- Floors
- Beams
- Roofs
- Joists
Common Rigid-Board Materials

* • CAFCO-BOARD®, Isolatek International
• DriClad, Albi Fireproofing
Intumescent coatings are applied similar to paint. These coatings are applied in multiple thin coats to a specified thickness.

Can be finish coated to match surroundings.

Expand under fire to form an insulating char layer that protects the structural steel underneath.

Intumescent coatings are ideal when the design calls for exposed structural steel as an aesthetic feature of the building.

One of the largest growing passive fire protection industries.

Typically applied by Specialty Contractors and Painters.
Common Water-Based Intumescent Fire Resistive Materials

- CAFCO® SprayFilm® WB 5
- CAFCO® SprayFilm® WB 4
- CAFCO® SprayFilm® WB 3
- Carboline A/D FireFilm III
- StanChem Albi TF
- Hilti CFP-S WB
- 3M WB1000
THIN-FILM INTUMESCENT COATINGS

Where can you use Intumescent Coatings?
- Wide Flange Beams
- Wide Flange Columns
- Tube Steel Columns
- Hollow Pipe Columns

What are the limitations of Intumescent Coatings?
- Metal Decking
- Steel Joists
- Light Steel
Electric Airless Spray Pump

Pneumatic Pumps

Gas Powered Rig
Install Based on “Exposure” Needs

Roof Deck Fire Protection
- Commercial Density SFRMs
- Rigid-Board Fireproofing

Perimeter Steel Fire Protection
- Commercial Density SFRMs
- Rigid-Board Fireproofing

Interior Exposed Fire Protection
- High Density SFRMs
- Intumescent Coatings
- Rigid-Board Fireproofing

Parking Garage
- High Density SFRMs
- Intumescent Coatings

Aesthetic Fire Protection
- Intumescent Coatings

Mechanical Room
- Medium Density SFRMs
- High Density SFRMs
- Rigid-Board

Renovation/Addition
- Commercial Density SFRMs
- Rigid-Board

Atriums/Lobbies
- Intumescent Coatings
Questions??