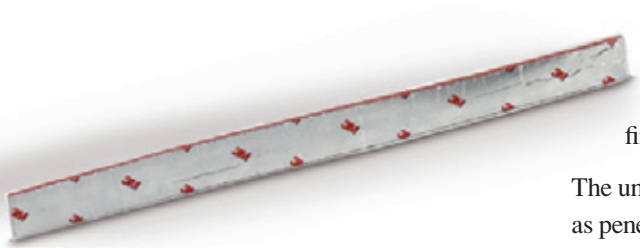




3M™ Fire Barrier FS-195+ Wrap/Strip

Product Description



3M Fire Barrier is one-part, organic/inorganic, fire resistive elastomeric sheet with aluminum foil on one side. It is available in convenient strips which are quickly and easily installed. FS-195+ is designed to firestop penetrations in fire-rated walls and floor-ceiling assemblies.

The unique, intumescent property of this material (expands when heated) means that as penetrating items such as cable insulation is consumed by fire, FS-195+ Wrap/Strip expands to maintain a tight seal preventing the spread of fire, deadly smoke and other by-products of combustion.

3M Fire Barrier Systems including FS-195+ achieve Fire Resistance Ratings of up to 4 hours.



Product Features

- Intumescent: Expands when heated to seal around items consumed by fire
- Smoke seal: Retards spread of toxic by-products of combustion
- Proven stability and performance for the life of a building
- Improved flexibility: Easy, cost effective installation
- Low flame spread and smoke development
- Versatile: can be cut to fit irregular shapes
- Re-enterable: No special tools required
- Non-flame supporting
- Low odour
- Red-brown colour: Consistent, enforceable
- Tested in accordance with AS1530.4, EN1366 and ASTM E814 (UL Listed).

Physical Properties



| Properties | |
|------------------------------|--|
| Strip Size | 6.35 mm x 50.8 mm 609.6 mm (1/4" x 2" x 24") |
| Detail: Wrap/Strip thickness | 5.55 mm - 8.15 mm (0.22" - 0.32") |
| Aluminium foil thickness | 0.05 mm ± 0.0125 mm (0.002" ± 0.0005") |

| Physical & Electrical Properties | Results |
|---------------------------------------|--|
| Thermal Conductivity: | |
| FS195+ sheet as supplied | 2.392 BTU/hr/ft ² /F• in. @ 110°F 2.406 BTU/hr/ft ² /F• in. @ 165°F |
| Intumescent Activation: | |
| Expansion sequence begins | 150°C (300°F) |
| Significant expansion | 175°C (350°F) |
| Multi-directional free expansion | 5 to 15 times (8 times average) |
| Weight loss (TGA) | 20% @ 350°C (662°F) 31% @ 500°C (932°F) |
| Hardness | 70 to 90 Shore A |
| Tensile Strength (PSI)/Elongation (%) | 104 PSI/514% (ASTM D-412) |
| Colour | Red - Brown / Black Char |

| Weatherability | | | | After Exposure | |
|----------------|--------------|----------|---------|--------------------|------------------|
| Test Condition | Temperature | Humidity | Time | Elastic Properties | Normal Expansion |
| Oven | 90°C (194°F) | – | 90 days | Very Good | 6 |

| Fire Performance Tests | Results |
|-------------------------------------|---------|
| Flame Spread Index (ASTM E 84) | 5 |
| Smoke Development Index (ASTM E 84) | 50 |
| Oxygen Index (ASTM D 2863) | 50 |

Availability

3M™ Fire Barrier FS-195+ Wrap/Strip is available from Authorized 3M Fire Protection Products Distributors.

| 3M Order Code | Packing | Unit/Case |
|---------------|-------------------------------|-----------|
| 98040022224 | 50.8 mm x 609.6 mm (2" x 24") | 10 |

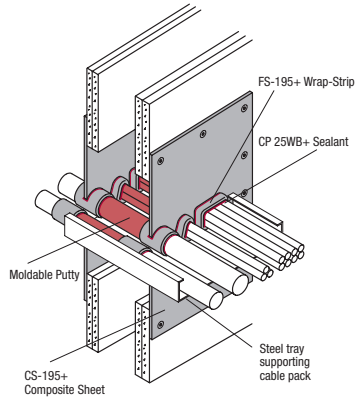
Maintenance

3M Fire Barrier FS-195+ Wrap/Strip remains stable for an indefinite period of time under normal storage conditions.

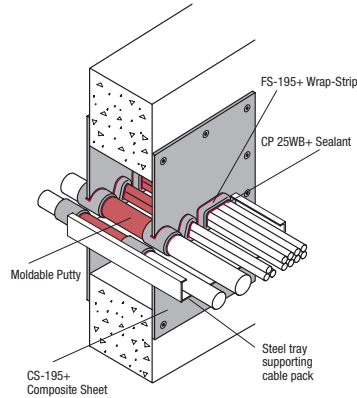
Applications

3M Fire Barrier FS-195+ Wrap/Strip is used as a component in several 3M Fire Barrier Systems. For more details on the systems illustrated below please refer to the 3M Fire Barrier CS-195+ Composite Sheet Product Data Sheet.

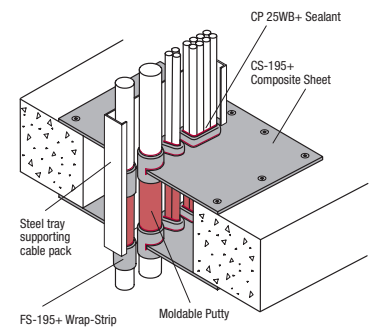
D1 Cable Pack – Power Transmission Cables.



Dry Wall

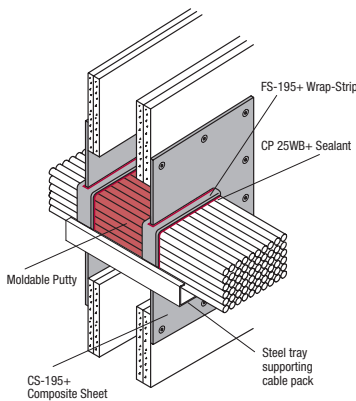


Solid Masonry, Hollow Masonry
or Concrete Wall

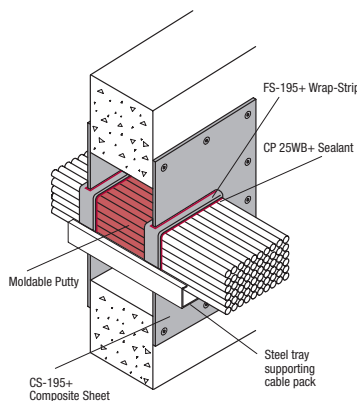


Concrete Floor

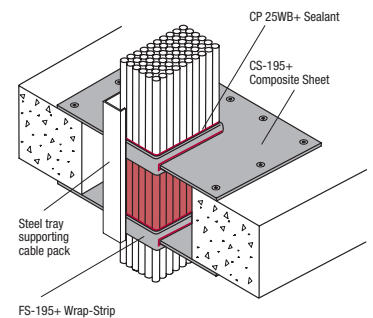
D2 Cable Pack – Telecom Cables.



Dry Wall

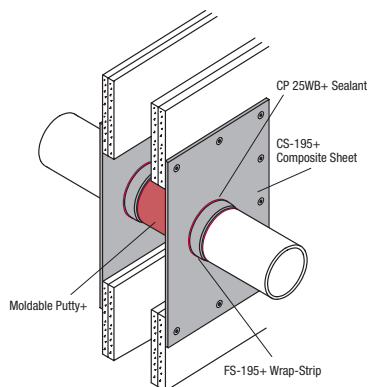


Solid Masonry, Hollow Masonry
or Concrete Wall

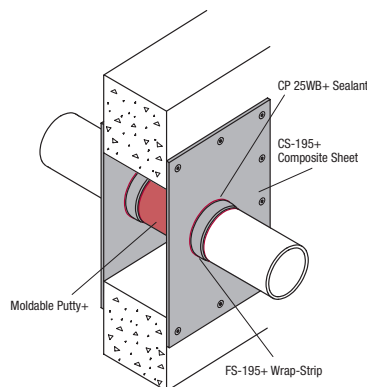


Concrete Floor

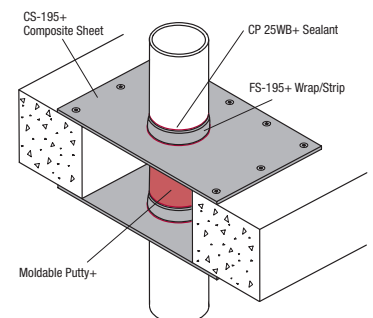
Metal Pipes



Dry Wall



Solid Masonry, Hollow Masonry
or Concrete Wall



Concrete Floor

3M

Fire Protection Products



November 3, 1995

TO WHOM IT MAY CONCERN

Re: Aging of Intumescent Products

To prevent misunderstanding or confusion regarding the long-term performance of the 3M FS-195+ Wrap/Strip or CS-195+ Composite Sheet, we make the following statement:

During the development process of its intumescent products, 3M established design and performance criteria to address the aging properties of these materials. Our FS-195+ and CS-195+ products have successfully passed the test procedures necessary to qualify for UL Component Recognition Listing. Component Recognition subjects the products to a series of aging standards to determine the effect of various environmental conditions on the intumescent properties, including such conditions as high temperature aging (95°C), moist air, CO₂-SO₂, temperature cycling, high humidity, wet-freeze-dry and weatherometer exposure.

In addition, 3M successfully fire tested penetrations using worse case aged products versus "as produced" products in full-scale UL wall tests.

Through its International organization, 3M has documented Arrhenius Plot/data from CEI, IEC 216-1, "Guide for the Determination of Thermal Endurance Properties of Electrical Materials" to show the performance life of FS-195+ and CS-195+ to be in excess of 100 years to the minimum designed expansion.

Please call 3M technical service (800) 458-4452 if you have any questions.

Regards,

A handwritten signature in black ink, appearing to read "Richard R. Licht". The signature is fluid and cursive, with a large initial "R" and "L".

Richard R. Licht
Technical Manager

RRL/ks