

3M Fire Protection Products

3M™ Interam™ Endothermic Mat – For Commercial Buildings

Tested in accordance with AS1530.4-2005



Flexible Fire Protection

Get wrapped up in 3M™ Interam™ Endothermic Mat

3M™ Interam™ Endothermic Mat opens up new opportunities in building design, allowing architects to fulfill the UL mark of certification while enhancing design flexibility. Using advanced endothermic materials, 3M™ Interam™ Endothermic Mat helps prevent heat penetration via a chemical reaction, which absorbs heat energy. Its space-saving, conformable construction offers easy installation in a broad range of applications, providing flexible, full envelope protection in critical areas of all types.

Because of its flexibility, architects can use 3M™ Interam™ Endothermic Mat to meet fire protection requirements in nearly any area and along virtually any wall, helping to reduce the need to make revisions to existing plans. This represents a significant cost-saving and time-saving benefit for both builders and architects. With 3M™ Interam™ Endothermic Mat, architects can now provide guaranteed fire protection without being locked in to the design constraints of traditional fire-stopping methods.

3M is your fire protection industry leader. Trust our proven innovative technologies to help protect people and property for decades to come.



3M™ Interam™ Endothermic Mat

Flexible Fire Protection Solutions



MEMBRANE PENETRATIONS

Protecting some large membrane penetrations can be a challenge, with putty pads proving insufficient to cover larger areas. 3M™ Interam™ Endothermic Mat offers an excellent alternative, providing a fire-tested, code-approved method with the capacity to protect significant spaces containing electrical panels, elevator call boxes, safe deposit boxes and medical gas boxes.



ELECTRICAL CIRCUIT PROTECTION

When a fire occurs, the electrical systems that control critical areas such as control rooms, ventilation, lighting, alarms and elevators must remain operational in a building. With 3M™ Interam™ Endothermic Mat, cable raceways, conduit, equipment shrouds and other electrical systems can be protected for up to three hours in intense heat.



FUEL LINE PROTECTION

Protection of fuel lines for building generators is often an overlooked specification item, leading to urgent and often messy situations during construction. 3M™ Interam™ Endothermic Mat E-5A-4 can help provide fire protection for dual walled steel pipe fuel lines for 1, 2, or 3 hour protection. When exposed to high temperatures, chemically bound water in the mat cools the outer surfaces of the wrap material and retards heat transfer. The flexible nature of the mat and its heat retarding feature provides a high value alternative to shaft walls for the protection of fuel lines.

FEATURES

- Heat absorbing
- Non-flame supporting
- Low smoke evolution
- Flexible
- Easily cut to size
- Provides uniform covering
- Easy-to-clean aluminum surface
- Easily installed, requires no surface preparation

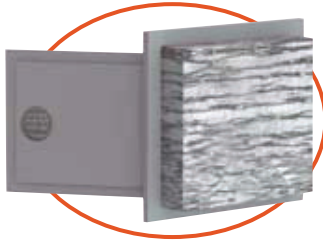
APPLICATIONS

- Cable trays
- Fuel lines
- Structural steel
- Cable bundles
- Equipment shrouds
- Support members
- Electrical panels
- Medical gas boxes
- Elevator call boxes

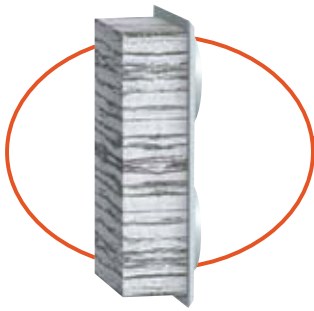


Typical Building Applications

Using 3M™ Interam™ Endothermic Mat



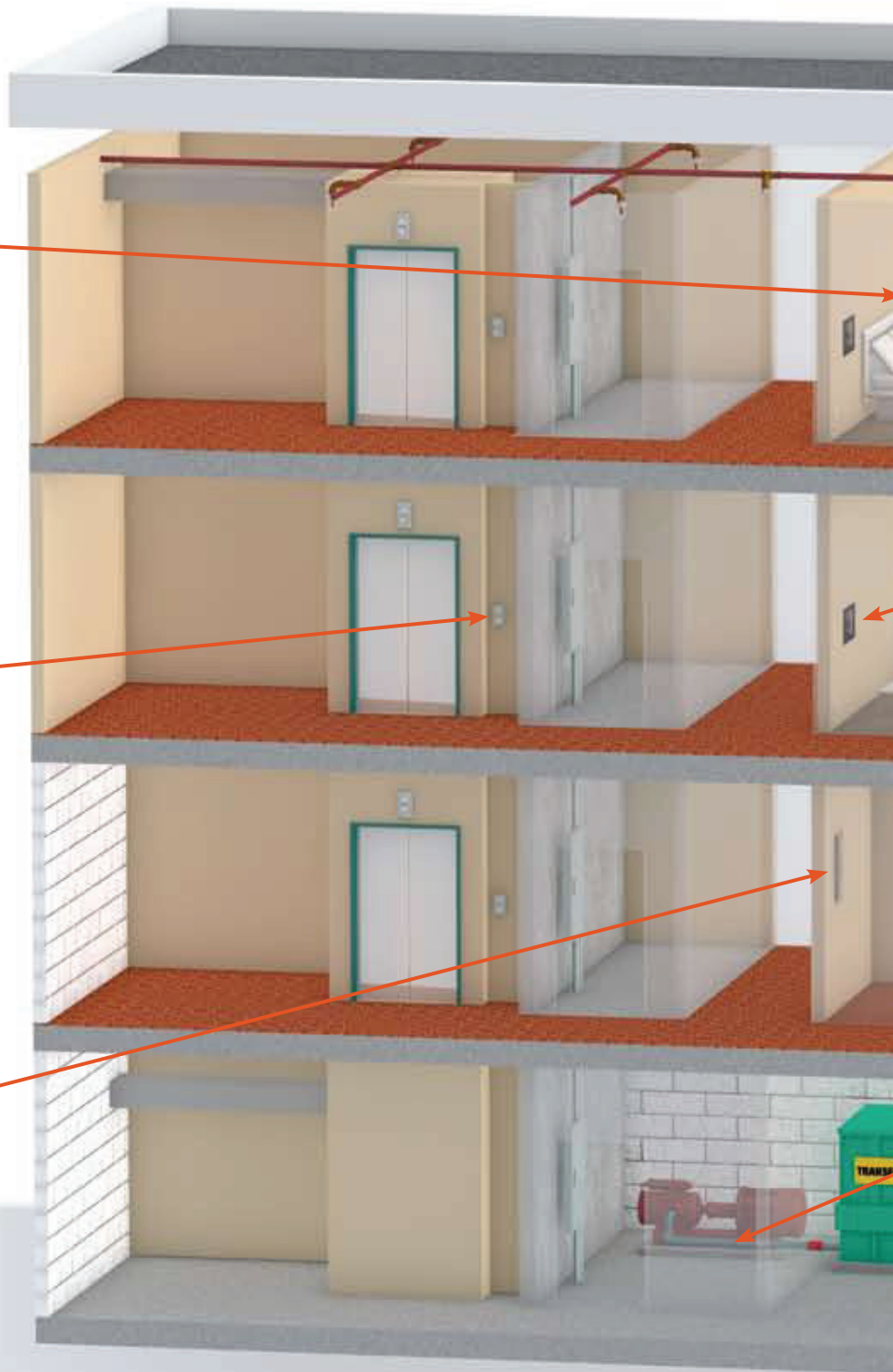
Safe Deposit Box W-L-7168
3M™ Interam™ Endothermic Mat
Product # E-5A-4

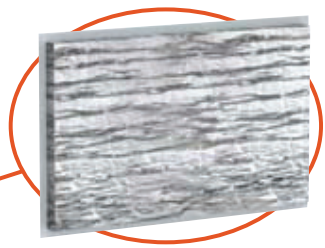
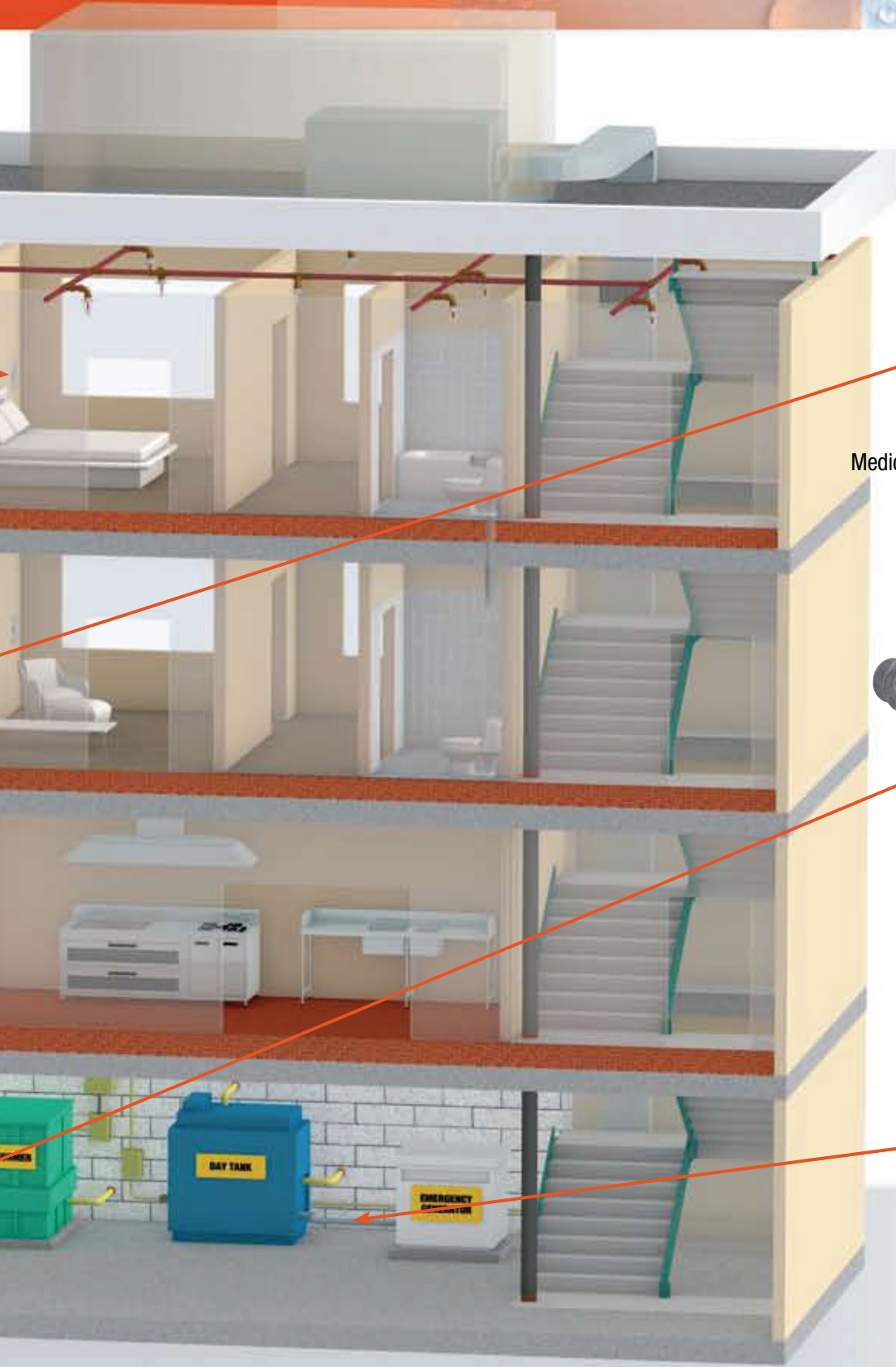


Elevator Call Box W-L-7168
3M™ Interam™ Endothermic Mat
Product # E-5A-4



Electrical Panel W-L-7168
3M™ Interam™ Endothermic Mat
Product # E-5A-4





Medical Gas Box Protection W-L-7168
3M™ Interam™ Endothermic Mat
Product # E-5A-4



Electrical Circuit Protection
Design No. ECP 526
3M™ Interam™ Endothermic Mat
Product # E-5A-4



Fuel Line Protection
Design No. FPE 501
3M™ Interam™ Endothermic Mat
Product # E-5A-4



Fire protection so flexible

you might get carried away.

3M™ Interam™ Endothermic Mat

protection so flexible that you could wrap nearly anything!



3M™ Interam™ E-5A-4 Endothermic Mat is flexible and easy to apply to virtually anything. The advanced endothermic materials contain chemically bound water that is released when exposed to high temperatures. This cools the surrounding materials to significantly retard heat transfer. With this advanced fire-stopping technology and the uniquely conformable construction of 3M™ Interam™ E-5A-4 Endothermic Mat, builders can help protect and control virtually any area in commercial construction applications with unprecedented ease.



UL Approved System W-L-7168

1 Wall Assembly – The 1 or 2 hour fire rated framed gypsum board wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** – Wall framing shall consist of steel channel studs. Steel studs to be min 3 5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC. An additional framing member shall be used to form a shelf within the wall cavity to support the steel box (Item 2) and mat fill material (Item 3). The framed opening is to be 1 in. (25 mm) wider than the width of the steel box.
- B. **Gypsum Board*** – The gypsum board type, thickness, number of layers and orientation shall be as specified in the individual Wall and Partition Design. Size of cutout made to accommodate steel box (Item 2) is to be 1 in. (25 mm) wider and 1 in. (25 mm) higher than the width and height of the steel box.

The hourly F and T Ratings of the firestop system are equal to the hourly fire rating of the wall in which the firestop system is installed.

2 Steel Box – Max 19 in. (483 mm) wide by max 32 in. (813 mm) high by max 3 1/2 in. (89 mm) deep recessed steel utility box with hinged steel door and mounting flange. Steel box secured to steel studs with steel screws after application of mat material (Item 3) on exterior surfaces of steel box. Bottom and/or top of steel box may be penetrated by up to two max 1 1/2 in. (38 mm) diameter copper, steel or iron pipes or tubes. Open pipes or tubes which terminate within the box shall be sealed with caulk (Item 4) or plugged with a ball of putty (Item 5).

3 Fill, Void or Cavity Materials* – Mat – Nominal 0.4 in. (10 mm) thick aluminum foil faced endothermic mat supplied in 24 in. wide rolls. Individual pieces of mat cut to cover four sides and back of box and laminated to box with high-strength, fast, contact-type adhesive (foil face exposed). The mat sections on the top and bottom of the box shall be cut to overlap the mat sections on the sides of the box. The mat section on the back of the box shall be cut to overlap the edge of the mat sections on the top, bottom and vertical sides of box. Circular cutouts made in the mat to accommodate the pipes or tubes to be 1/4 to 1/2 in. (6 to 13 mm) larger than outside diameter of pipe or tube. All corners and butted seams in the mat are to be covered with min 2 mil aluminum foil tape.

3M COMPANY – Type E-5A-4 or E-5A-4 Mat

4 Fill, Void or Cavity Materials* – Caulk or Sealant – (Not Shown) – Nom 1/4 in. (6 mm) diameter bead of caulk applied to the edge of the mat material around the perimeter of the box mounting flange. Additional caulk fill material shall be used to completely fill each circular cutout made in the mat material to accommodate a pipe or tube. The end of each open pipe or tube which terminates within the box shall be sealed with a min 1/2 in. (13 mm) depth of caulk.

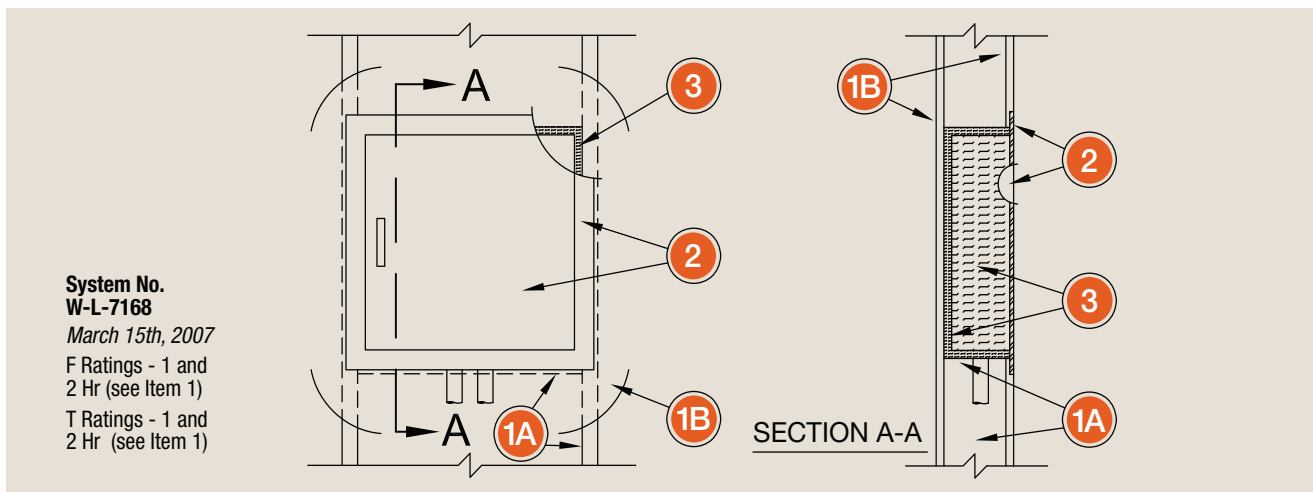
3M COMPANY – Type CP-25WB+ Caulk, FB-3000WT Sealant

5 Fill, Void or Cavity Materials* – Putty – (Not Shown) – As an alternate to the caulk (Item 4), the end of each open pipe or tube which terminates within the box may be sealed with a min 1/2 in. (13 mm) depth of putty fill material.

3M COMPANY – Type MP+ Moldable Putty

Additional materials needed: Spray 90 Spray Adhesive, CP-25WB+ Firestop Caulk.

*Bearing the UL Classification Mark.



Product Number	Description	Size	Unit	Case	UPC
E-5A-4	Endothermic Mat	24.5" x 20' x 0.4"	Roll	1 Roll/Case	0-51115-16571-4

Additional application materials

Product Number	Description	UPC
Spray 90	Spray Adhesive	083631-8
CP-25WB+	Firestop Caulk	011638-9

For CAD drawings and other UL System details, please see our website www.3M.com/firestop or call 1-800-328-1687.



3M™ Interam™ Endothermic Mat E-5A-4

Product Data Sheet

1. Product Description

When properly installed, 3M™ Interam™ Endothermic Mat E-5A-4 provides a uniform covering that, when exposed to high temperatures, releases chemically-bound water to cool the outer surfaces of the wrap material and significantly retard heat transfer. Helps protect structural steel components for up to four hours, critical electrical components for up to three hours and wall opening membranes for up to two hours. Applied to the back and sides of metallic utility boxes, this product helps achieve an equal F-rating and T-Rating in membrane penetrations of rated wall assemblies. 3M™ Interam™ Endothermic Mat E-5A-4 is non-flame supporting with low-smoke evolution. The mat is flexible which aids in installation and allows it to more easily be applied on complex shapes and around corners.

Product Features

- Tested in accordance with AS1530-4-2005
- Provides up to 4 hour fire protection for structural steel applications¹ in accordance with ASTM E 119
- Provides up to 3 hour fire protection for electrical circuit applications^{1,2} in accordance with ASTM E 1725
- Provides protection against large hydrocarbon pool fires in accordance with ASTM E 1529 (UL 1709)
- Chemically-bound water helps cool protective item(s) in the event of a fire
- Non-flame supporting
- Low-smoke evolution
- Flexible – can be installed on complex shapes and around corners
- Easy-to-cut for various shapes and sizes
- Non-corrosive
- For use in new or retrofit applications
- Easy-to-clean



Endothermic fire protection in a wide variety of structural, electrical and membrane penetration applications.

¹ Specific fire-ratings are achieved via single layer or multiple layering of mat per listed system requirements. Per system details, additional layers of mat increase the hourly-rating of the installation.

² Under normal operating conditions, the mat's ambient conductivity allows heat, such as that generated by power cables, to dissipate rather than be trapped by it.

2. Applications

3M™ Interam Endothermic Mat E-5A-4 is a flexible and space-saving wrap system that protects against fire spread and smoke contamination in a wide range of new or retrofit applications requiring full envelope protection, including: structural steel, electrical circuitry / raceways, cables, cable trays, conduits, equipment shrouds, steam lines and membrane penetrations (e.g. spaces containing electrical panels, elevator call boxes, safe deposit boxes, medical gas boxes). Consult system details, contact your local 3M sales representative or call 1-800-328-1687 to inquire about application-specific installation guides).

3. Specifications

Installation shall be in strict accordance with manufacturer's written instructions, as shown on approved shop drawings. 3M™ Interam™ Endothermic Mat E-5A-4 shall be a flexible, endothermic (i.e. heat absorbing) mat with low smoke evolution capable of being layered for 1-, 2-, 3- and 4-hour structural steel applications; 1-, 2- and 3-hour electrical system applications. The product shall be capable of achieving an equal F-Rating and T-Rating when applied to metallic utility boxes which penetrate the membrane of a fire-resistive wall assembly. When properly installed, 3M™ Interam™ Endothermic Mat E-5A-4 helps protect the encapsulated item(s) against heat penetration and flame spread. 3M™ Interam™ Endothermic Mat E-5A-4 shall be listed by independent test agencies such as UL, ULC, Intertek, or FM. Suitability for the intended application should be determined prior to installation.

Typically Specified MasterFormat (2004)

- Section 05 12 00 – Structural Steel Framing
- Section 07 80 00 – Fire and Smoke Protection
- Section 07 81 00 – Applied Fireproofing
- Section 07 84 00 – Firestopping
- Section 26 01 00 – Operation and Maintenance of Electrical Systems
- Section 27 20 00 – Data communications

ASTM (UL, ULC) and NBN/ISO Standard Test Methods:

- ASTM E 84 (UL 723) Surface Burning Characteristics of Building Materials
- ASTM E 119 (UL 263) Fire Tests of Building Construction and Materials
- ASTM E 1529 (UL 1709) Determining Effects of Large Hydrocarbon Pool Fires on Structural Members and Assemblies
- ASTM E 1725 (UL 1724) Fire Tests of Fire-Resistive Barrier Systems for Electrical System Components
- ASTM E 814 (UL 1479) Standard Test Method for Fire Tests of Penetration Firestop Systems
- CAN/ULC-S115 Standard Method of Fire Tests of Firestop Systems

WALL OPENING MEMBRANES	ELECTRICAL CIRCUITS	STRUCTURAL STEEL
UP TO 2 HOUR Fire Protection	UP TO 3 HOUR Fire Protection	UP TO 4 HOUR Fire Protection

CLASSIFIED



Mat Materials
Fire Resistance Classifications
Rapid Temperature Rise
Fire Exposure
Design No. XR201
See UL Fire Resistance Directory
90G9

ULC

LISTED

FILL, VOID OR CAVITY MATERIALS
90G9

Classified Mat Materials
Fire Resistance Classification
Design No. X203 and X204
See UL Fire Resistance Directory
90G9

CLASSIFIED



LISTED



Intertek
FIRESTOP SYSTEMS
SEE INTERTEK DIRECTORY
90G9

ELECTRICAL CIRCUIT PROTECTIVE MATERIALS FOR USE IN ELECTRICAL CIRCUIT PROTECTIVE SYSTEMS SYSTEM NO. 7, 8 AND 9
SEE UL BUILDING MATERIALS DIRECTORY
90G9

4. Performance & Typical Physical Properties

Color:	Silver exterior, white interior	Surface Burning (ASTM E 84):	Flame Spread 0.7, Smoke Development 0 Fuel Contribution 0
Mat Lamination	3 mil. aluminum/ scrim	Thermal Conductivity:	0.087 BTU/ft-hr – °F @ 200°F (0.151 W/m – °C @ 93°C) 0.101 BTU/ft-hr – °F @ 350 °F (0.175 W/m – °C @ 177 C) 0.058 BTU/ft-hr – °F @ 600 °F (0.100 W/m – °C @ 316 C) 0.068 BTU/ft-hr – °F @ 750 °F (0.118 W/m – °C @ 399 C) 0.081 BTU/ft-hr – °F @ 900 °F (0.140 W/m – °C @ 482 C)
Mat Thickness	0.408 in. (10.3 mm)	Mean Specific Heat:	0.331 BTU/lb – °F @ 75-400°F (1385 J/kg- °C @ 24-200 °C) 0.276 BTU/lb – °F @ 75-1650°F (1155 J/kg- °C @ 24-900 °C)
Roll Dimensions	24.5 in. x 20 ft. roll (622 mm x 6.09 m)	Loss on Ignition:	28%
Roll Weight	74.6 lbs. (33.8 kg)	Tensile Strength (with aluminum foil):	110 psi (758 KPa)
Weight/Unit Area	1.83 lbs/ft ² (8.93 kg/m ²)		
Bulk Density	54 lbs/ft ³ (865 kg/m ³)		
Mat Area/Roll	40.8 ft ² (3.79 m ²)		

5. Packaging, Storage, Shelf Life

Packaging	3M™ Interam™ Endothermic Mat E-5A-4 is packaged in a corrugated cardboard box, 1 roll per box.
Storage	3M™ Interam™ Endothermic Mat E-5A-4 is stable under normal storage conditions, store in a dry warehouse environment in original, unopened container. Normal stock and stock rotation practices are recommended.
Shelf Life	Product shelf life is indefinite when stored indoors.

6. Installation Techniques

Consult a 3M Authorized Fire Protection Products Distributor / Dealer or Sales Representative for Applicable Listed Third Party (e.g. UL, ULC, Intertek, FM) drawings and system details. Refer to application-specific 3M™ Interam™ Endothermic Mat E-5A-4 Installation Guides for installation information.

Recommended tools/materials For a typical mat installation, the following tools may be of assistance: razor knife, large scissors or electric scissors (to cut mat), T-Square or similar straight edge (to help with straight cuts of mat), tape measure (to measure mat required), marking pen (to identify layers of mat), 3M™ Aluminum Foil Tape 425 (to seal cut edges of mat), rubber roller (to ensure good adhesion of tape), Scotch® Filament Tape 898 (to temporarily hold mat pieces in place - optional), stainless steel bands 1/2 in. wide x .020 in. min thick (12.7 mm x .5 mm) and band clips to help secure mat, band tensioners, 3M™ Fire Barrier Sealant CP 25WB+ (to fill seams).

Installation considerations Determine the appropriate number of layers required for your application. Ensure proper covering and protection of joints, seams, overlaps and any area that requires special cutting and fitting. Ensure proper use of banding to mechanically restrain the mat system. Refer to listed system details for sealant, banding requirements, layer requirements and other installation procedures.

7. Maintenance

No maintenance is expected to be required when installed in accordance with listed system details. Once installed, if any section of the 3M™ Interam™ Endothermic Mat E-5A-4 is damaged, the following procedure will apply: for damage to the outer metallic covering, install 3M™ Aluminum Foil Tape 425 to overlap a min. 2" (50.8 mm) in all directions. For more extensive damage (including damage to the mat material), contact 3M Fire Protection Products at 1-800-328-1687.

8. Availability

3M™ Interam™ Endothermic Mat E-5A-4 is available from 3M Authorized Fire Protection Products Distributors and Dealers. 3M™ Interam™ Endothermic Mat E-5A-4 comes 1/case and is available in a 24.5 in. x 20 ft. roll (622.3 mm x 6.1 m). For additional technical and purchasing information regarding this and other 3M Fire Protection Products, please call: 1-800-328-1687 or visit www.3m.com/firestop.

9. Safe Handling Information

Consult product's Material Safety Data Sheet (MSDS) from country of use prior to handling and disposal.

Important Notice to User:

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty and Limited Remedy: 3M warrants that each 3M Fire Protection Product will be free from defects in material and manufacture for 90 days from the date of purchase from 3M's authorized distributor. 3M MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If a 3M product does not conform to this warranty, the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.