



1. Product Name

3M™ Fire Barrier Duct Wrap 615+

2. Manufacturer

3M™ Building and Commercial Services
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3. Product Description

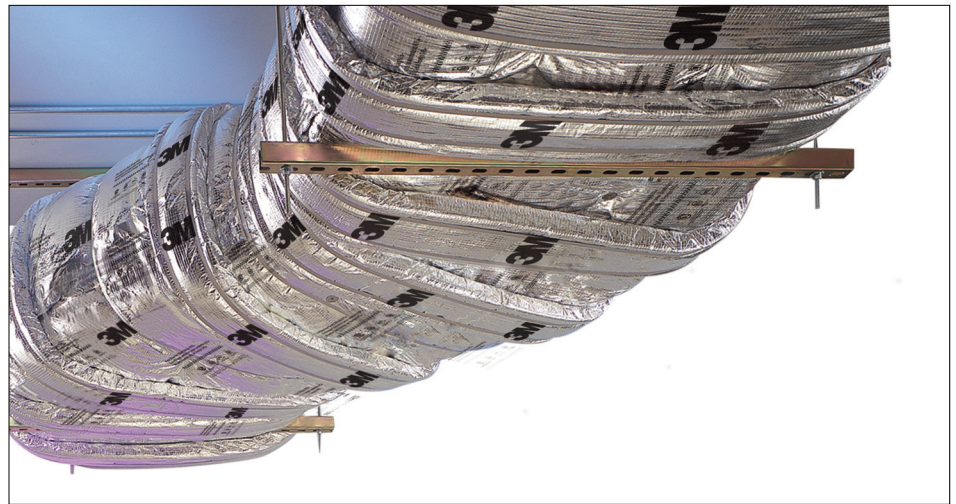
3M™ Fire Barrier Duct Wrap 615+, manufactured by 3M™ Building and Commercial Services, is a non-asbestos, fire-resistant duct wrap with outstanding insulating capabilities.

BASIC USE

Designed to promote fire compartmentation of duct enclosure systems, 3M Fire Barrier Duct Wrap 615+ is a proven alternative to traditional rigid, 1 or 2 hour fire-rated shaft enclosures. This flexible wrap is applied directly to the duct, creating a low-profile, fire-resistive enclosure that helps protect the integrity of the duct, helps prevent fire from passing from one compartment to another, and provides zero clearance to adjacent combustibles in the event of an internal grease fire. Engineered to perform in temperatures as high as 2192 degrees F (1200 degrees C), 3M Fire Barrier Duct Wrap 615+ is ideal for life safety system ducts and can be used to protect both grease and air ducts.

Life safety system applications for 3M Fire Barrier Duct Wrap 615+ include:

- Mechanical smoke exhaust
- Air supply ducts
- Return ducts
- Stair pressurization ducts
- Ventilated vestibules
- Zoned smoke control
- Elevator smoke control
- Ducts crossing exit corridors
- Smokeproof enclosures with mechanical ventilation
- Engineered ventilation systems



Other uses include:

- Dryer exhaust vents
- Toilet exhaust vents

COMPOSITION & MATERIALS

3M Fire Barrier Duct Wrap 615+ is a single layer, biosoluble ceramic fiber blanket encapsulated with a scrim reinforced foil.

SIZES

- 24" x 25' (61 cm x 762 cm) roll; 1 1/2" (38 mm) thick in accordance with tolerances in ASTM C892; 45 lb (20.4 kg)
- 48" x 25' (122 cm x 762 cm) roll; 1 1/2" (38 mm) thick in accordance with tolerances in ASTM C892; 90 lb (40.8 kg)

COLOR

3M Fire Barrier Duct Wrap 615+ is white.

BENEFITS

- Withstands temperatures to 2192 degrees F (1200 degrees C)
- Promotes continued operation of life safety duct systems
- Thin profile requires less space and weighs less than traditional gypsum enclosures
- Highly flexible and contours easily to accommodate difficult shapes and obstructions
- Provides zero clearance to adjacent combustibles
- Monolithic foil encapsulated blanket provides high wrap strength and helps reduce dust
- Vitreous spun fiber, with reduced bio-persistence, enhances safety and installation
- Tested to ISO 6944 fire resistance standards for ventilation ducts (one-layer wrap)
- Tested to ASTM E2336 for grease ducts (two-layer wrap)

ACCESSORIES

- 3M™ Fire Barrier Water Tight Sealant 1000 NS (Non-slump) - A one-component, elastomeric silicone to firestop wall or vertical applications
- 3M™ Fire Barrier Water Tight Sealant 1003 SL (Self-leveling) - A one-component, elastomeric silicone to firestop floor penetrations and horizontal applications
- 3M™ Fire Barrier Silicone Sealant 2000+ - A premium nonslump silicone sealant
- 3M™ Fire Barrier Grease Duct Access Door - A fire-protected door available for 10" x 6" (25 x 15 cm), 12" x 8" (30.5 x 20 cm) and 20" x 20" (51 x 51 cm) opening sizes

4. Technical Data

APPLICABLE STANDARDS

ASTM International

- ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- ASTM C1338 Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings
- ASTM C892 Standard Specification for High-Temperature Fiber Blanket Thermal Insulation
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials
- ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C (1382 degrees F)
- ASTM E814 Standard Test Method for Fire Tests of Penetration Firestop Systems
- ASTM E2336 Standard Test Methods for Fire Resistive Grease Duct Enclosure Systems

International Code Council (ICC)

- International Building Code, 2006
- International Mechanical Code, 2006/2009

International Organization for Standardization (ISO) - ISO 6944 Fire Resistive Tests - Ventilation Ducts

National Fire Protection Association (NFPA)

- NFPA 92A Standard for Smoke-Control System Utilizing Barriers and Pressure Differences
- NFPA 92B Standard for Smoke Management Systems in Malls, Atria, and Large Spaces
- NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations
- NFPA 101 Life Safety Code

Underwriters Laboratories, Inc. (UL) - UL 1479 Fire Tests of Through-Penetration Firestops

Underwriters Laboratories of Canada (ULC) - ULC/CAN S102 Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies

APPROVALS

- UL Classified by Underwriters Laboratory, Inc.
- ULC Listed by Underwriters Laboratories of Canada
- Warnock Hersey Listed for US and Canada by Intertek Laboratories
- Omega Point Listed by Intertek Laboratories

PERFORMANCE

3M Fire Barrier Duct Wrap 615+ has been tested and meets ISO 6944, ASTM E84, ASTM E119, ASTM E136, ASTM E814, ASTM E2336, ASTM C1338, ASTM C518, UL 1479 and ULC/CAN S102.

Installed in accordance with ASTM E2336, 3M Fire Barrier Duct Wrap 615+ meets NFPA 96 and International Mechanical Code code requirements.

Installed in accordance with ISO 6944, 3M Fire Barrier Duct Wrap 615+ meets NFPA 92A, NFPA 92B, NFPA 101, International Mechanical Code, 2006/2009 and International Building Code, 2006 code requirements.

PHYSICAL & TECHNICAL PROPERTIES

See Table 1.

5. Installation

Install this product in accordance with the manufacturer's detailed installation instructions and procedures.

MATERIALS

- 3M Fire Barrier Duct Wrap 615+, 1.5" (38 mm) thick in accordance with tolerances in ASTM C892

TABLE 1 PHYSICAL & TECHNICAL PROPERTIES

Test & Method	Property	
ASTM E84		
Flame spread	<25	
Smoke developed	<50	
CAN/ULC S102		
Flame spread	<25	
Smoke developed	<50	
ASTM E2336		
Grease duct ¹		
Rectangular, 48" x 48" (1.2 x 1.2 m); Intertek 3MU/FRD 120-18	1 and 2 hour	
Round, 48" (1.2 m); Intertek 3MU/FRD 120-19	1 and 2 hour	
ISO 6944		
Ventilation duct ²		
Rectangular, 24" x 85" (0.6 m x 2.15 m); Intertek 3MU/FRD 120-15, Underwriters Laboratories HNLJ.V-27	1 and 2 hour	
Round, 40" (1 m); Intertek 3MU/FRD 120-04:	1 and 2 hour	
ASTM C518		
Thermal conductivity		
@ 500 degrees F (260 degrees C)	0.48 Btu•in./(hr•ft ² •°F)	0.07 W/m ² •K
@ 1000 degrees F (537 degrees C)	0.97 Btu•in./(hr•ft ² •°F)	0.14 W/m ² •K
@ 1500 degrees F (815 degrees C)	1.57 Btu•in./(hr•ft ² •°F)	0.23 W/m ² •K
@ 1800 degrees F (982 degrees C)	1.98 Btu•in./(hr•ft ² •°F)	0.29 W/m ² •K
@ 2000 degrees F (1093 degrees C)	2.23 Btu•in./(hr•ft ² •°F)	0.33 W/m ² •K
Linear shrinkage		
24-hour @ 2012 degrees F (1093 degrees C)	1.2%	
R-value		
Single layer at 77 degrees F (25 degrees C)	6.38•hr•ft ² •°F/Btu	
¹ Using 2 layers of 3M Fire Barrier Duct Wrap with minimum 3" (76 mm) perimeter and longitudinal overlaps		
² Using 1 layer of 3M Fire Barrier Duct Wrap with minimum 3" (76 mm) perimeter and longitudinal overlaps		

- Aluminum foil tape
- Wide filament tape, minimum 3/4" (19 mm)
- Stainless steel banding material, minimum 1/2" (12.7 mm) wide x 0.015" (0.38 mm) thick, with stainless steel banding clips
- Hand banding tensioner, crimping tool and banding cutter
- Minimum 12 gauge copper-coated steel insulation pins, with minimum 2 1/2" (63.5 mm) square galvanized steel or stainless speed clips or 1 1/2" (38 mm) diameter round or equivalent sized insulated cup-head pins
- Capacitor discharge stud gun
- Access door hardware: 4 galvanized steel thread rods, 1/4" (6.35 mm) diameter x minimum 6" (15 cm) long, with 1/4" (6.35 mm) wing nuts and 1/4" (6.35 mm) washers
- 4" (102 mm) long steel hollow tubing to fit threaded rods
- Minimum 4 pcf (64 kg/m³) density mineral wool or scrap pieces of 3M Fire Barrier Duct Wrap 615+
- 3M Fire Barrier Water Tight Sealant 1000 NS, 1003 SL or 3M Fire Barrier Silicone Sealant 2000+

STORAGE

3M Fire Barrier Duct Wrap 615+ must be stored in a dry warehouse environment. Pallets should not be stacked.

PREPARATORY WORK

Surfaces of all openings and penetrating items must be clean, dry, frost free and free of dust prior to installation.

METHOD

Two-Layer (ASTM E2336) Method

The following is an overview of procedures used for a 2-layer application of 24" (61 cm) 3M Fire Barrier Duct Wrap 615+ to a grease duct. Consult current independent testing laboratories (Intertek and Underwriters Laboratories) for design or system details.

To minimize waste, tautly roll out the material before measuring. The first layer of wrap is placed around the duct perimeter and cut to overlap itself no less than 3" (76 mm). The overlap of adjacent blankets forms a longitudinal overlap.



Aluminum foil tape is used to seal all cut edges of the blanket and any rips in the foil scrim. This first layer does not require steel banding and is temporarily held in place with filament tape.

The second layer of 3M Fire Barrier Duct Wrap 615+ is wrapped around the perimeter of the previously installed layer and cut to overlap itself by no less than 3" (76 mm). The centerline of this second layer should be centered over the overlap of the previous layer. The second layer requires longitudinal overlap onto adjacent blankets of no less than 3" (76 mm) and is held in place with filament tape, but requires permanent fastening with stainless steel banding or rows of weld pins (impaling or cup-head style).

Three installation techniques are approved for 3M Fire Barrier Duct Wrap 615+: telescoping overlap, checkerboard overlap and butt joint with collar.

Telescoping 3" (76 mm) Overlap Wrap

With this method, each blanket overlaps one adjacent blanket. Each blanket has one edge exposed and one edge covered by the next blanket. Visible edges of perimeter overlaps point in the same direction.

Checkerboard 3" (76 mm) Overlap Wrap

With this method, blankets with both edges exposed alternate with blankets with covered edges. Visible edges of the perimeter overlaps alternate their directions and appear on every other blanket.

Butt Joint With Collar

With this method, adjacent blankets are butted tightly together. A 6" (15 cm) wide collar of 3M Fire Barrier Duct Wrap 615+ is centered over the joint, overlapping each blanket by a minimum of 3" (76 mm).

For all three overlap techniques, the perimeter overlap can occur at any location on the duct. Steel banding, welded insulation pins or clips can be used for all methods to attach the blanket to the duct.

For Banding Only

Filament tape can be used to temporarily hold the blanket in place until the banding is applied. The steel banding is applied around the duct 1 1/2" (38 mm) from each edge of the blanket and maximum 10 1/2" (26.7 cm) centers. The banding is placed around the material and tightened so as to sufficiently hold the 3M Fire Barrier Duct Wrap 615+ in place against the duct, compressing the foil but not cutting the foil.

Additional Pinning to Prevent Sagging of the Wrap

For ducts 24" (61 cm) and larger in width, additional pins are needed to support the blanket on the bottom horizontal surface and on the outside face of a vertical duct run. Space pins a maximum of 10 1/2" (26.7 cm) apart in the direction of the blanket width, and a maximum of 12" (30.5 cm) apart in the direction of the blanket length. Refer to the following paragraph for more information on Mechanical Fastening with Pins.

For Mechanical Fastening with Pins Only

Insulation pins are welded to the duct in the centers of the overlaps a minimum of 1 1/2" (38 mm) from each edge of the blanket, and spaced a maximum of 10 1/2" (26.7 cm) on center along perimeter overlap, and a maximum of 10 1/2" (26.7 mm) on center along longitudinal overlaps. The blanket is impaled over the pins and held in place by galvanized speed clips. Insulation pins that extend beyond the blanket wrap shall be turned down to eliminate sharp points. Insulated cup-head pins can be used at the same spacing requirements of the insulation pins.

NOTE: Support hangar systems need not be wrapped, provided the hangar rods are a minimum of 3/8" (9.53 mm) diameter and are spaced a maximum of 60" (152 cm) on center along the length of the duct. Use a minimum 1 1/2" x 1 1/2" x 1/4" (38 mm x 38 mm x 6.35 mm) steel angle steel support channel or SMACNA (Sheet Metal and Air Conditioning Contractors' National Association) equivalent support system. For ducts greater than 1440 in² (0.93 m²) and less than 2040 in² (1.3 m²), the trapeze requirements increase to a minimum of 2" x 2" x 1/4" (51 x 51 x 6.35 mm).

Penetrations

When the duct penetrates a fire-rated wall, ceiling or floor, an approved firestop system must be employed.

To firestop the duct where it passes through rated assemblies, follow the installation parameters detailed in the Intertek Testing Services (ITS) or Underwriter's Laboratories (UL) design listings.

6. Availability & Cost

3M fire barrier products are available through a network of nationwide distributors. For information, visit the www.3M.com/firestop website.

7. Warranty

Complete warranty terms and conditions are available from 3M Building and Commercial Services.

8. Maintenance

No maintenance is required for properly installed products.

If the foil has ripped, but the duct wrap blanket is not damaged, seal the rip with aluminum foil tape.

If the duct wrap blanket is damaged after installation, the following procedures apply:

- Remove the damaged section by cutting the steel banding or by removing the clips
- Cut a new section of the same dimension from a new roll
- Place and fit the new section, using the same type of overlap previously installed
- Place steel banding around the material, tensioned to sufficiently hold the 3M Fire Barrier Duct Wrap 615+ in place

9. Technical Services

Detailed information, product literature, test results, project lists, assistance in preparing project specifications and arrangements for application supervision are available through 3M Building and Commercial Services.

For questions about specifications, code regulations, product usage or product installation, visit the www.3M.com/firestop website.

10. Filing Systems

- SmartBuilding Index
- Additional product information is available from 3M Building and Commercial Services upon request.

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