

**SECTION 07 84 00
FIRESTOPPING**

SPEC WRITER NOTES:

1. Use this section only for NCA projects.
2. Delete between //_____// if not applicable to project. Also delete any other item or paragraph not applicable in the section and renumber the paragraphs.
3. Indicate locations of fire resistance rated walls, partitions, floors, ceiling-floor assemblies and other locations requiring firestopping, on the drawings; rating of walls and partitions being penetrated must be shown on the drawings.
4. If smoke barrier walls are required in the project, show them on the drawings.

PART 1 - GENERAL

1.1 DESCRIPTION

A. Tested and listed firestopping systems, combination of materials, or devices to form an effective barrier against the spread of flame, smoke and gases, and maintain the integrity of fire resistance rated walls, partitions, floors, and ceiling-floor assemblies, including through-penetrations and construction joints and gaps.

1. Through-penetrations include the annular space around pipes, tubes, conduit, wires, cables and vents.
2. Construction joints include those used to accommodate expansion, contraction, wind, or seismic movement; firestopping material cannot interfere with the required movement of the joint.
3. Gaps requiring firestopping include gaps between the top of the fire-rated walls and the roof or floor deck above and at the intersection of shaft assemblies and adjoining fire resistance rated assemblies.

B. Closure of openings in walls against penetration of gases or smoke in smoke partitions.

1.2 RELATED WORK

- A. Expansion and seismic joint firestopping: Section 07 95 13, EXPANSION JOINT COVER ASSEMBLIES.
- B. Spray applied fireproofing: Section 07 81 00, APPLIED FIREPROOFING
- C. Sealants and application: Section 07 92 00, JOINT SEALANTS.

- D. Fire and smoke damper assemblies in ductwork: Section 23 31 00, HVAC DUCTS AND CASINGS // Section 23 37 00, AIR OUTLETS AND INLETS.

1.3 SUSTAINABILITY REQUIREMENTS

- A. Materials in this section may contribute towards contract compliance with sustainability requirements. See Section 01 81 11, SUSTAINABLE DESIGN REQUIREMENTS, for project // local/regional materials, // low-emitting materials, // recycled content, // _____// requirements.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Submit detail drawings including manufacturer's descriptive data, typical details conforming to UL Fire Resistance or other details certified by another nationally recognized testing laboratory, installation instructions or UL listing details for a firestopping assembly instead of fire-test data or report. For those firestop applications for which no UL tested system is available through a manufacturer, submit a manufacturer's engineering judgment, derived from similar UL system designs or other tests, for review and approval prior to installation. Submittal must indicate the firestopping material to be provided for each type of application; when more than a total of 5 penetrations and/or construction joints are to receive firestopping, provide drawings that indicate location, "F", "T" and "L" ratings, and type of application.
- C. Submit certificates attesting that firestopping material complies with the specified requirements. For all intumescent firestop materials used in through penetration systems, manufacturer must provide certification from UL of passing the "Aging and Environmental Exposure Testing" portion of UL 1479.
- D. Submit manufacturer's representative certification stating that firestopping work has been inspected and found to be applied according to the manufacturer's recommendations and the specified requirements. Manufacturer's representative must be a direct employee of the manufacturer (not a distributor or an agent) and be qualified to perform the specified inspections and certify the firestopping installation.

1.5 DELIVERY AND STORAGE

- A. Deliver materials in their original unopened containers with manufacturer's name and product identification.

B. Store in a location providing protection from damage and exposure to the elements.

1.6 WARRANTY

A. Firestopping work subject to the terms of the Article "Warranty of Construction", FAR clause 52.246-21, except extend the warranty period to five years.

1.7 QUALITY ASSURANCE

A. FM, UL, or WH or other approved laboratory tested products will be acceptable.

1.8 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in text by the basic designation only. Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.

SPEC WRITER NOTES:

- 1. Remove reference citations that do not remain in Part 2 or Part 3 of edited specification.
- 2. Verify and make dates indicated for remaining citations the most current at date of submittal; determine changes from date indicated on the TIL download of the section and modify requirements impacted by the changes.

B. American Society for Testing and Materials (ASTM):

E84-22	Surface Burning Characteristics of Building Materials
E814-13a(2017)	Fire Tests of Penetration Firestop Systems
E2174-20a	On-Site Inspection of Installed Fire Stops
E2393-20a	On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers

C. FM Global (FM):

Annual Issue	Approval Guide Building Materials
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D. Underwriters Laboratories, Inc. (UL):

Annual Issue	Building Materials Directory
Annual Issue	Fire Resistance Directory
1479	Fire Tests of Through-Penetration Firestops

E. Warnock Hersey (WH):

Annual Issue	Certification Listings
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1.9 SEQUENCING

A. Coordinate the specified work with other trades.

- B. Apply firestopping materials, at penetrations of pipes and ducts, prior to insulating, unless insulation meets requirements specified for firestopping.
- C. Apply firestopping materials at building joints and construction gaps, prior to completion of enclosing walls or assemblies.
- D. Locate and install cast-in-place firestop devices in place before concrete placement. Install pipe, conduit or cable bundles through cast-in-place device after concrete placement but before area is concealed or made inaccessible.
- E. Inspect and receive approval for firestop material prior to final completion and enclosing of any assemblies that may conceal installed firestop.

PART 2 - PRODUCTS

2.1 FIRESTOP SYSTEMS

- A. Use factory built (Firestop Devices) or field erected (through-Penetration Firestop Systems) to form a specific building system maintaining required integrity of the fire barrier and stop the passage of gases or smoke.
- B. Through-penetration firestop systems and firestop devices tested in accordance with ASTM E814 or UL 1479 using the "F" or "T" rating must maintain the same rating and integrity as the fire barrier being sealed. "T" ratings are not required for penetrations smaller than or equal to 100 mm (4 in) nominal pipe or 0.01 m² (16 sq. in.) in overall cross-sectional area.
- C. Products requiring heat activation that seal an opening by its intumescence must exhibit a demonstrated ability to function as designed to maintain the fire barrier.
- D. Provide firestop sealants used for firestopping or smoke sealing with the following properties:
 - 1. Contain no flammable or toxic solvents.
 - 2. Have no dangerous or flammable out gassing during the drying or curing of products.
 - 3. Water-resistant after drying or curing and unaffected by high humidity, condensation or transient water exposure.
 - 4. When used in exposed areas, firestop sealant can be sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.

- E. Provide firestopping system or devices used for penetrations by glass pipe, plastic pipe or conduits, unenclosed cables, or other non-metallic materials with following properties:
 - 1. Classified for use with the particular type of penetrating material used.
 - 2. Penetrations containing loose electrical cables, computer data cables, and communications cables protected using firestopping systems that allow unrestricted cable changes without damage to the seal.
 - 3. Intumescent products which would expand to seal the opening and act as fire, smoke, toxic fumes, and water sealant.
- F. Provide products with maximum flame spread of 25 and smoke development of 50 when tested in accordance with ASTM E84.
- G. Provide products FM, UL, or WH rated or tested by an approved laboratory in accordance with ASTM E814.
- H. Materials must be asbestos free.

2.2 SMOKE STOPPING IN SMOKE PARTITIONS

- A. Use silicone sealant in smoke partitions as specified in Section 07 92 00, JOINT SEALANTS.
- B. Use mineral fiber filler and bond breaker behind sealant.
- C. Sealants must have a maximum flame spread of 25 and smoke developed of 50 when tested in accordance with E84.
- D. When used in exposed areas capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Submit product data and installation instructions, as required by article, submittals, after an on-site examination of areas to receive firestopping.

3.2 PREPARATION

- A. Remove dirt, grease, oil, loose materials, or other substances that prevent adherence and bonding or application of the firestopping or smoke stopping materials.
- B. Remove insulation on insulated pipe for a distance of 150 mm (6 inches) on either side of the fire rated assembly prior to applying the firestopping materials unless the firestopping materials are tested and approved for use on insulated pipes.

3.3 INSTALLATION

- A. Do not begin work until the specified material data and installation instructions of the proposed firestopping systems have been submitted and approved.
- B. Install firestopping systems with smoke stopping in accordance with FM, UL, WH, or other approved system details and installation instructions.
- C. Install smoke stopping seals in smoke partitions.

3.4 INSPECTIONS

- A. Manufacturer's technical representative to inspect all firestopping in accordance with ASTM standards for firestop inspection, and document inspection results; ASTM E2174 and E2393.

3.5 CLEAN-UP AND ACCEPTANCE OF WORK

- A. As work on each floor is completed, remove materials, litter, and debris.
- B. Do not move materials and equipment to the next-scheduled work area until completed work is inspected and accepted by the RE/COR; RE/COR inspection does not supersede requirement for inspection by manufacturer's representative or requirements of local jurisdiction.
- C. Clean up spills of liquid type materials.

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