

**SECTION 07 84 00
FIRESTOPPING**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Closures of openings in walls, floors, and roof decks against penetration of flame, heat, and smoke or gases in fire resistant rated construction.
- B. Closure of openings in walls against penetration of gases or smoke in smoke partitions.

1.2 RELATED WORK

- A. Sealants and application: Section 07 92 00, JOINT SEALANTS.
- B. 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 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturers literature, data, and installation instructions for types of firestopping and smoke stopping materials used. Products submitted must correspond to the tested designs submitted
- C. Submit a copy of each FM, UL or WH tested design to be used in the project showing all materials and instantiation requirements.
- D. Certified laboratory test reports for ASTM E814 tests for systems not listed by FM, UL, or WH proposed for use.
- E. Schedule: If multiple systems are submitted, provide a schedule clearly indicating where each system is to be used.

1.4 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.

1.5 WARRANTY

- A. Firestopping work subject to the terms of the Article "Warranty of Construction" of Section 00 72 00, GENERAL CONDITIONS, except extend the warranty period to five years.

1.6 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs which provide the specified fire ratings when tested in accordance with methods indicated.

1. Listing in the current-year classification or certification books of UL, FM, Omega Point or WH will be considered as constituting an acceptable test report.
 2. If no test design is available to meet the requirements of the project, provide Engineer's Judgment or such substantiation as may be required by the Authority Having Jurisdiction.
- B. Installer Qualifications: Company specializing in performing the work of this section and Approved by Factory Mutual Research under FM Standard 4991, "Approval of Firestop Contractors" or meeting at least two of the following requirements:
1. With minimum 3 years documented experience installing work of this type.
 2. Able to show at least 5 satisfactorily completed projects of comparable size and type.
 3. Approved by firestopping manufacturer.

1.7 APPLICABLE PUBLICATIONS

- A. Publications listed below form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
- E84-07.....Surface Burning Characteristics of Building Materials
- E814-06.....Fire Tests of Through-Penetration Fire Stops
- C. Factory Mutual Engineering and Research Corporation (FM):
- Annual Issue Approval Guide Building Materials
- Standard 4991Approval of Firestop Contractors
- D. Underwriters Laboratories, Inc. (UL):
- Annual Issue Building Materials Directory
- Annual Issue Fire Resistance Directory
- 1479-03Fire Tests of Through-Penetration Firestops
- E. Warnock Hersey (AKA Intertek Testing Services) (WH or ITS):
- Annual Issue Certification Listings

PART 2 - PRODUCTS

2.1 FIRESTOP SYSTEMS

- A. Use either 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 to 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 to seal an opening by its intumescence shall exhibit a demonstrated ability to function as designed to maintain the fire barrier.
- D. Firestop sealants used for firestopping or smoke sealing shall have 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 including resistant to mold.
 - 4. When used in exposed areas, shall be capable of being sanded and finished with similar surface treatments as used on the surrounding wall or floor surface.
- E. Firestopping system or devices used for penetrations by glass pipe, plastic pipe or conduits, unenclosed cables, or other non-metallic materials shall have 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. Maximum flame spread of 25 and smoke development of 50 when tested in accordance with ASTM E84.
- G. FM, UL, or WH rated or tested by an approved laboratory in accordance with ASTM E814.
- H. Materials to be asbestos free.
- I. Where the firestopping will be exposed to traffic or to frequent contact with the public, the material must be durable and undamaged by the normal wear it will be expected to receive.
- J. Where the firestopping may reasonably be expected to experience differential movement, the material must be elastomeric in nature and have a tested elongation equal to or greater than the change in dimension that can be reasonably anticipated.
- K. All materials used in firestopping systems, including packing and anchoring materials, must conform to the requirements of the tested design (FM, UL or WH design) and must conform to all requirements of the primary firestopping material manufacturer.

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 shall 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.

2.3 ACCESSORIES

- A. Primers, Sleeves, Forms, and Accessories: Type required for tested assembly design and as recommended by the manufacturer of the primary firestopping material.
- B. Labels: Red and white self-adhesive label, or plastic or metal plate. As a minimum stating the installation is a “fire rated assembly” or “through-penetration fire stop system,” and installation data (UL-Listed or FM-Approved configuration number) date installed, installer and organization. Also state “Modify/remove only with {-installing contractors name-} approval” if space permits.

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. Prepare surface according to the recommendations of the manufacturer including providing primer where recommended.
- B. Remove dirt, grease, oil, loose materials, or other substances that prevent adherence and bonding or application of the firestopping or smoke stopping materials.
- C. Remove insulation on insulated pipe for a distance of 150 mm (six 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 LABELING

- A. All firestopping installations are to be labeled as described herein.

- B. Labels shall be frequent and visible enough that future activities requiring penetration of the fire barrier will recognize the need for firestopping.
- C. Label on both sides of the penetrated fire/smoke barrier.
- D. Provide labels as described under PART 2- MATERIALS.

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 Resident Engineer.
- C. Clean up spills of liquid type materials.

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