

**PART 1 - GENERAL**

**1.01 Related Documents**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.02 Summary**

- A. This Section includes:
1. Firestop systems for **construction joints/gaps** occurring between the following fire-resistance-rated assemblies:
  2. Floors and the intersection of floors to exterior walls
  3. Walls and the intersection of the top of walls to ceilings
  4. Smoke barriers

**1.03 References**

**A. American Society for Testing and Materials Standards (ASTM):**

1. ASTM E119: Method for Fire Tests of Building Construction and Materials
2. ASTM E814: Methods for Fire Tests of Through Penetration Fire Stops
3. ASTM E84: Test Method for Surface Burning Characteristics of Building Materials
4. ASTM E136: Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C
5. ASTM E90: Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
6. ASTM E1399: Test Method of Cyclic Movement and Measuring the Minimum and Maximum joint Widths of Architectural Joint System
7. ASTM C719: Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement
8. ASTM C920: Specification for Elastomeric Joint Sealants

**B. Underwriters Laboratories, Inc. (UL):**

1. UL 2079: UL Standard for Safety Tests for Fire Resistance of Building Joint Systems
2. UL 263-92: UL Standard for Safety Fire Tests of Building Construction and Materials
3. UL 1479: UL Standard for Safety Fire Test of Through Penetration Firestops
4. UL 723: UL Standard for Safety Test for Surface Burning Characteristics of Building Materials

- C. **National Fire Protection Agency (NFPA):**
  - 1. NFPA 251: Fire Test of Building Construction Materials
  - 2. NFPA 255: Burning Character of Building Materials
- D. **ICBO: Uniform Building Code (UBC)**
- E. **BOCA: Building Officials and Code Administrators International**
- F. **SBCCI: Southern building Code congress International**
- G. **City of Los Angeles Building Code**

#### 1.04 Definitions

- A. **Assembly:** Particular arrangement of materials specific to a given type of construction described or defined in referenced documents.
- B. **Construction Gap:** Any joint or opening, whether static or dynamic, within or between adjacent sections of interior or exterior walls, floors, ceilings or roof decks.
- C. **Engineering Judgment:** Evaluations that are developed by a manufacturer for a new firestop system that complies with similar UL approved designs or tests that are acceptable to the code enforcing authorities.
- D. **Firestopping:** Methods and materials applied in penetrations and unprotected openings to limit the spread of heat, fire, gasses and smoke.
- E. **Firestop System:** The use of a specific firestop material or combination of materials in conjunction with a specific wall, floor, or ceiling construction type and a specific penetrating material(s) to achieve a rated fire barrier.

#### 1.05 Performance Requirements

- A. **General:** Provide firestop systems that are produced and installed to resist the spread of Fire according to requirements indicated, resist passage of smoke and other gasses, and maintain original fire-resistance rating of construction assembly.
- B. **F-Rated Systems:** Provide firestop systems with F-ratings indicated, as determined per ASTM E814, but not less than that equaling or exceeding fire-resistance ratings of the construction assembly.
- C. For firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E84.
- D. Construction joint/gap firestop systems must be tested for cyclic movement, according to ASTM E1399 standard test methods, to meet or exceed 500 cycles at 10 cycles per minute.

## 1.06 Submittals

Submit in accordance with Section 01300, unless otherwise indicated.

- A. **Product Data:** Manufacturer's product literature for each type of firestop material as follows:
  - 1. Product characteristics, typical uses, installation procedures, performance and limitation criteria
  - 2. Material Safety Data Sheets (MSDS)
- B. **Shop Drawings:** For each firestop system show construction conditions, relationships to adjoining construction, dimensions, description of materials and finishes, component connections, anchorage methods, hardware and installation procedures, plus the following:
  - 1. Firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that confirms compliance with requirements for each condition indicated.
  - 2. Documentation, including illustrations, from a qualified testing and inspection agency that is applicable to each firestop system configuration for construction and penetrating items. Factory 2<sup>nd</sup>/or manufacturer furnished installation details are not acceptable in lieu of published documents by approved testing agencies (UL, ASTM, etc).
  - 3. Where Project conditions require modification of a qualified testing and inspecting agency's illustration to suit a particular firestop condition, submit illustration, with modifications marked, approved by fire stop system manufacturer's fire-protection engineer.
- C. **Qualification Data:** For firms and persons specified in "Quality Assurance" Article 1.07, to demonstrate their capabilities and experience, include a list of names and addresses of completed projects, architects and owners, and other information specified.
- D. **Product Certificates:** Signed by manufacturers of firestop system products certifying that products furnished, comply with requirements.
- E. **Product Test Reports:** From a qualified testing agency indicating that firestop system complies with requirements, based on comprehensive testing of current products.

## 1.07 Quality Assurance

- A. **Fire Protection Installer's Qualifications:** Engage an experienced installer, (including individual trades people such as: electrical, mechanical, insulators, etc.) who is qualified by having the necessary experience, staff, and training to install manufacturer's products per specified requirements, plus the following:
  - 1. Acceptable to or licensed by manufacturer, state or local authority
  - 2. Established a record of successful in-service experience with firestop systems or completion of manufacturer's certified product installation training.

- B. **Source Limitations:** Obtain firestop systems for each kind of construction condition indicated, from a single manufacturer.
- C. **Fire-Test-Response Characteristics:** provide firestop systems that comply with the Following requirements and those specified in “Performance Requirements” Article 1.05:
  - 1. Firestopping tests and follow-up inspection services for firestop systems are performed by a qualified testing and inspection agency acceptable to authorities having jurisdiction.
  - 2. Firestop systems are identical to those tested per ASTM E814 or UL1479 and comply with the following requirements:
    - a. Firestop system products bear classification marking of qualified testing and inspecting agency
    - b. Firestop systems correspond to those indicated by reference to firestop system designations listed by the following:
      - 1) UL in “Fire Resistance Directory”
    - c. Local and State regulatory requirements: Submit forms of acceptance for proposed assemblies not conforming to specific UL Firestop System numbers or UL classified devices
    - d. **Preinstallation Conference:** conduct conference at project site to comply with requirements in Division 1 section “Project Meetings”.

## 2. Delivery, Storage and Handling

- A. Deliver firestop system products to project site in original, unopened containers or packages with intact and legible manufacturers’ labels identifying product and manufacturer, date of manufacture, lot number, shelf life, qualified testing and inspection agency’s classification marking, curing time, and mixing instructions.
- B. Store and handle materials for fire stop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes. Follow manufacturer’s instructions.

## 3. Project Conditions

- A. **Existing Conditions:** Verify the condition of the substrates and correct unsatisfactory conditions before installing firestop system products; follow manufacturer’s instructions.
- B. **Environmental Limitations:** Comply with manufacturer’s recommendations for temperature and humidity conditions before, during and after installation of firestop systems.
- C. **Ventilation:** Ventilate firestop systems during installation per manufacturer’s written instruction by natural means or, where this is inadequate, forced-air circulation.
- D. **Protection:** Provide masking and drop clothes to prevent contamination of surfaces by firestop system materials.

#### **4. Coordination**

- A. Coordinate construction and sizing of sleeves, openings, core-drilled holes, cut openings and penetrating items to ensure that firestop systems are installed according to specified requirements.
- B. Notify owner's inspecting agency at least seven days in advance of firestop system installations; confirm dates and times on days preceding each series of installations.
- C. Do not cover-up or conceal firestop system installations behind other construction until owner's inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.

### **PART 2 - PRODUCTS**

#### **2.01 General**

- A. Firestop systems and materials shall meet the requirements specified herein.
- B. Architect must approve in writing any alternates to the firestop systems and materials specified herein.
- C. Compatibility: Provide firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through the fire stop system, under conditions of service and application, as demonstrated by the firestop system manufacturer based on testing and field experience.
- D. Accessories: Provide components for each firestop system that are needed to install fill materials and to comply with "Performance Requirements" Article 1.05. Use only components specified by firestop systems manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
  - 1. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state

#### **2.02 Construction Joint/Gap Firestop Systems for Fire Rated Assemblies**

- A. Fill, void or cavity materials listed in the UL Fire Resistance Directory under category XHHW may be used, providing it conforms to the construction type and fire rating involved in each separate instance.
- B. Forming materials listed in the UL Fire Resistance Directory under category XHKU may be used, providing it conforms to the construction type and fire rating involved in each separate instance and meets UL 2079 and ASTM E1966.
- C. Additional requirements: Withstand the passage of cold smoke either as an inherent property of the system, or by the use of a separate product included as a part of the UL system or devise, and designed to perform this function.
- D. All construction joint/gap firestop system products must be from a single manufacturer. All trades will use products from the same manufacturer.

- E. **Acceptable products:** Those listed in the UL Fire Resistance Directory for the UL System involved and defined in the attached Systems and Applications Schedule prepared by Backer Rod Mfg. Inc.

### **PART 3 - EXECUTION**

#### **3.01 Examination**

- A. Examine areas and conditions under which firestop system is to be installed and notify the architect of conditions detrimental to proper or timely completion of the work.
- B. Examine substrates to determine they are satisfactory to receive firestop system materials.
  - 1. Conduct tests according to firestop systems manufacturer's written recommendations to verify that substrates are free of oil, grease, rolling compounds, incompatible primers, loose mill scale, dirt or other foreign substances capable of impairing bond of fire-resistive materials.
  - 2. Verify objects penetrating firestop materials, including clips, hangers, support sleeves, and similar items, are securely attached to substrates.
  - 3. Verify substrates are not obstructed by ducts, piping, equipment, and other suspended construction that will interfere with applying fire-resistive materials.
- C. Verify that environmental conditions are safe and suitable for installation of firestop materials.
  - i. Do not proceed with installation of firestop system until unsatisfactory conditions have been corrected by the contractor in a manner acceptable to the architect.

#### **3.02 Preparation**

- A. Clean and repair substrates that could impair the adhesion or proper fitting of firestop materials, including oil, grease, rolling compounds, incompatible primers, and loose mill scale.
- B. Provide masking and temporary covering, as required, to prevent contamination of adjacent surfaces by firestop materials.

#### **3.03 Installation – General**

- A. Installation of firestop systems shall be performed in strict accordance with manufacturer's detailed installation instructions and procedures.
- B. Extend firestop material in full thickness over entire area of each substrate or opening to be protected.
- C. Protect firestop material from damage on surfaces subject to traffic.

## **b. Installation of Construction Joint Firestop System**

### **i. General**

1. Install construction joint firestop systems to comply with “Performance Requirements” Article 1.05 and firestop systems manufacturer’s written installation instruction and published drawings for products and applications indicated. (See Article 3.05D “construction Joint Firestop systems Schedule”)
2. Install forming/damming/backing materials and other accessories of types required to support fill material during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
  - a. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop system.
3. Install fill materials for fire stop systems by proven techniques to produce the following results:
  - a. Fill voids and cavities formed by openings, forming materials, and accessories as required to achieve fire-resistance rating indicated.
  - b. Apply materials so they contact and adhere to substrates formed by openings.
  - c. For fill materials that will remain exposed after completing work, finish to produce smooth, uniform surfaces that are flush with adjoining surfaces.

### **ii. Field Quality Control**

1. Proceed with enclosing construction joint firestop systems with other construction only after inspection and approval by code authorities.
2. Where deficiencies are found, repair or replace construction joint firestop systems so they comply with requirements.
3. Inspection Agency: If required, owner will engage a qualified Independent inspecting agency to inspect construction joint firestop systems and to prepare test reports indicating whether construction joint firestop systems comply with or deviate from requirements.

### **iii. Cleaning and Protection**

1. Clean off excess fill materials adjacent to openings as work progresses by methods and with cleaning materials that are approved in writing by construction joint fire stop systems manufacturer and that do not damage materials

- in which openings occur.
2. Provide final protection and maintain conditions during and after installation that ensure construction joint fire stop systems are without damage or deterioration at time of substantial completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated construction joint firestop systems immediately and install new materials to produce construction joint firestop systems complying with specified requirements.

**c. Schedule of Firestopping Assemblies**

- i. The Following is a summary of the firestopping assemblies required and include, but are not limited to, the following:
  1. FF-S-1039
  2. FF-S-1040
  3. WW-S-1038

**END OF SECTION**