

## SECTION 270510 - FIRESTOP FOR COMMUNICATIONS SYSTEMS

### PART 1 - GENERAL

#### 1.1 GENERAL REQUIREMENTS

- A. Applicable requirements of Division 27 - Communications shall be considered a part of this section and shall have the same force as if printed here in full.
- B. This document describes the products and execution requirements for Firestopping for Communications Systems.
- C. Product specifications, general design considerations, and installation guidelines are provided in this document. The successful vendor shall meet or exceed all requirements described in this document and on the drawings.

#### 1.2 SUBMITTALS

- A. Provide product data from the manufacturer's specifications.

#### 1.3 WORK INCLUDED

- A. The work included under this Specification consists of furnishing all labor, equipment, materials, and supplies and performing all operations necessary to complete the installation. The Contractor will provide and install all the required material whether specifically addressed in the Specification or not.

### PART 2 - PRODUCTS

#### 2.1 APPROVED PRODUCTS

- A. Approved Firestopping Manufacturer(s)
  - 1. STI Firestop Products (Firestop Devices, Putties, Caulks, Sealants, etc.)

#### 2.2 TYPES OF PRODUCTS

- A. Sealants
  - 1. Intumescent Firestop Sealants and Caulks
  - 2. Latex Firestop Sealant
  - 3. Acrylic Water-Based Sealant
  - 4. Silicone Firestop Sealants and Caulks
  - 5. Firestop Putty
  - 6. Firestop Collars
  - 7. Firestop Sleeves
  - 8. Wrap Strips
  - 9. 2-Part Silicone Firestop Foam
  - 10. Firestop Mortar

11. Firestop Pillows
12. Elastomeric Spray
13. Accessories:
14. Forming/Damming Materials: Mineral fiberboard or other type as per manufacturer recommendation

B. Firestop Devices

1. Thru-Wall Fitting
  - a. The firestop device box shall be constructed of 16-gage G90 steel.
  - b. The firestop device intumescent block shall be constructed of a graphite base material with expansion starting at 375°F and an unrestrained expansion between 6 to 12 times. The intumescent block shall be held securely by the box in order to prevent tampering and damage during installation.
  - c. The firestop device shall have doors that can be adjusted to prevent materials from penetrating the device if the device is empty or completely full. The doors shall be constructed of 16-gage G90 steel with No. 10-32 screws used to adjust the opening size.
  - d. The firestop device shall be available for 2" and 4" trade size EMT conduit.
  - e. The firestop device shall be available in a safety yellow powder coat, custom colors, and an unpainted galvanized finish.
2. Threaded Firestop Device
  - a. Threaded steel sleeve device incorporating flat washers secured by threaded device shall be installed around cables. The device shall be available in 1, 2, and 4-inch sizes. Maximum diameter of the wall penetration for 1, 2, and 4-inch sizes shall be 1-1/4, 2-7/16, and 4-1/2 inches respectively. All sleeve devices are to be provided with gang plates. Size gang plate per number of sleeves. Utilize manufacturer-specific gang plate per sleeve installed.
3. Smooth Firestop Device
  - a. Smooth steel sleeve device incorporating flat washers secured by sliding compression couplers. The device shall be available in 1, 2, and 4-inch sizes. Maximum diameter of the wall penetration for 1, 2, and 4-inch sizes shall be 1-1/4, 2-7/16, and 4-1/2 inches respectively. All sleeve devices are to be provided with gang plates. Size gang plate per number of sleeves. Utilize manufacturer-specific gang plate per sleeve installed.
4. Split-Sleeve Firestop Device
  - a. Threaded steel sleeve halves incorporating split couplings and slotted washers to fit the specific diameter of the opening. The device shall be available in 1, 2, and 4-inch sizes. Maximum diameter of the wall penetration for 1, 2, and 4-inch sizes shall be 1-1/4, 2-7/16, and 4-1/2 inches respectively. All sleeve devices to be provided with gang plates. Size gang plate per number of sleeves. Utilize manufacturer-specific gang plate per sleeve installed.
  - b. Sleeves shall be capable of being sealed with built-in intumescent mesh.
5. Fire Rated Cable Pathway
  - a. Fire-rated cable pathway device modules shall be comprised of steel raceway with intumescent foam pads allowing 0-100 percent cable fill.
  - b. PROVIDE STI EZ-PATH type pathway devices.

2.3 UL CLASSIFICATION

- A. Thru-Wall Fitting - The firestop device for use in through-penetration firestop systems shall have been examined and tested by Underwriters Laboratories Inc. to UL1479 (ASTM E 814) and bear the U.S. and Canadian UL Classification Mark.

- B. Threaded, Smooth, and Split-Sleeve Firestop Devices - Firestopping sealants and devices shall be used together as a firestop system. All firestop systems shall bear a UL Classification system number. UL Classification system numbers are as follows:
1. Threaded Firestop System
    - a. Block Wall - W-J-3049
    - b. Dry Wall - W-L-3138
  2. Threaded Firestop System (Vertical)
    - a. Slab - F-A-3010
  3. Smooth Firestop System
    - a. Block Wall - W-J-3048
    - b. Dry Wall - W-L-3137
  4. Split-Sleeve Firestop System
    - a. Block Wall - W-J-3047
    - b. Dry Wall - W-L-3136

## 2.4 FIRESTOPPING SYSTEMS

- A. Thru-Wall Fitting Firestop System:
1. The device shall be classified for use in one-, two-, three, and four-hour rated gypsum, concrete, and block walls and provide a maximum L rating of six cfm. The devices shall also be tested by Underwriters Laboratories Inc. to UL2043 and determined to be suitable for use in air handling spaces.
- B. Threaded, Smooth and Split-Sleeve Firestop Systems:
1. Shall conform to both Flame (F) and Temperature (T) ratings as required by local building codes and as tested by nationally accepted test agencies per ASTM E814 or UL 1479 fire tests in a configuration that is representative of field conditions.
  2. The F rating must be a minimum of one (1) hour but not less than the fire resistance rating of the assembly being penetrated. T rating when required by code authority shall be based on the measurement of the temperature rise on penetrating item(s). The fire test shall be conducted with a minimum positive pressure differential of 0.01 inches of water column.
  3. For joints, must be tested to UL 2079 with movement capabilities equal to those of the anticipated conditions.
- C. Firestopping materials and systems must be capable of closing or filling through-openings created by 1) the burning or melting of combustible pipes, cable jacketing, or pipe insulation materials, or 2) deflection of sheet metal due to thermal expansion (electrical & mechanical ductwork).
- D. Firestopping material shall be asbestos and lead-free and shall not incorporate nor require the use of hazardous solvents.
- E. Firestopping sealants must be flexible, allowing for normal pipe movement.
- F. Firestopping materials shall not shrink upon drying as evidenced by cracking or pulling back from contact surfaces.
- G. Firestopping materials shall be moisture resistant and may not dissolve in water after curing.

## PART 3 - EXECUTION

### 3.1 CONDITIONS REQUIRING FIRESTOPPING

- A. General

1. Provide firestopping for conditions specified whether or not firestopping is indicated, and if indicated, whether such material is designed as insulation, safing, or otherwise.
- B. Through-Penetrations
  1. Firestopping shall be installed in all open penetrations and in the annular space in all penetrations in any bearing or non-bearing fire-rated barrier.
- C. Membrane-Penetrations
  1. Where required by code, all membrane penetrations in rated walls shall be protected with firestopping products that meet the requirements of third-party time/temperature testing.
- D. Construction Joints/Gaps
  1. Firestopping shall be provided between the edges of floor slabs and exterior walls, between the tops of walls and the underside of floors, in the control joint in masonry walls and floors, and in expansion joints.
- E. Smoke-Stopping
  1. As required by the other sections, smoke stops shall be provided for through-penetrations, membrane-penetrations, and construction gaps with a material approved and tested for such application.

### 3.2 EXAMINATION

1. Examine the areas and conditions where firestops are to be installed and notify the Architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected.
2. Verify that environmental conditions are safe and suitable for the installation of firestop products.
3. Verify that all pipes, conduit, cable, and other items that penetrate fire-rated construction have been permanently installed before installation of firestops.

### 3.3 INSTALLATION

- A. General
  1. Installation of firestops shall be performed by an applicator/installer qualified and trained by the manufacturer. Installation shall be performed in strict accordance with the manufacturer's detailed installation procedures.
  2. Apply firestops in accordance with fire test reports, fire resistance requirements, acceptable sample installations, and manufacturer's recommendations.
  3. Unless specified and approved, all insulation used in conjunction with through-penetrants shall remain intact and undamaged and may not be removed.
  4. Seal holes and penetrations to ensure an effective smoke seal.
  5. In areas of high traffic, protect firestopping materials from damage. If the opening is large, install firestopping materials capable of supporting the weight of a human.
  6. Insulation types specified in other sections shall not be installed in lieu of firestopping material specified herein.
  7. All combustible penetrants (e.g. non-metallic pipes or insulated metallic pipes) shall be firestopped using products and systems tested in a configuration representative of the field condition.
- B. Dam Construction

1. When required to properly contain firestopping materials within openings, damming or packing materials may be utilized. Combustible damming material must be removed after appropriate curing. Noncombustible damming materials may be left as a permanent component of the firestop system.

#### 3.4 FIELD QUALITY CONTROL

- A. Prepare and install firestopping systems in accordance with the manufacturer's printed instructions and recommendations.
- B. Follow safety procedures recommended in the Material Safety Data Sheets.
- C. Finish surfaces of firestopping that are to remain exposed in the completed work to a uniform and level condition.
- D. All areas of work must be accessible before inspection by the applicable Code Authorities.
- E. Correct unacceptable firestops and provide additional inspection to verify compliance with this Specification.

#### 3.5 CLEANING

- A. Remove spilled and excess materials adjacent to firestopping without damaging adjacent surfaces.
- B. Leave finished work in a neat and clean condition with no evidence of spill-overs or damage to adjacent surfaces.

#### 3.6 IDENTIFICATION

- A. Refer to Section 27 05 53 - Identification for Communications Systems for labeling details.

**END OF SECTION**