

SECTION 27-05-37 FIRESTOPPING SYSTEMS FOR COMMUNICATIONS CABLING

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The work covered by this section of the Specifications shall include all labor necessary to perform and complete such construction, all materials and equipment incorporated or to be incorporated in such construction and all services, facilities, tools and equipment necessary or used to perform and complete such construction. The work of this section shall include, but is not limited to, the following:
 - 1. Firestop systems and installation as it relates to communications cabling.

1.02 QUALITY ASSURANCE

- A. Refer to Section 27-00-00 for general details.
- B. Provide Firestop systems that comply with the following requirements:
 - 1. Firestop material shall be tested by a qualified testing and inspection agency (UL or comparable).
 - 2. Only Firestop products bearing the classification marking of qualified testing and inspection agency shall be used.
- C. Installation personnel shall be by qualified and trained. Acceptable Installer qualifications are as follows:
 - 1. FM Research approved in accordance with FM AS 4991.
 - 2. Individuals or staff who are certified, licensed, or otherwise qualified by the Firestop manufacturer as having the necessary training and experience.
 - 3. Minimum of 1 year experience in the installation of manufacturer's products is required.
 - 4. The Installers shall have been trained by a direct representative of the manufacturer (not distributor or agent) in the proper selection and installation procedures.

1.03 CODES, STANDARDS, AND GUIDELINES

- A. Except as modified by governing codes and by the Contract Documents, comply with the applicable provisions and recommendations in Section 27-00-00.
- B. ASTM E 84, "Surface Burning Characteristics of Building Materials".
- C. ASTM E 119, "Fire Tests of Building Construction and Materials".
- D. ASTM E 814, "Fire Tests of Penetration Firestop Systems".
- E. ANSI/UL263, "Fire Tests of Building Construction and Materials".
- F. ANSI/UL723, "Surface Burning Characteristics of Building Materials".
- G. ANSI/UL1479, "Fire Tests of Through Penetration Firestop".
- H. Underwriters Laboratories Inc. (UL) – Fire Resistance Directory

- I. The Cal Poly ITS Telecomm group, Telecommunications Standards Document and the Labeling Design and Syntax Standards in Appendix B.

1.04 SUBMITTALS

- A. Refer to Section 27-00-00 for general details.
- B. Shop Drawings:
 1. Indicate location of every communications firestop system, as well as which UL applications test applies.
- C. Submit Manufacturer's Cut Sheets for the following:
 1. Any products not specifically listed in the PRODUCTS section shall require submittal and approval of the proposed manufacturer's cut sheets by the Cal Poly ITS Telecomm group.

1.05 IDENTIFICATION

- A. ***At all installed locations, install a label on each side of the wall indicating the following information:***
 1. ***Manufacturer of Firestop***
 2. ***Name of product and UL System Number***
 3. ***Name of installing contractor and date of installation.***
 4. ***Rating of the wall/system.***
 5. ***Install labels prior to the Design Engineer's above-ceiling inspection.***
- B. Refer to Section 27-05-53 for additional details.

1.06 DEFINITIONS:

- A. Communications cabling: Cabling to include telecommunications, data, coaxial, distributed antenna systems.
- B. Conduit sleeve: A conduit that only penetrates a single wall for the purpose of providing a pathway for communications cabling into adjacent rooms.
- C. Firestop Assembly: A manufactured product from a reputable company that is delivered to the contractor fully- or partially-assembled and when installed is rated as meeting the UL 1479 or ASTM E814 standards for fire testing and becomes part of a Firestop System for that particular type of installation.
- D. Firestop System: A product or series of products from a reputable manufacturing company that when installed properly by the contractor meets the UL 1479 or ASTM E814 standards for fire testing for that particular type of installation.
- E. Zero maintenance firestop assembly: A firestop assembly with a self-contained sealing system which shall automatically adjust to the installed cable loading and shall permit cables to be installed, removed, or retrofitted without the need to adjust, remove or reinstall firestop material.

1.07 WARRANTY

- A. Refer to Section 27-00-00 for general details.

PART 2 – PRODUCTS

2.01 PRODUCT CONSISTENCY

- B. Product Consistency: Any given item of equipment or material shall be the product of one manufacturer throughout the facility. Multiple manufacturers of any one item will not be permitted.

2.02 ZERO-MAINTENANCE FIRESTOP ASSEMBLY

- A. Shall meet or exceed the ratings of the wall or floor that it penetrates.
- B. Shall be used for communications cabling at all interior wall penetrations through a single, fire-rated wall or floor.
- C. Shall be a listed (UL and/or FM) Firestop assembly system tested to UL 1479 or ASTM E814. The assembly size and quantity shall be determined as follows:
 - 1. For round openings, fill ratio of cabling-to-opening-size shall not exceed 40%, or as dictated by the manufacturer, whichever is more stringent.
 - 2. For rectangular openings, fill ratio of cabling-to-opening size shall not exceed 50%, or as dictated by the manufacturer, whichever is more stringent.
 - 3. Include in cabling cross-sectional area enough spare capacity to accommodate 25% growth while maintaining the fill percentages in #1 and #2 above. Upon commissioning, if adequate spare capacity is not observed, contractor shall install additional assemblies at their own cost to provide such spare capacity.
 - 4. Approved Manufacturer: Specified Technologies Inc., EZ Path Series 22, 33, or 44 or Cal Poly ITS Telecomm Group approved equivalent

2.03 FIRESTOPPING FOR COMMUNICATIONS CONDUITS & OTHER APPLICATIONS

- A. Required for all fire-rated wall penetrations where a communications pathway extends beyond a single fire-rated partition.
- B. Required for all telecommunications outlets located in fire-rated walls. System shall be UL CLIV tested.
- C. Shall be a listed (UL and/or FM) Firestop assembly system tested to UL 1479 or ASTM E814.
- D. Shall meet or exceed the ratings of the wall or floor that it penetrates.
- E. Approved Manufacturers: 3M, Hilti, Specified Technologies Inc., or Cal Poly ITS Telecomm Group approved equivalent

PART 3 – EXECUTION

3.01 GENERAL

- A. All firewall penetrations shall be sleeved and Firestop applied. **(See Fig. #138 in Appendix B)**
- B. All conduits (empty, partly filled or full) terminating in a telecommunications space shall have Firestop applied using plug style Firestop muffins.
- C. Communications cable tray may be continued through a fire-rated wall providing that approval from the AHJ is granted. Otherwise, stop the tray, install multiple zero-maintenance firestop assemblies, and continue tray on the other side. Ensure grounding of the cable tray is continuous through the wall.

- D. Provide Firestop assemblies of a sufficient size to accommodate the capacity of the cable tray (including the 25% allowance for growth).

3.02 QUANTITIES

- A. Quantities of Firestop elements shown on the drawings are illustrative only and are meant to indicate the general configuration of the work. The Contractor is responsible for providing the correct quantities of materials to construct a system that meets the intent of these Specifications and the relevant codes.

3.03 INSTALLATION

- A. Schedule installation of Firestop for after completion of penetrating item installation, but prior to covering or concealing of openings.
- B. Before beginning installation:
 - 1. Examine effected surfaces, as they shall be free of dirt, grease, oil, scale, laitance, rust, release agents, water repellants, and any other substances that may inhibit optimum adhesion.
 - 2. Provide masking and temporary covering to protect adjacent surfaces.
 - 3. Do not proceed until unsatisfactory conditions have been corrected.
- C. Do not install Firestop products when ambient or substrate temperatures are outside limitations recommended by manufacturer.
- D. Do not install Firestop products when substrates are wet due to rain, frost, condensation, or other causes.
- E. Maintain minimum temperature before, during, and for a minimum 3 days after installation of materials.
- F. Do not use materials that contain flammable solvents.
- G. Coordinate construction of openings and penetrating items to ensure that through penetration firestop systems are installed according to specified requirements.
- H. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- I. Install through-penetration firestop systems in accordance with the conditions of testing and classification as specified in the published design. Comply with manufacturer's instructions for installation of Firestop products.
- J. After installation:
 - 1. **Remove equipment, materials, and debris, leaving area in undamaged, clean condition.**
 - 2. Clean all surfaces adjacent to sealed openings to be free of excess Firestop materials and soiling as work progresses.

3.04 GROUNDING & BONDING

- A. Ensure grounding of the any metal pathways is continuous through any Firestop.
- B. Refer to Section 27-05-26 for additional details.

3.05 TESTING

- A. Verify requirements with AHJ/SFM.

3.06 ACCEPTANCE

- A. Once the installation and testing has been completed and the Cal Poly Telecomm group representative is satisfied that all work is in accordance with the Contract Documents, the ITS Telecomm group representative will notify the Contractor and/or Cal Poly Project Manager in writing or via email.

3.07 RECORD (AS-BUILT) DRAWINGS

- A. On shop drawings and record drawings, indicate location of every communications Firestop system, as well as which UL applications test applies.

END OF SECTION

DOCUMENT VERSION CONTROL

| REVISION | DATE | AUTHOR | REASON |
|----------|------------|---------|------------------------------|
| 1 | 02/20/2014 | R. VOLK | INITIAL DOCUMENT DEVELOPMENT |
| | 02/20/2014 | DW & MH | PRIMARY REVIEW COMPLETE |