SECTION 07 84 00
FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Firestopping systems.

B. Firestopping of all joints and penetrations in fire resistance rated and smoke resistant assemblies, whether indicated on Drawings or not, and other openings indicated.

C. Details that require fire stopping include the following, but are not limited to:

1. Penetrations through fire-resistance-rated floor and ceiling/roof construction requiring protected openings including both empty openings and openings that contain penetrations (including vertical shaft walls and partitions).
2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings that contain penetrations.
3. Membrane penetrations if fire-resistance-rated walls and partitions that penetrating items penetrate one side of the barrier.
4. Sealant joints in fire-resistance-rated construction (floors, walls or roof)
5. Penetrations for the passage of duct, cable, cable tray, conduit, piping, electrical busways and raceways through fire-rated vertical barriers (walls and partitions), horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.
6. Safing slot gaps between edge of floor slabs and curtain walls.
7. Openings between structurally separate sections of wall or floors.
8. Gaps between the top of walls and ceilings of roof assemblies.
9. Openings and penetrations in walls containing fire doors.
10. Openings around structural members penetrating floors or walls.

1.02 REFERENCE STANDARDS

A. Editions of listed standards as referenced by applicable codes, or most current edition if not referenced:

1. ASTM. ASTM International; www.astm.org.
   a. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
   b. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems.
   c. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.
2. UL. Underwriters Laboratories; www.ul.com.
   a. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meetings: See Section 01 70 00 - Execution and Closeout Requirements.

B. Sequencing and Scheduling per Section 01 32 16 - Construction Progress Schedule, and as follows:

1. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements. Coordinate sequence of work with the work of other trades.
2. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Construction Submittals

1. Product Data: Provide data on product characteristics.

2. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
3. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
4. Schedule of materials: Submit a schedule of materials indicating the firestop system to be utilized for each different firestopping application in tabular form and identify:
    a. Include all of the individual materials required for each complete system.
    b. Indicate manufacturer’s product name and nomenclature for each material.
    c. Type of penetration or opening type by design designation of qualified testing and inspecting agency with location of each.
    d. Types of construction assembly penetrated, including fire-resistance ratings and, where applicable, thicknesses of construction penetrated.

C. Closeout Submittals
1. Submit in accordance with Section 01 70 00 - Execution and Closeout Requirements and Section 01 78 00 - Closeout Submittals.
2. Operation and Maintenance Data:
    a. Basic Owner requirements to maintain warranty
3. Warranty Documentation: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this Section and:
1. With minimum five years documented experience installing work of this type.
2. Able to show at least five completed projects of comparable size and type.
3. Having received and passed all training, licensing and approvals required by the firestopping system manufacturer.

B. Single Source Responsibility: To the greatest extent practical, obtain firestop materials from single manufacturer.
1. All trades required to provide firestopping and coordinate with each other to provide products from the same manufacturer.
2. Materials of different firestop manufacturers shall not be intermixed in the same firestop system or opening - if not part of that firestop system.
3. Tested and listed firestop systems are to be used before an engineering judgment (EJ) is requested, even if from another manufacturer.

1.06 FIELD CONDITIONS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Firestopping Manufacturers:
1. 3M Fire Protection Products: www.3m.com/firestop.
2. Hilti, Inc: www.us.hilti.com.
3. Pecora Corporation: www.pecora.com.
4. RectorSeal: www.rectorseal.com.
5. Specified Technologies Inc: www.stifirestop.com.
6. Thermafiber, Inc: www.thermafiber.com.
7. USG: www.usg.com.
8. Other manufacturer’s products accepted by the Awarding Authority as equal to the specified products in terms of construction, quality, durability, performance, and or appearance.

Submit as substitutions: see Section 01 25 00 - Substitution Procedures.

2.02 MATERIALS

A. All materials shall be asbestos free and non-carcinogenic.

B. If required, hazardous disposal of firestop materials shall be strictly observed as noted on the individual MSDS.

C. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials required for tested firestopping assembly.

2.03 FIRESTOPPING ASSEMBLY REQUIREMENTS

A. Performance Requirements - Provide and install firestopping systems that are produced to resist the spread of fire, according to requirements indicated, and the passage of smoke and other gases. Include the following:

1. Firestop each penetration through rated construction to the approval of the Authority Having Jurisdiction (AHJ).
2. Provide and install complete firestopping systems that are designed and approved for the specific construction to be firestopped.
3. Provide and install firestop materials of thickness, width, and density required.

B. F-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop system with F (flame) ratings indicated, as determined per ASTM E814, but not less than that equaling or exceeding the fire-resistance rating of the constructions penetrated.

C. T-Rated Through-Penetration Firestop Systems: Provide firestop systems with T (temperature) ratings, in addition to F ratings, as determined per ASTM E814, where indicated and where systems protect penetrating items exposed to contact with adjacent materials in occupied floor areas. T-rated assemblies are required where the following conditions exist where firestop systems protect:

1. Penetrations located outside of wall cavities.
2. Penetrations located outside fire-resistive shaft enclosures.
3. Penetrations located in construction containing doors required to have a temperature-rise rating.
4. Penetrating items larger than a 4 in. diameter nominal pipe of 16 sq. in. in overall cross-sectional area.

D. Fire-Resistive Join Sealants: Provide joint sealants with fire-resistance ratings indicated, as determined per UL 2079 and/or ASTM E119 and ASTM E1966, but not less than that equaling or exceeding the fire-resistance rating of the construction in which the joint occurs.

E. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.

1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide through-penetration firestop systems with elastomeric qualities.
2. For floor penetrations with annular spaces exceeding 4 in. or more in width and exposed to possible loading and traffic, provide firestop systems capable of supporting the floor loads involved either by installing floor plates or by other means.
3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

2.04 FIRESTOPPING SYSTEMS

A. Elastomeric Silicone Firestopping: Single component silicone elastomeric compound and compatible silicone sealant; conforming to the following:

1. Durability and Longevity: Permanent.

B. Foam Firestoppping: Single component silicone foam compound; conforming to the following:

1. Durability and Longevity: Permanent.

C. Fibered Compound Firestopping: Formulated compound mixed with incombustible non-asbestos fibers; conforming to the following:
   1. Durability and Longevity: Permanent.
D. Fiber Firestopping: Mineral fiber insulation used in conjunction with elastomeric surface sealer forming airtight bond to opening; conforming to the following:
   1. Durability and Longevity: Permanent.
E. Firestop Devices - Wrap Type: Mechanical device with incombustible filler and sheet stainless steel jacket, intended to be installed after penetrating item has been installed; conforming to the following:
   1. Durability and Longevity: Permanent; suitable for pedestrian traffic.
F. Intumescent Putty: Compound that expands on exposure to surface heat gain; conforming to the following:
   1. Durability and Longevity: Permanent.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify openings are ready to receive the work of this Section.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.
B. Remove incompatible materials that could adversely affect bond.
C. Install backing materials to prevent liquid material from leakage.
D. Coordinate with fire protection, plumbing, mechanical, electrical and other trades to assure that all pipe, conduit, cable, and other items that penetrate fire rated construction have been permanently installed prior to installation of firestops and smoke seals.

3.03 INSPECTION

A. In accordance with requirements of the Authority Having Jurisdiction (AHJ), inspection of installed firestopping systems shall be provided by a third-party inspector on behalf of the Owner and the AHJ.
B. In accordance with Section 01 40 00 - Quality Requirements and the General Requirements of Division 01, the subcontractor shall:
   1. Anticipate inspections, provide access to facilitate inspections, and cooperate fully with third-party inspector.
   2. Repair, modify, and replace installed firestopping materials determined by the inspector to be unacceptable, to the extent necessary to obtain inspector's approval of the installation.

3.04 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION

A. Protect adjacent surfaces from damage by material installation.

END OF SECTION