



**SECTION 07840 (Formerly 07270)
FIRESTOPPING**

PART I - GENERAL

1.01 RELATED DOCUMENTS

- A. The requirements of the GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, and DIVISION 1 GENERAL REQUIREMENTS apply to the work of this SECTION.
- B. Coordinate work of this Section with the work of the following Sections and Divisions to properly execute the work in order to maintain the hourly ratings of the walls and floors where firestopping and smoke-seals are applied.
 - 1. Section 03300 - Concrete Work
 - 2. Section 04200 - Masonry Work
 - 3. Section 07900 - Joint Sealers
 - 4. Section 09250 - Drywall
 - 5. Division 15 and 16 Sections: Mechanical Plumbing and Electrical Work.

1.02 DESCRIPTION

- A. This SECTION describes the requirements for furnishing and installing firestopping for fire-rated construction. This includes:
 - 1. All openings in fire-rated floor and wall assemblies, both blank (empty) and those accommodating penetrating items such as cable conduits, pipes, ducts, etc.
 - 2. Gaps (openings) between exterior curtain walls and the outer perimeter edge of structural floor.
 - 3. Openings at each floor level in shafts or stairwells.
 - 4. Joints in rated walls and floors between similar and dissimilar construction materials.

1.03 QUALITY ASSURANCE

- A. Firestopping materials shall conform to Flame (F) and Temperature (T) ratings as required by local Building code and as tested by nationally accepted test agencies per ASTM E-814 or UL 1479 fire tests, ASTM E-1966 or UL 2079 for construction joints. 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 measurement of the temperature rise on the penetrating item(s). The fire test shall be conducted with a minimum positive pressure differential of 0.01 inches of water column.
- B. Firestopping material shall be free of asbestos, PCBs, ethylene glycol, and lead.
- C. Do not use any product containing solvents or that requires hazardous waste disposal.
- D. Firestopping shall be performed by a contractor trained or approved by firestop manufacturer.
- E. Equipment used shall be in accordance with firestop manufacturer's written installation instructions.
- F. Firestopping shall be inspected by a third party independent inspection service and a report furnished to the architect or owners representative during all phases of construction where it is possible to cover up areas requiring to be firestopped. Service provided by Owner. Coordination shall be the responsibility of the General Contractor. Should defects be discovered, subsequent inspections will be at the cost of the installing contractor.
- G. Single Source Responsibility: Provide firestop systems for all conditions from a single manufacturer.

1.04 SUBMITTALS

- A. Submit manufacturer's product literature for each type of firestop material to be installed. Literature shall indicate product characteristics, typical uses, performance and limitation criteria, and test data.
- B. Material safety data sheets (MSDS): Submit MSDS for each firestop product.
- C. Shop drawings: Show typical installation details for methods of installation. Indicate which firestop materials will be used where.
- D. Submit manufacturer's installation procedures for each type of product.
- E. Submit manufacturer's Warranty. If Manufacturer's states that the Owner or user shall determine the suitability of the product for its intended use, or Warranty states that that the Owner or user shall test application for specific use, then the Contractor shall have independently monitored tests performed on the construction configurations identical to the proposed construction on this project, and Contractors shall submit copies of Test Reports covering same, for review by the Architect.
- F. Prepare job mock-up of the material proposed for use in the project as directed by architect. Approved mock-ups may be left in place as part of the finished project and will constitute the standard for remaining works.
- H. Pre-installation Conference: Construction Manager to schedule conference approximately two weeks prior to scheduled commencement of firestopping installation and associated work, meet at project site with Firestopping Subcontractor; Contractors, Subcontractors and installers of associated work including architectural, mechanical, electrical, and communication work: Construction Manager; Owner; Firestopping Manufacturers Representative; and other representatives directly concerned with the performance of the work, including (where applicable) Owner's Insurers, Test Agencies, and Governing Authorities.
 - 1. Review foreseeable methods related to Firestopping work, including but not necessarily limited to the following:
 - a. Tour representative areas where firestopping is to be installed; inspect and discuss each type of condition and each type of substrate that will be encountered, and preparatory work to be performed by other trades.
 - 2. Construction Manager to record discussion, including agreement or disagreement on matters of significance; furnish copy of recorded discussions to each participant. If substantial disagreements exist at the conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
- H. Owner shall provide the services of an independent and qualified inspection agency. Contractor shall provide access, notify inspection agency, and receive approval prior to concealment. Contractor shall replace any applications damaged by inspection and applications deemed unacceptable.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in the manufacturer's original, unopened containers or packages with manufacturers name, product identification, lot numbers, UL-labels, and mixing and installation instructions, as applicable.
- B. Store materials in the original, unopened containers or packages, and under conditions recommended by manufacturers.
- C. All Firestop materials shall be installed prior to expiration of shelf life.

1.06 PROJECT CONDITIONS

- A. Conform to Manufacturer's printed instructions for installation and when applicable, curing in accordance with temperature and humidity. Conform to ventilation and safety requirements.

1.07 WARRANTY

- A. Firestop Contractor shall warrant that firestopping systems used meet firestopping requirements as herein specified.

1.08 SEQUENCING

- A. Coordinate this work as required with work of other trades.
- B. Firestopping shall precede gypsum board finishing.

1.09 PROTECTION

- A. Where firestopping is installed at locations which will remain exposed in the completed work, provide protection as necessary to prevent damage to adjacent surfaces and finishes, and protect as necessary against damage from other construction activities.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Firestopping shall meet the specified requirements.

2.02 FIRESTOPPING

A. Acceptable Manufacturers:

1. Bio Fireshield™ (whose products are listed as a standard).
2. RectorSeal® Metacaulk®
3. 3M

B. Firestop Mortars:

1. K-10+™ Firestop Mortar.
2. Metacaulk® Mortar.

C. Firestop Sealants and Caulks:

1. Bio Fireshield™ Biotherm™ 100 and Biotherm™ 200 Firestop Sealants.
2. Bio Fireshield™ BIOSTOP™ 500+, 750, and BF150+ Intumescent Firestop Caulk.
3. Metacaulk®, 950, 835+, 1000, 1200, MC150+ & Intumescent Firestop Caulks.
4. 3M CP25WB+.

D. Firestop Putty:

1. 3M MPS-2 Moldable Putty Stix.
2. 3M MMP-4S Moldable Putty Pads.
3. Metacaulk® Putty & Putty Pads.
4. Bio Fireshield™ BIOSTOP™ Moldable Putty & Putty Pads.

E. Firestop Collars:

1. BIOSTOP™ Plastic Pipe Collar.
2. Metacaulk® Plastic Pipe Collar.
3. 3M PPD

F. Intumescent Fire Retardant Firestop Mastic - Spray, Brush, or Trowel applied

1. Metacaulk® 1100 Firestop Mastic.
2. Bio Fireshield™ 700 Firestop Mastic.

G. Non-Intumescent Firestop Spray Sealant

1. BIOSTOP™ 750 Firestop Spray
2. Metacaulk® 1200 Firestop Spray
3. 3M Firedam Spray

H. Wrap Strips:

1. 3M FS-195 Wrap Strip.
2. Bio Fireshield™ BIOSTOP™ Intumescent Wrap Strips
3. Metacaulk® Intumescent Wrap Strips

I. Firestop Pillows

1. Metacaulk® PILLOWS
2. BIOSTOP™ Firestop PILLOWS
3. 3M Firestop Pillows

J. Wall Opening Protective Materials

1. LECTRA-STOP™ Fire Rated Electrical Box Inserts, by BIO FIRESHIELD™
2. BIOSTOP™ Fire Rated Putty Pads
3. 3M Moldable Putty Pads
4. Metacaulk® BOX GUARD™ Fire Rated Electrical Box Inserts, By RectorSeal Corporation
5. Metacaulk® Putty Pads
6. Metacaulk® Cover Guard™
7. Bio Fireshield™ Firestopping Gasket

K. Fire Rated Joint Backing Material

1. Metacaulk® Joint Strips
2. BIOSTOP™ Joint Strips

L. Composite Sheet Materials

1. Metacaulk Composite Sheet
2. BIOSTOP Composite Sheet
3. 3M CS 195+ Composite Sheet

M. Accessories; As specified by the tested assembly and:

1. Forming/Damming Materials: Mineral fiberboard or other type recommended by manufacturer's tested system.
2. Primer, Sealant and Solvent Cleaner: As recommended by manufacturer's tested system.
3. Fasteners, universal restricting collars, etc: As recommended by the manufacturer's tested system.

PART 3 - EXECUTION

3.01 INSPECTION

- A. 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 the work until unsatisfactory conditions have been corrected by the contractor in a manner acceptable to the architect.
- B. Verify that environmental conditions are safe and suitable for installation of Firestop product(s).
- C. Provide labels at each location, which state:
Firestop System: Do Not Disturb
Manufacturer's name _____
System Number _____
Contractor _____

3.02 CONDITIONS REQUIRING FIRESTOPPING

A. General:

1. Provide firestopping for conditions specified whether or not firestopping is indicated, and, if indicated, whether such material is designated as insulation, safing, or otherwise.
2. Insulation types specified in other SECTIONS shall not be installed in lieu of firestopping material specified herein.

B. Building Exterior Perimeters:

1. Where exterior facing construction is continuous past a structural floor, and a space would otherwise remain open between the inner face of the wall construction and the outer perimeter edge of the structural floor, provide firestopping to equal the fire resistance of the floor assembly. Mineral wool by itself is not an acceptable firestop, neither is mineral wool used with beads of caulking applied along length of mineral wool/curtain wall or mineral wool/floor slab junctures. If mineral wool is part of firestop system, the mineral wool must be completely covered by appropriate thickness of UL listed Firestop Sealant.
2. Firestopping shall be provided whether or not there are any clips, angles, plates, or other members bridging or interconnecting the facing and floor systems, and whether or not such items are continuous.
3. Where an exterior wall of composite type construction passes a perimeter structural member, such as a girder, beam, or strut, and the finish on the interior wall face does not continue up too close with the underside of the structural floor above, thus interrupting the fire-resistive integrity of the wall system, and a space would otherwise remain open between the interior face of the wall and lower edge of the structural member; provide firestopping to continuously fill such open space.

C. Interior Walls and Partitions:

1. Where a wall or partition is continuous past a structural floor, such as a stairwells and vertical shafts, and a space would otherwise remain open between the wall face and perimeter edges of the adjoining structural floor, provide firestopping.
2. Provide firestopping whether or not there are any clips, angles, plates, or other members bridging or interconnecting the wall and floor systems, and whether or not such items are continuous.
3. Where the top edge of a fire-rated wall or partition abuts and is at right angles to fluted-type metal decking, and the construction is such that would otherwise leave the flute spaces open, provide firestopping.

D. Penetrations:

1. Penetrations include conduit, cable, wire, pipe, duct, or other elements which pass through one or both outer surfaces of a fire rated floor, wall, or partition.
2. Except for floors on grade, where a penetration occurs through a structural floor or roof and a space would otherwise remain open between the surfaces of the penetration and the edge of the adjoining structural floor or roof, provide firestopping to fill such spaces in accordance with ASTM E-1966 and UL 2079 for dynamic movement.
3. Where penetrations occur at fire-rated walls or partitions of solid-type construction, provide fire-stopping to completely fill spaces around the penetration, in accordance with ASTM E-814.
4. Where penetrations occur at fire-rated walls or partitions of hollow-type construction, provide fire-fire-stopping to completely fill spaces around the penetration, on each side of the wall or partition, in accordance with ASTM E-814.

5. These requirements for penetrations shall apply whether or not sleeves have been provided, and whether or not penetrations are to be equipped with escutcheons or other trim. If penetrations are sleeved, firestop annular space - if any - between sleeve and wall of opening.
 6. Where openings occur for expansion, at intersections of dissimilar rated construction, or control joints provide a rated joint system in accordance with ASTM E-1966 or UL 2079
- E. Provide firestopping to fill miscellaneous voids and openings in fire-rated construction in a manner essentially the same as specified herein before.

3.03 INSTALLATION

A. General

1. Installation of Firestops shall be performed by either a specialty contractor specializing in Firestop application (FM 4991 Approved Contractor), or general or sub-contractors with experience in similar applications and projects with installers qualified and trained by the manufacturer. Installation shall be performed in strict accordance with 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. Coordinate with plumbing, mechanical, electrical and other trades to assure that all pipe, conduit, cable, and other items which penetrate fire rated construction have been permanently installed prior to installation of Firestops, schedule and sequence the work to assure that partitions and other construction, which would conceal penetrations, is not erected prior to the installation of Firestops.

B. Dam Construction

1. Install dams when required to properly contain Firestopping materials within openings and as required to achieve required fire resistance rating. Combustible damming material must be removed after appropriate curing. Incombustible damming materials may be left as a permanent component of the Firestop system.

C. Field Quality Control

1. Prepare and install firestopping systems in accordance with manufacturer's printed instructions and recommendations.
2. Follow safety procedures recommended in the Material Safety Data Sheets.
3. Finish surfaces of firestopping which is to remain exposed in the completed Work to a uniform and level condition.
4. All areas of Work must be accessible until inspection by the applicable Code authorities.
5. Correct unacceptable firestops and provide additional inspection to verify compliance with this specification at no additional cost.

D. Third Party Inspection:

1. During installation, provide periodic Third Party inspections to assure proper application.
2. After installation is complete, submit findings in writing with certification that Systems and Designs were followed.

3.04 CLEANING

- A. Remove spilled and excesses materials adjacent to firestopping without damaging adjacent surfaces.
- B. Leave finished Work in neat, clean condition with no evidence of spillovers or damage to adjacent Surfaces.

END OF SECTION