

## **SECTION 07270 – FIRESTOPPING**

### **PART 1 – GENERAL**

#### **1.01 SUMMARY**

- A. Work Included: General Contractor shall be responsible for the firestopping installation and the work of this section shall include, but is not necessarily limited to the following:
  - 1. Any and all penetrations (including by other trades) through fire resistance rated construction; including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
  - 2. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.
  - 3. Sealant joints in fire resistance rated construction at intersection of dissimilar materials including at wall and deck locations, etc.
  - 4. Furnishing of dams, clips and closures for support and containment of fire safing materials and installation of dams, clips and closures where possible to install after completion of floors, walls or other construction.
- B. Related Sections:
  - 1. Section 03300 – Cast – In – Place Concrete
  - 2. Section 04200 – Unit Masonry
  - 3. Section 07210 – Building Insulation
  - 4. Section 07250 – Fireproofing
  - 5. Section 07900 – Joint Sealers
  - 6. Section 09255 – Gypsum Board Assemblies
  - 7. Division 15 and 16 – Mechanical and Electrical

#### **1.02 QUALITY ASSURANCE**

- A. Qualifications: The work of this section shall be performed by a qualified and experienced installer, acceptable to the Architect. The term “installer” as used herein, shall mean a firm of established reputation; which has been trained by the

Manufacturer in the proper installation of fire safing materials and which is regularly engaged in, and maintains a regular force of workmen skilled in the installation of fire safing materials of the type specified.

- B. Installer's Qualifications: Before proceeding with the work, submit three (3) copies of a list of several comparable projects of similar work that the installer has completed within the past five (5) years, giving the job locations, names of the owners, their telephone numbers and the date on which the work on each project was started and completed.

### 1.03 REFERENCES

- A. Codes and Regulations: Fire safing work shall conform to the New York State Fire Prevention and Building Code and all applicable regulations of governmental authorities having jurisdiction, including safety, health and anti-pollution regulations.

### 1.04 SUBMITTALS

- A. Product Data: Submit product data consisting of Manufacturer's latest published catalog information or technical description and installation instructions; obtain approval before materials are fabricated or delivered to the site.
- B. Test Reports: Submit three (3) certified copies of test reports, by an independent testing laboratory, approved by the Architect, indicating that the fire safing materials are in conformance with the requirements specified herein.
- C. Coordinating Work: Coordinate construction of openings and penetrating items to ensure that designated through penetration fire stop systems are installed per specified requirements.
- D. The School District may employ and pay a qualified inspection agency to check installed firestopping systems for compliance with requirements.

### 1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original tightly sealed containers or unopened packages, with legible mixing and application instructions.
- B. Store materials out of weather in original containers as recommended by manufacturer.

## PART 2 – PRODUCTS

### 2.01 FIRESTOPPING, GENERAL

- A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.
- B. Accessories: Provide components for each firestopping system that are needed to install fill materials and to comply with “System Performance Requirements” article in Part 1. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire resistance rated systems. Accessories include but are not limited to the following items:
  - 1. Permanent forming/damming/backing materials including the following:
    - a. Semirefractory fiber (mineral wool) insulation.
    - b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
    - c. Fire rated form board.
    - d. Joint fillers for joint sealants.
  - 2. Temporary forming materials.
  - 3. Substrate primers.
  - 4. Collars.
  - 5. Steel sleeves.
  - 6. Safing Clips.
  - 7. Metal support plates.
- C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.

## 2.02 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

- A. Mineral Wool: Loose or formed mineral wool rated non-combustible when tested according to ASTM 136, free of asbestos and glass fiber, and suitable for stuffing to an in place density of 6 to 12 psf.
- B. Endothermic, Latex Compound Sealant: Single component, endothermic, latex formulation.
- C. Intumescent, Latex Sealant: Single component, intumescent, latex formulation.
- D. Intumescent Putty: Nonhardening, dielectric, water resistant putty containing no solvents inorganic fibers, or silicone compounds.
- E. Intumescent Wrap Strips: Single component, elastomeric sheet with aluminum foil on one side.
- F. Job Mixed Vinyl Compound: Prepackaged vinyl based powder product for mixing with water at project site to produce a paintable compound, passing ASTM E 136, with flame spread and smoke developed ratings of zero per ASTM E 84.
- G. Mortar: Prepackaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at project site to form a nonshrinking, homogenous mortar.
- H. Pillow/Bags: Re-usable, heat expanding pillows/bags composed of glass fiber cloth cases filled with a combination of mineral fiber, water insoluble expansion agents and fire retardant additives.
- I. Silicone Sealant: Moisture curing, single component, silicone based, neutral curing elastomeric sealant of grade indicated below:
  - 1. Grade: Pourable (self leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
  - 2. Grade for Horizontal Surfaces: Pourable (self leveling) grade for openings in floors and other horizontal surfaces.
  - 3. Grade for Vertical Surfaces: Nonsag grade for openings in vertical and other surfaces.

- J. Solvent Release Curing Intumescent Sealant: Solvent release curing, single component, synthetic polymer based sealant of grade indicated below:
1. Grade: Pourable (self leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
- K. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to the following:
1. Endothermic, Latex Sealant:  
Fyre-Shield, Tremco Inc.
  2. Endothermic, Latex Compounds:  
Flame-Safe FS500/600 Series, International Protective Coatings Corp.  
Flame-Safe FS900/FST900 Series, International Protective Coatings Corp.
  3. Intumescent Latex Sealant:  
Metacaulk 950, The RectorSeal Corporation  
Fire Barrier CP 25WB Caulk, 3M Fire Protection Products.
  4. Intumescent Putty:  
Series SSP, STI Spec Seal FireStop Products  
Flame-Safe FSP1000 Putty, International Protective Coatings Corp.  
Fire Barrier Moldable Putty, 3M Fire Protection Products.
  5. Intumescent Wrap Strips:  
Series SSP, STI Spec Seal FireStop Products  
Dow Corning Fire Stop Intumescent Wrap Strip 2002, Dow Corning Corp.  
Fire Barrier FS-195 Wrap/Strip, 3M Fire Protection Products
  6. Job Mixed Vinyl Compound:  
USG Firecode Compound, United States Gypsum Co.
  7. Mortar:  
SpecSeal Mortar, STI Spec Seal FireStop Products  
Novasit K-10 Firestop Mortar, Bio Fireshield, Inc.  
KBS-Mortar Seal, International Protective Coatings Corp.
  8. Pillow/Bags:  
Firestop Pillows, Bio Fireshield, Inc.  
SpecSeal Pillows, STI Spec Seal FireStop Products
  9. Silicone Foams:  
Pensil 200 Foam, STI Spec Seal FireStop Products

Dow Corning Fire Stop Foam 2001, Dow Corning Corp.

10. Silicone Sealants:

Dow Corning Firestop Sealant 2000, Dow Corning Corp.

Pensil 300, STI Spec Seal FireStop Products

CS240 Firestop Sealant, Hilti Construction Chemicals, Inc.

Metacaulk 880, The RectorSeal Corporation

11. Solvent Release Curing Intumescent Sealants:

Biosstop 500 Intumescent Firestop Caulk, bio Fireshield, Inc.

Fire Barrier CP 25N/S Caulk, 3M Fire Protection Products

Fire Barrier CP25S/L Caulk, 3M Fire Protection Products

12. Mineral Fiber Fire Safing:

Therma Fiber Safing Insulation by USG Interiors Inc.

Fire Master Bulk, 3M

Fire Protection Products

2.03 MIXING

- A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions, with installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:
1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
  3. Remove laitance and form release agents from concrete.
- B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing firestopping's seal with substrates.

### 3.03 INSTALLING THROUGH-PENETRATION FIRESTOPS

- A. General: Comply with the "System Performance Requirements" article in Part 1 and the through-penetration firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.
- B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for through-penetration firestop systems by proven techniques to produce the following results:
1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
  2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
  4. Provide 20 gage minimum metal plates where required for fire safing support to comply with fire rating.

5. For mineral safing insulation, apply in continuous length using manufacturer's standard safing clips compress insulation until stable without movement.

### 3.04 INSTALLING FIRE-RESISTIVE JOINT SEALANTS

- A. General: Comply with "System Performance Requirements" article in Part 1, with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.
- B. Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depth of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire-resistance rating required.
- C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint width that optimum sealant movement's capability. Install sealants at the same time joint fillers are installed.
- D. Tool nonsag sealants immediately after sealant application and prior to the time skinning or curing begin. Form smooth, uniform beads of configuration indicated or required to produce fire-resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

### 3.05 FIELD QUALITY CONTROL

- A. Inspecting agency employed and paid by Government will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.
- B. Inspecting agency will report observations promptly and in writing to Contractor and Architect.
- C. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.
- D. Where deficiencies are found, repair or replace firestopping so that it complies with requirements.

### 3.06 CLEANING



- A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.
- B. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to produce firestopping complying with specified requirements.