SECTION 07 84 00
GENERAL FIRESTOPPING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section includes firestopping for through-penetrations through the following fire-resistance rated assemblies, including both blank openings and openings containing penetrating items:

1. Floor-ceiling assemblies.
2. Roof-ceiling assemblies.
3. Walls and partitions.
4. Smoke barriers.
5. Construction enclosing compartmentalized areas.

B. Related Sections include the following:

1. Division 3 – Section 03 30 00 – Cast-In-Place Concrete
2. Division 4 – Section 04 22 00 – Concrete Unit Masonry
3. Division 7 – Section 07 90 00 – Joint Protection
4. Division 9 – Section 09 20 00 – Plaster and Gypsum Board
5. Division 22 – Section 22 00 00 – Plumbing
6. Division 22 – Section 22 07 00 – Plumbing Insulation
7. Division 23 – Section 23 00 00 – HVAC
8. Division 23 – Section 23 07 00 – HVAC Insulation
9. Division 26 – Section 26 00 00 – Electrical
10. Division 27 – Section 27 00 00 – Communications

1.3 PERFORMANCE CRITERIA

A. FIRE TEST REQUIREMENTS

1. Underwriters Laboratories, Inc. (UL):
   a. ANSI/ UL1479, “Fire Tests of Through Penetration Firestops”.
   b. ANSI/ UL2079, “Tests for Fire Resistance of Building Joint Systems”.
   c. ANSI/ UL263, “Fire Tests of Building Construction and Materials”.
   d. ANSI/ UL723, “Surface Burning Characteristics of Building Materials”.
2. American Society of Testing and Materials (ASTM):
   a. ASTM E-814, “Fire Tests of Through Penetration Fire Stops”.
   b. ASTM E-1966, “Test Method for Fire Resistive Joint Systems”.

c. ASTM E-119, “Fire Tests of Building Construction and Materials”.
d. ASTM E-84, “Surface Burning Characteristics of Building Materials”.

B. REFERENCES

1. Underwriters Laboratories (UL) of Northbrook, IL “Fire Resistance Directory”.
   a. Through Penetration Firestop Systems (XHEZ)
   b. Joint Systems (XHBN)
   c. Fill, Void or Cavity Materials (XHHW)
   d. Firestop Devices (XHJI)
   e. Forming Materials (XHKU)
   f. Wall Opening Protective Materials (CLIV)
2. All major building codes:
   a. Uniform Building Code published by ICBO
   b. Standard Building Code published by SBCCI.
   c. National Building Code published by BOCA.
   d. International Building Code published by ICC.
   (Note to specifier: Retain or delete the building codes listed above as applicable).
3. National Fire Protection Association (NFPA) of Quincy, MA “NFPA 101: Life Safety Code”.
4. National Fire Protection Association (NFPA) of Quincy, MA “NFPA 70: National Electrical Code”.
5. Factory Mutual Approvals (FM) of Norwood, MA “FM 4991: Standard for Approval of Firestop Contractors”.

C. PERFORMANCE REQUIREMENTS

1. Provide products that upon curing, do not re-emulsify, dissolve, leach, breakdown or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water or other forms of moisture characteristic during and after construction.
2. Provide firestop sealants sufficiently flexible to accommodate motion such as pipe vibration, water hammer, thermal expansion and other normal building movement without damage to the seal.
3. Pipe insulation shall not be removed, cut away or otherwise interrupted through wall or floor openings. Provide products appropriately tested for the thickness and type of insulation utilized.
4. Fire rated pathway devices shall be the preferred product and shall be installed in all locations where frequent cable moves, add-ons and changes will occur.
5. When mechanical cable pathways are not practical, openings within walls and floors designed to accommodate voice, data and video cabling shall be provided with re-enterable products specifically designed for retrofit.
6. Penetrants passing through fire-resistance rated floor-ceiling assemblies contained within chase wall assemblies shall be protected with products tested by being fully exposed to the fire outside of the chase wall. Systems within the UL Fire Resistance Directory that meet this criterion are identified with the words “Chase Wall Optional”.

7. Provide fire-resistive joint sealants sufficiently flexible to accommodate movement such as thermal expansion and other normal building movement without damage to the seal.
8. Provide fire-resistive joint sealants designed to accommodate a specific range of movement and tested for this purpose in accordance with a cyclic movement test criteria as outlined in Standards, ASTM E-1399, ASTM E-1966 or ANSI/ UL 2079.
9. Provide fire-resistive joint systems subjected to an air leakage test conducted in accordance with Standard, ANSI/ UL2079 with published L-Ratings for ambient and elevated temperatures as evidence of the ability of the fire-resistive joint system to restrict the movement of smoke.

1.4 SUBMITTALS

A. Product Data: For each type of firestopping product indicated.
B. System Drawings: Submit documentation from a qualified third-party testing agency that is applicable to each firestopping system configuration for construction, joint opening width and/or penetrating items.
C. Product Certificates: Certificate of conformance signed by manufacturers of firestopping products certifying that products comply with requirements.

1.5 QUALITY ASSURANCE

A. Provide firestopping systems that comply with the following requirements and those specified in “Performance Criteria” Article:
   1. Firestopping tests are performed by a qualified, testing and inspection agency. A qualified testing and inspection agency is UL, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
   2. Firestopping products bear classification marking of qualified testing and inspection agency.
B. Engage an experienced installer who is certified, licensed, FM Approved in accordance with FM 4991 or otherwise qualified by the firestopping manufacturer as having been provided the necessary training to install firestop products per specified requirements. A manufacturer’s willingness to sell its firestopping products to Contractor or to an installer engaged by Contractor does not in itself confer qualifications on buyer.
C. Obtain firestop systems for each type of penetration or joint opening and construction condition indicated from a single manufacturer.
D. Conduct conference at Project site to comply with requirements in Division 1 Section “Project Meetings”.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver firestopping products to Project site in original, unopened containers or packages with intact and legible manufacturer’s labels identifying product and manufacturer, date of manufacture; lot number; shelf life, if applicable; qualified testing and inspection agency’s classification marking; and mixing instructions for multicomponent materials.
B. Store and handle materials for firestopping products to prevent their deterioration or damage due to moisture, temperature changes, contaminants or other causes.

1.7 PROJECT CONDITIONS

A. Do not install firestopping products when ambient or substrate temperatures are outside limitations recommended by manufacturer.
B. Do not install firestopping products when substrates are wet due to rain, frost, condensation, or other causes.
C. Do not use materials that contain flammable solvents.

1.8 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
B. Coordinate sizing of sleeves, openings, core-drilled holes or cut openings to accommodate through-penetration firestop systems.
C. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.

PART 2 – PRODUCTS

2.1 FIRESTOPPING, GENERAL

A. Provide firestopping products that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by firestopping products manufacturer based on testing and field experience.
B. Provide components for each firestopping system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.

2.2 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with through-penetration firestop systems (XHEZ) and/or joint systems (XHBN) listed in Volume 2 of the UL Fire Resistance Directory, provide products of the following manufacturers as identified below:

1. Specified Technologies, Inc. (STI), Somerville, New Jersey
800 – 992 – 1180

2. Other manufacturers listed in the UL Fire Resistance Directory – Volume 2.

2.3 MATERIALS

A. General: Use only firestopping products that have been tested for specific fire-resistance-rated construction conditions conforming to construction assembly type, penetrating item type or joint opening width and movement capabilities, annular space requirements, and fire-rating involved for each separate instance.

B. Latex Sealants: Single component latex formulations that upon cure do not re-emulsify during exposure to moisture, the following products are acceptable:

1. Specified Technologies, Inc. (STI) SpecSeal Series SSS Intumescent Sealant
2. Specified Technologies, Inc. (STI) SpecSeal Series LCI Intumescent Sealant
3. Specified Technologies, Inc. (STI) SpecSeal Series LC Endothermic Sealant
4. Specified Technologies, Inc. (STI) SpecSeal Series AS Elastomeric Spray
5. Specified Technologies, Inc. (STI) SpecSeal Series ES Elastomeric Sealant

C. Firestop Devices: Factory-assembled steel collars lined with intumescent material sized to fit specific outside diameter of penetrating item, the following products are acceptable:

1. Specified Technologies, Inc. (STI) SpecSeal Series SSC Firestop Collars
2. Specified Technologies, Inc. (STI) SpecSeal Series LCC Firestop Collars

D. Fire Rated Cable Pathways: STI EZ-PATH™ Brand device modules comprised of steel raceway with intumescent foam pads allowing 0 to 100 percent cable fill, the following products are acceptable:
1. Specified Technologies Inc. (STI) EZ-PATH™ Fire Rated Pathway

E. Wall Opening Protective Materials: Intumescent, non-curing pads or inserts for protection of electrical switch and receptacle boxes to reduce horizontal separation to less than 24”, the following products are acceptable:

1. Specified Technologies, Inc. (STI) SpecSeal Series SSP Firestop Putty Pads
2. Specified Technologies, Inc. (STI) SpecSeal Series EP PowerShield Insert Pads

F. Firestop Putty: Intumescent, non-hardening, water resistant putties containing no solvents, inorganic fibers or silicone compounds, the following products are acceptable:

1. Specified Technologies, Inc. (STI) SpecSeal Series SSP Firestop Putty

G. Wrap Strips: Single component intumescent elastomeric strips faced on both sides with a plastic film, the following products are acceptable:

1. Specified Technologies, Inc. (STI) SpecSeal Series RED Wrap Strip
2. Specified Technologies, Inc. (STI) SpecSeal Series BLU Wrap Strip

H. Firestop Pillows: Re-enterable, non-curing, mineral fiber core encapsulated with an intumescent coating contained in a flame retardant poly bag, the following products are acceptable:

1. Specified Technologies, Inc. (STI) SpecSeal Series SSB Firestop Pillows

I. Mortar: Portland cement based dry-mix product formulated for mixing with water at Project site to form a non-shrinking, water-resistant, homogenous mortar, the following products are acceptable:

1. Specified Technologies, Inc. (STI) SpecSeal Series SSM Firestop Mortar

J. Silicone Sealants: Moisture curing, single component, silicone elastomeric sealant for horizontal surfaces (pourable or nonsag) or vertical surface (nonsag), the following products are acceptable:

1. Specified Technologies, Inc. (STI) Pensil 300 Silicone Sealant
2. Specified Technologies, Inc. (STI) Pensil 300 SL Self-Leveling Silicone Sealant

K. Silicone Foam: Multicomponent, silicone-based liquid elastomers, that when mixed, expand and cure in place to produce a flexible, non-shrinking foam, the following products are acceptable:

1. Specified Technologies, Inc. (STI) Pensil 200 Silicone Foam

PART 3 – EXECUTION

3.1 PREPARATION

A. Examination of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
B. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, scale, laitance, rust, release agents, water repellents, and any other substances that may inhibit optimum adhesion.
C. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
D. Do not proceed until unsatisfactory conditions have been corrected.

3.2 FIRESTOPPING INSTALLATION

A. General Requirements: Install through-penetration firestop systems and fire-resistive joint systems in accordance with “Performance Criteria” Article and in accordance with the conditions of testing and classification as specified in the published design.
B. Manufacturer’s Instructions: Comply with manufacturer’s instructions for installation of firestopping products.
   1. Seal all openings or voids made by penetrations to ensure an air and water resistant seal.
   2. Consult with mechanical engineer, project manager, and damper manufacturer prior to installation of through-penetration firestop systems

that might hamper the performance of fire dampers as it pertains to duct work.

3. Protect materials from damage on surfaces subjected to traffic.
4. Apply a suitable bond-breaker to prevent three-sided adhesion in applications where this condition might occur such as the intersection of a gypsum wallboard/steel stud wall to floor or roof assembly where the joint is backed by a steel ceiling runner or track.
5. Where joint application is exposed to the elements, fire-resistive joint sealant must be approved by manufacturer for use in exterior applications and shall comply with ASTM C-920, “Specification for Elastomeric Joint Sealants”.

3.3 FIELD QUALITY CONTROL

A. Inspections: Owner shall engage a qualified independent inspection agency to inspect through-penetration firestop systems.
B. Keep areas of work accessible until inspection by authorities having jurisdiction.
C. Where deficiencies are found, repair or firestopping products so they comply with requirements.

3.4 ADJUSTING AND CLEANING

A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.
B. Clean all surfaces adjacent to sealed openings to be free of excess firestopping materials and soiling as work progresses.

END OF SECTION

SpecSeal Firestop Products
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