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The Description of the Project
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SPECIFICATION DIVISION 7

NUMBER SECTION DESCRIPTION

DIVISION 07 THERMAL AND MOISTURE PROTECTION

SECTION 078413 - PENETRATION FIRESTOPPING

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DIVISION 07 THERMAL AND MOISTURE PROTECTION
SECTION 078413 - PENETRATION FIRESTOPPING

THIS NEW SECTION REPLACES THE BRIEF DESCRIPTION OF FIRE-STOPPING WHICH WAS FORMERLY INCLUDED IN SECTION 079200 JOINT SEALANTS. INCLUDE THIS SECTION FOR ALL PROJECTS WHERE PIPING, DUCTWORK OR ELECTRICAL CONDUIT IS BEING MODIFIED OR INSTALLED OR WHERE IMPROPERLY INSTALLED CONCEALED OR EXPOSED PENETRATIONS ARE BEING REPAIRED. EXISTING CONDITIONS SHOULD BE SURVEYED AT THE BEGINNING OF A PROJECT, AND INADEQUACIES (I.E., UNPROTECTED OPENINGS IN WALLS AND FLOORS, IMPROPER PENETRATIONS, ETC.) SHOULD BE IDENTIFIED AND CORRECTED WHENEVER FUNDING CAN BE OBTAINED FOR THIS PURPOSE.

1.1 SUMMARY

- A. This Section includes through-penetration firestop systems for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items.

ALWAYS INCLUDE THE FOLLOWING WHEN THERE ARE MECHANICAL AND ELECTRICAL PENETRATIONS.

SLEEVES ARE RECOMMENDED FOR FLOOR PENETRATIONS TO PROTECT CONTENTS ON THE FLOOR BELOW THE PENETRATION FROM LEAKAGE OR FLOODING CAUSED BY PIPE BREAKS, SPRINKLER DISCHARGE, ETC. EVALUATE LEVEL OF PROTECTION DESIRED BY OWNER AND THE LIKELIHOOD OF WATER DAMAGE IN CONSULTATION WITH MECHANICAL ENGINEER. SLEEVES ARE TYPICALLY SHOWN ON MECHANICAL AND ELECTRICAL DRAWINGS SINCE THEY ARE USUALLY THE RESPONSIBILITY OF THE CONTRACTOR MAKING THE PENETRATION. ALTHOUGH THE SLEEVE ITSELF IS NOT PART OF THE FIRESTOP SYSTEM, IT MAY AFFECT WHICH FIRESTOPPING SYSTEM IS SELECTED, SINCE THE ENTIRE ASSEMBLY MUST BE TESTED AND NOT ALL SYSTEMS HAVE BEEN TESTED WITH SLEEVES.

- B. Related Sections include the following:
1. Division 21, 22 and 23 Sections specifying duct and piping penetrations.
 2. Division 26, 27 and 28 Sections specifying cable and conduit penetrations.

1.2 REFERENCES

- A. ASTM E 84 Test Method for Surface Burning Characteristics of Building Materials.
- B. ASTM E 119 Test Method for Fire Test of Building Construction and Materials.
- C. ASTM E 814 Fire Tests of Through-Penetration Fire Stops.
- D. Firestop Contractors International Association (F.C.I.A.) Manual of Practice (M.O.P.).

1.3 PERFORMANCE REQUIREMENTS

- A. General: For penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.

1. For through-penetration firestop systems in non-rated walls, a fire-resistance rating shall not be required.

- B. Rated Systems: Provide through-penetration firestop systems with the following ratings determined per ASTM E 814:

1. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.

AS A GENERAL RULE, T-RATED SYSTEMS ARE REQUIRED WHERE PENETRATING ITEMS PASS THROUGH OCCUPIABLE AREAS WHERE THEY MAY CONTACT COMBUSTIBLE MATERIALS. DELETE PARAGRAPHS BELOW IF T-RATED SYSTEMS ARE NOT REQUIRED.

2. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:

- Penetrations located outside wall cavities.
- Penetrations located outside fire-resistance-rated shaft enclosures.

- C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.

THREE SUBPARAGRAPHS BELOW ARE EXAMPLES OF SPECIAL REQUIREMENTS. DELETE THOSE NOT APPLICABLE; INSERT OTHERS TO SUIT PROJECT.

- For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
- For floor penetrations with annular spaces exceeding 4 inches (100 mm) in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.
- For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

DELETE PARAGRAPH BELOW IF NOT APPLICABLE. VERIFY THAT THROUGH-PENETRATION FIRESTOP SYSTEMS SELECTED USE A FILL MATERIAL THAT COMPLIES WITH THE REQUIREMENT BELOW.

- D. For through-penetration firestop systems exposed to view, provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For each through-penetration firestop system, submit documentation, including illustrations, from a qualified testing and inspecting agency, showing each type of construction condition penetrated, relationships to adjoining construction, and type of penetrating item.
- C. Product Test Reports: From a qualified testing agency indicating through-penetration firestop system complies with requirements, based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in Part 1 "Performance Requirements" Article:
 - 1. Firestopping tests shall be performed by Underwriters Laboratories (UL), Omega Point Laboratories or Intertek Warnock/Hersey.
 - 2. Through-penetration firestop systems are identical to those tested per testing standard referenced in "Part 1 Performance Requirements" Article. Provide rated systems bearing testing agency's classification marking.
- B. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

1.7 ENVIRONMENTAL REGULATIONS

- A. All materials shall be asbestos free.
- B. Disposal of hazardous firestop materials: Contact UM Occupational Safety and Environmental Health Hazardous Materials (734-763-4568) for instructions regarding disposal.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide products of one of the following manufacturers:
1. A/D Fire Protection Systems Inc.
 2. Hilti, Inc.
 3. Johns Manville.
 4. Rectorseal Corporation
 5. Specified Technologies Inc. (STI)
 6. 3M; Fire Protection Products Division.
 7. Tremco; Sealant/Weatherproofing Division.
 8. USG Corporation.

2.2 FIRESTOPPING

- A. Compatibility: Provide through-penetration firestop systems 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 through-penetration firestop system manufacturer based on testing and field experience.
- B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with Part 1 "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by qualified testing and inspecting agency for firestop systems indicated.

PART 3 - EXECUTION

3.1 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

- A. Examination: Examine substrates and conditions for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping. Notify the Owner's Representative in writing if unsatisfactory conditions are present. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work. Remove tape as soon as it is possible to do so without disturbing the firestopping seal with substrates.
- C. General: Install through-penetration firestop systems to comply with Part 1 "Performance Requirements" Article and with firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- D. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

**DELETE SUBPARAGRAPH BELOW IF NONE OF THE SYSTEMS SPECIFIED
REQUIRES USING REMOVABLE FORMING MATERIALS AND OTHER
ACCESSORIES.**

1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- E. Install fill materials for firestop systems by proven techniques to produce the following results:
1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
 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.

**INCLUDE IDENTIFICATION REQUIREMENT BELOW FOR ALL BFS
JURISDICTION BUILDINGS. CONSIDER FOR INCLUDING FOR NON-BFS
BUILDINGS.**

3.2 IDENTIFICATION

- A. Identify through-penetration firestop systems with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of edge of the firestop systems so that labels will be visible to anyone seeking to remove penetrating items or firestop systems. Use mechanical fasteners for metal labels. For plastic labels, use self-adhering type with adhesives capable of permanently bonding labels to surfaces on which labels are placed and, in combination with label material, will result in partial destruction of label if removal is attempted. Include the following information on labels:
1. The words "Warning - Through-Penetration Firestop System - Do Not Disturb. Notify Building Management of Any Damage."
 2. Contractor's name, address, and phone number.
 3. Through-penetration firestop system designation of applicable testing and inspecting agency.
 4. Date of installation.
 5. Through-penetration firestop system manufacturer's name.
 6. Installer's name.

3.3 CLEANING AND PROTECTION

- A. Clean off excess fill materials and sealants adjacent to opening and joints as Work progresses. Use methods approved by manufacturer of firestopping products.
- B. Protect firestopping during and after curing period from contact with contaminating substances.

END OF SECTION 078413

