SECTION 230517 – SLEEVES, SLEEVE SEALS, AND ECUTCHEONS FOR HVAC PIPING

Latest Edition 09-09-2021 See Underlined Text for Latest Edits

(Engineer shall edit specifications and blue text in header to meet project requirements. This includes but is not limited to updating Equipment and/or Material Model Numbers indicated in the specifications and adding any additional specifications that may be required by the project. Also turn off all "Underlines".)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section and all other sections of Division 23.

1.2 SUMMARY

A. Section includes the requirements for pipe sleeves, sleeve seals and escutcheons for piping systems using the following:

1. Pipe sleeves.
2. Fire stops & smoke seals for wall & floor sleeve applications
3. Sleeve seal systems.
4. Grout.
5. Escutcheons.
6. Floor plates.

1.3 ACTION SUBMITTALS

A. Product Data: For each specified product, include manufacturers cut sheets, dimensional data, performance data, installation instructions, specified options, and warranty information.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for sleeves and sleeve seals.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: Include a copy of each approved submittal along with any applicable maintenance data in the project operation and maintenance manual.

1.5 WARRANTY/GUARANTEE

A. See Division 23 Specification Section "Basic Mechanical Requirements – HVAC" for warranty and guarantee requirements.

PART 2 - PRODUCTS

2.1 GENERAL PRODUCT REQUIREMENTS

A. Equipment Design and Selection: Pipe sleeves, sleeve seals, and escutcheons shall be designed and selected, for the intended use, in accordance with the requirements of this specification.

B. Acceptable Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:

1. Sleeve Seal Systems:
   a. Advance Products & Systems, Inc.
   b. CALPICO, Inc.
   c. Metraflex Company (The).
   d. Pipeline Seal and Insulator, Inc.
   e. Proco Products, Inc.

2.2 PIPE SLEEVES

A. Steel Pipe Sleeves: Steel pipe sleeves shall be standard black steel pipe Type E, Grade B, with plain ends conforming to ASTM A53/A53M.

B. Cast Iron Pipe Sleeves: Cast iron pipe sleeves shall be standard weight cast iron pipe with plain ends conforming to ASTM A74 and CISPI – 301.

2.3 FIRE STOPS & SMOKE SEALS FOR WALL & FLOOR SLEEVE APPLICATIONS

A. General: Provide fire stops, and smoke sealant materials for all HVAC services penetrating through rated assemblies. See Architectural Specification Division 07, Section “Penetration Firestopping” for sealant material requirements. Services include:

1. HVAC penetrations include piping systems and duct systems.

B. New Construction: All new penetrations shall be provided with a pipe sleeve and sealant materials.

C. Existing Construction: All new service penetrations through existing rated assemblies shall be provided with a pipe sleeve and sealant materials. All existing unsealed penetrations for services passing through existing rated assemblies within the project area shall be provided with sealant materials.

D. Project Area: The project area shall include the finished spaces and related sections of the utility shafts within the project area footprint.

E. Wall Pipe Sleeve Applications: Pipe sleeves shall be required for all new pipe penetrations through rated wall assemblies and non-rated CMU walls. Where pipe sleeves are installed in non-rated CMU walls fire rated sealant materials are not required. Provide acoustical caulking to seal the annular spaces between the sleeve and the bare pipe or pipe insulation on each end with one half (1/2) inch caulking all around the annular space.

F. Floor Pipe Sleeves Applications: Pipe sleeves are required for all new pipe risers passing through floor slabs.

2.4 SLEEVE SEAL SYSTEMS

A. Description: Modular sealing-element unit, designed for field assembly, for filling annular space between piping and sleeve.

1. Sealing Elements: EPDM-rubber or NBR interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
2. Pressure Plates: Stainless steel.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

2.5 GROUT

A. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

B. Characteristics: Nonshrink; recommended for interior and exterior applications.

C. Design Mix: 5,000-psi, twenty eight (28) day compressive strength.

D. Packaging: Premixed and factory packaged.

2.6 ESCUTCHEONS

A. One (1) Piece, Cast-Brass Type, Deep-Pattern Type: With polished, chrome-plated and rough-brass finish and setscrew fastener.

B. One (1) Piece, Stamped-Steel Type: With chrome-plated finish and spring-clip fasteners.

C. Split-Casting Brass Type: With polished, chrome-plated and rough-brass finish and with concealed hinge and setscrew.

<Retain one or both hinge options in paragraph below that match escutcheon types retained in Part 3.>

D. Split-Plate, Stamped-Steel Type: With chrome-plated finish, concealed hinge, and spring-clip fasteners.

2.7 FLOOR PLATES

A. One (1) Piece Floor Plates: Cast-iron flange with holes for fasteners.

B. Split-Casting Floor Plates: Cast brass with concealed hinge.

PART 3 - EXECUTION

3.1 GENERAL

A. Install all HVAC System sleeves, escutcheons, and associated components as required in accordance with the applicable codes and the best practices of the industry.

B. The work under this section shall be coordinated with that of all trades so that all work may be installed in the most direct and workmanlike manner and so that interference between piping, ducts, equipment, architectural and structural features will be avoided.

C. Coordinate clearance requirements with CM/GC for piping penetrating walls and floor slabs.

D. Mix grout with clean potable water; if grout is to be in contact with stainless-steel surfaces, use demineralized water.

E. Install accessories that do not corrode or soften in either a wet or dry applications.

3.2 PIPE SLEEVE INSTALLATIONS <Edit for Project Requirements>

A. Fire Rated Walls: Where new and/or existing plumbing piping passes through rated walls provide pipe sleeves with required fire sealant materials to maintain the rating of the wall assembly.

1. Use standard weight steel pipe or service weight cast iron pipe for pipe sleeves. Where sleeves are installed in floors and load bearing walls, use only standard weight steel pipe for pipe sleeves.
2. Provide a minimum of one half (1/2) inch annular space clearance around the entire circumference of the pipe and/or insulation on cold piping passing through the sleeve and between the pipe sleeve and the surface of the core drilled hole.
3. Center pipe passing through sleeve.
4. Except for cold piping, do not continue insulation through sleeve.
5. The entire annular spaces must be sealed with fire and waterproof sealant Seal ends of pipe insulation and butt insulation ends up to fire stopping sealant in sleeve.
6. Sleeves in walls must be installed flush with both finished wall surfaces.
7. In finished areas provide an escutcheon plate around the bare pipe or insulated pipe passing through the assemblies to conceal the sleeve and sealant.

<Engineer Note: Where openings in walls for pipe sleeves are large enough to require additional structural supports such as lintels the A/E team shall coordinate the additional wall supports with structural engineer>

B. Fire Rated Floors: Where new and/or existing plumbing piping passes through rated walls provide pipe sleeves with required fire sealant materials to maintain the rating of the wall assembly.

1. Use standard weight steel pipe or service weight cast iron pipe for pipe sleeves.
2. Provide a minimum of one half (1/2) inch annular space clearance around the entire circumference of the pipe and/or insulation on cold piping passing through the sleeve and between the pipe sleeve and the surface of the core drilled hole.
3. Center pipe passing through sleeve.
4. Except for cold piping, do not continue insulation through sleeve.
5. The entire annular spaces must be sealed with fire and waterproof sealant.
6. Seal ends of pipe insulation and butt insulation ends up to waterproof sealant in sleeve.
7. Sleeves must be installed with top of sleeve one (1) inch above the finished floor surface. The bottom of the sleeve must be flush with the finished surface of the underside of the floor assembly.
8. In finished areas provide an escutcheon plate around the bare pipe or insulated pipe passing through the assemblies to conceal the sleeve and sealant. If a riser clamp is in place, omit the escutcheon.

C. Sealant Requirements: Comply with requirements for sealants specified in Architectural Specification Section "Joint Sealants".

D. Fire-Barrier Penetrations: Comply with requirements for firestopping specified in Architectural Specification Section "Penetration Firestopping".

E. Non-Fire-Rated Sound Proof Partition Penetrations: Where new and existing piping pass through interior partitions with sound proofing provide a pipe sleeves. Seal the annular spaces between construction openings, the sleeves, the pipe and/or pipe insulation with sound proof insulation material equal to the width of the opening. The sound proof insulation shall match the insulation in the partition. <Delete if not required>

3.3 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at service piping entries into building.

B. Select type, size, and number of sealing elements required for piping material and size and for sleeve ID or hole size. Position piping in center of sleeve. Center piping in penetration, assemble sleeve-seal system components, and install in annular space

between piping and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make a watertight seal.

3.4 ECUTCHEONS INSTALLATION

A. Install escutcheons for piping penetrations of walls, ceilings, and finished floors.

B. Install escutcheons with ID to closely fit around pipe, tube, and insulation of insulated piping and with OD that completely covers opening.

C. Install floor plates with ID to closely fit around pipe, tube, and insulation of piping and with OD that completely covers opening.

1. New Piping: One (1) piece, floor-plate type.
2. Existing Piping: Split-casting, floor-plate type.

END OF SECTION 230517