

SECTION 21 05 17
SLEEVES AND SLEEVE SEALS FOR FIRE-SUPPRESSION PIPING

PART 1 - GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 SUMMARY

- A. Section Includes:
1. Sleeves.
 2. Stack-sleeve fittings.
 3. Sleeve-seal systems.
 4. Sleeve-seal fittings.
 5. Grout.
 6. Silicone Sealants.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 SLEEVES

- A. Cast-Iron Wall Pipes: Cast or fabricated of cast or ductile iron and equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.
- B. Galvanized-Steel Wall Pipes: ASTM A 53/A 53M, Schedule 40, with plain ends and welded steel collar; zinc coated.
- C. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, with plain ends.
- D. Galvanized-Steel-Sheet Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

2.2 STACK-SLEEVE FITTINGS

- A. Stack-sleeve fittings in this article can be used in concrete floor and roof slabs, but are without seepage holes; therefore, they cannot be used as replacements for floor drains. Using grout, fill

the annular space between fitting and slab opening. These fittings are available in NPS 1-1/2 to NPS 12.

- B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Smith, Jay R. Mfg. Co.
 - 2. Zurn Industries, LLC.
 - 3. Or equal as approved by the Professional.
- C. Description: Manufactured, coated or galvanized cast-iron sleeve with integral clamping flange. Include clamping ring, bolts, and nuts for membrane flashing.
 - 1. Underdeck Clamp: Clamping ring with setscrews.

2.3 SLEEVE-SEAL SYSTEMS

- A. Sleeve-seal systems in this article are used for piping penetrations in slabs-on-grade and below grade in exterior walls. These systems are available for NPS 1/2 to NPS 48 piping.
- B. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to the following:
 - 1. Metraflex Company (The).
 - 2. Proco Products, Inc.
 - 3. Or equal as approved by the Professional.
- C. Description: Modular sealing-element unit, designed for field assembly, for filling annular space between piping and sleeve.
 - 1. Sealing Elements: EPDM-rubber or high temperature silicon 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.

2.4 SLEEVE-SEAL FITTINGS

- A. Sleeve-seal fittings in this article are used for piping penetrations in slabs-on-grade and in exterior walls. These fittings are made to match piping OD, so they must be selected to match the penetrating piping size. They are available for NPS 1/2 to NPS 6 piping.
- B. Products: Subject to compliance with requirements, provide the following:
 - 1. HOLDRITE.
 - 2. Or equal as approved by the Professional.
- C. Description: Manufactured plastic, sleeve-type, water stop assembly made for imbedding in concrete slab or wall. Unit has plastic or rubber water stop collar with center opening to match piping OD.

2.5 GROUT

- A. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
- B. Characteristics: Non-shrink; recommended for interior and exterior applications.
- C. Design Mix: 5000-psi, 28-day compressive strength.
- D. Packaging: Premixed and factory packaged.

2.6 SILICONE SEALANTS

- A. Silicone, S, NS, 25, NT: Single-component, non-sag, plus 25 percent and minus 25 percent movement capability, non-traffic-use, neutral-curing silicone joint sealant, ASTM C920, Type S, Grade NS, Class 25, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. GE Construction Sealants; Momentive Performance Materials Inc.
 - b. Permthane®/Acryl-R®; ITW Polymers Sealants North America.
 - c. Sherwin-Williams Company (The).
 - d. The Dow Chemical Company.
 - e. Or equal as approved by the Professional.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION

- A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.
- B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inch annular clear space between piping and concrete slabs and walls.
 - 1. Sleeves are not required for core-drilled holes.
- C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.
 - 1. Permanent sleeves are not required for holes in slabs formed by molded-PE or -PP sleeves.
 - 2. Cut sleeves to length for mounting flush with both surfaces.
 - a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level.
 - 3. Using grout or silicon sealant to seal the space outside of sleeves in slabs and walls without sleeve-seal system.

- D. Install sleeves for pipes passing through interior partitions.
 - 1. Cut sleeves to length for mounting flush with both surfaces.
 - 2. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation.
 - 3. Seal annular space between sleeve and piping or piping insulation; use joint sealants appropriate for size, depth, and location of joint. Comply with requirements for sealants specified in Section 079200 "Joint Sealants."
- E. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestopping specified in Section 078413 "Penetration Firestopping."

3.2 STACK-SLEEVE-FITTING INSTALLATION

- A. Install stack-sleeve fittings in new slabs as slabs are constructed.
 - 1. Install fittings that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation.
 - 2. Secure flashing between clamping flanges for pipes penetrating floors with membrane waterproofing. Comply with requirements for flashing specified in Section 076200 "Sheet Metal Flashing and Trim."
 - 3. Install section of cast-iron soil pipe to extend sleeve to 2 inches above finished floor level.
 - 4. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.
 - 5. Using grout, seal the space around outside of stack-sleeve fittings.
- B. Fire-Barrier Penetrations: Maintain indicated fire rating of floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestopping specified in Section 078413 "Penetration Firestopping."

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 SLEEVE-SEAL-FITTING INSTALLATION

- A. Install sleeve-seal fittings in new walls and slabs as they are constructed.
- B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.
- C. Secure nailing flanges to concrete forms.

- D. Using grout or silicon sealant to seal the space around outside of sleeve-seal fittings.

3.5 SLEEVE AND SLEEVE-SEAL SCHEDULE

- A. Use sleeves and sleeve seals for the following piping-penetration applications:
 - 1. Exterior Concrete Walls above Grade:
 - a. Piping Smaller Than NPS 6: Galvanized-steel-pipe sleeves or Sleeve-seal fittings.
 - b. Piping NPS 6 and Larger: Cast-iron wall sleeves.
 - 2. Exterior Concrete Walls below Grade:
 - a. Piping All Sizes: Cast-iron wall sleeves with sleeve-seal system.
 - 1) Select sleeve size to allow for 1-inch annular clear space between piping and sleeve for installing sleeve-seal system.
 - 3. Concrete Slabs-on-Grade:
 - a. Piping All Sizes: Cast-iron wall sleeves with sleeve-seal system.
 - 1) Select sleeve size to allow for 1-inch annular clear space between piping and sleeve for installing sleeve-seal system.
 - 4. Concrete Slabs above Grade:
 - a. Piping All Sizes: Galvanized-steel-pipe sleeves.
 - 5. Interior Partitions:
 - a. Piping Smaller Than NPS 6: Galvanized-steel-pipe sleeves.
 - b. Piping NPS 6 and Larger: Galvanized-steel-sheet sleeves.

END OF SECTION