

SECTION 15092PIPE SLEEVES & SEALSPART 1 - GENERAL1.1 DESCRIPTION

- A. Work Included: Furnish and install wall sleeves and seals of the types and sizes and in the locations shown on the Drawings and specified herein.
- B. Related Work Specified Elsewhere:
 - 1. Sealants are specified in Section 07900.
 - 2. Pipe and Pipe Fittings - General is specified in Section 15050
 - 3. Plumbing - General is specified in Section 15400.
 - 4. HVAC - General is specified in Section 15600.

1.1 QUALITY ASSURANCE

- A. Provide and install all sleeves of the types specified herein, as shown on the Drawings and as directed by the Engineer.
- B. Provide sleeves that are airtight, gastight or watertight as required.

PART 2 - PRODUCTS2.1 TYPES AND LOCATIONS

- A. New Construction:
 - 1. Interior masonry, drywall, or wood partition (Non-Bearing) - Air to Air:
 - a. 24 gauge, zinc coated (galvanized) steel tubes with wired or hemmed edges.
 - b. Minimum 1/4 inch annular space between sleeve and pipe or insulation.
 - c. Firmly pack with oakum and seal both ends with polyurethane sealant, S-6 per Section 07900 for standard penetrations. Penetrations through fire rated walls or floors shall utilize Fyre-shield Sealant, S-7, per Section 07900 in lieu of the polyurethane sealant.
 - d. Install split cover plates in all finished areas. Both sides of wall if required. Plates shall be chrome finished, suitably sized to fit pipe in question and cover opening.
 - e. Refer to details on Process Drawings.
 - 2. Interior Concrete Partitions - Air to Air:
 - a. Schedule 40 galvanized steel pipe with 1 inch x 1/8 inch thick welded sealing and anchoring collar in middle, hot-dip galvanize after fabrication.
 - b. Minimum 1/4 inch annular space between sleeve and pipe or insulation.
 - c. Firmly pack with oakum and seal both ends with polyurethane sealant, S-6 per Section 07900 for standard penetrations. Penetrations through fire rated walls or floors shall utilize Fyre-shield Sealant, S-7, per Section 07900 in lieu of the polyurethane sealant.
 - d. Refer to details on Process Drawings.
 - 3. Concrete Floor Penetrations - Air to Air:
 - a. Same as interior concrete partitions - Air to Air.

- b. Top side extending 2 inches above floor.
 - c. Bottom flush with underside of slab.
 - d. Pipe riser clamp used on topside.
 - e. Refer to details on Process Drawings.
4. Concrete Tank Walls Air to Ground:
- a. Schedule 40 galvanized steel pipe with 1 inch x 1/2 inch integrally cast sealing and anchoring collar in middle, hot-dip galvanize after fabrication.
 - b. Size of pipe sleeve as required by seal manufacturer.
 - c. Seal with rubber link compression seal.
 - d. Alternate wall sleeve system as manufactured by Omni Sleeve, Malden, MA. can be utilized as reviewed and accepted by Engineer, in place of above specified wall sleeve system.
 - e. Refer to details on Process Drawings.
5. Concrete Walls - Liquid Containing Structures to Air or Ground:
- a. For ductile iron and steel piping systems, utilize wall castings. Materials, schedule, class and size to match pipe.
 - i. For galvanized steel piping systems, use sleeve with 1 inch x 1/2 inch welded sealing and anchoring collar in middle, hot-dip galvanized after fabrication.
 - ii. For ductile or cast iron piping systems, use casting with 1 inch x 1/2 inch integrally cast sealing and anchoring collar in middle.
 - iii. Refer to details on Process Drawings.
 - b. For plastic piping systems, sleeve and seals to be in accordance with Concrete Walls - Air to Ground requirements noted above. These type penetrations will be allowable only in those locations specifically depicted on the drawings.
6. Foundation Walls Below Grade (Frost Walls) - Ground to Ground:
- a. Schedule 40 or max. 3/8 inch thick wall galvanized steel sleeve.
 - b. Minimum 1/2 inch annular space.
 - c. Firmly pack with oakum and seal both ends with polyurethane sealant, S-6 per Section 07900 for standard penetrations. Penetrations through fire rated walls or floors shall utilize Fyre-shield Sealant, S-7, per Section 07900 in lieu of the polyurethane sealant.
 - d. Refer to details on Process Drawings.
7. Other conditions shall be sleeved as shown on the Drawings or as reviewed and accepted by the Engineer.
- B. Penetrations Through Existing Walls:
- 1. Interior masonry, drywall, or wood partition (Non-Bearing) - Air to Air:
 - a. Cleanly cut brick or block as required. Grout sleeve into place using non-shrink grout.
 - b. Cleanly cut partitions as required. Set sleeve into position.
 - c. Sleeves to be as required for New Construction - Interior masonry, drywall, or wood partition (Non-Bearing) - Air to Air.
 - d. Holes bored with equipment leaving a smooth hole, less than 1/2 inch larger than the pipe will not require a sleeve, unless otherwise specified.

- e. Minimum 1/4 inch annular space between cored opening or sleeve and pipe or insulation.
 - f. Firmly pack with oakum and seal both ends with polyurethane sealant, S-6 per Section 07900 for standard penetrations. Penetrations through fire rated walls or floors shall utilize Fyre-shield Sealant, S-7, per Section 07900 in lieu of the polyurethane sealant.
 - g. Install split cover plates in all finished areas. Both sides of wall if required. Plates shall be chrome finished, suitably sized to fit pipe in question and cover opening.
2. Interior Concrete Partitions - Air to Air:
 - a. Core smooth-walled opening with coring machine. Grout sleeve into place using non-shrink grout.
 - b. Sleeves to be as required for New Construction - Interior Concrete Partitions - Air to Air.
 - c. Holes bored with equipment leaving a smooth hole, less than 1/2 inch larger than the pipe will not require a sleeve, unless otherwise specified.
 - d. Minimum 1/4 inch annular space between cored opening or sleeve and pipe or insulation.
 - e. Firmly pack with oakum and seal both ends with polyurethane sealant, S-6 per Section 07900 for standard penetrations. Penetrations through fire rated walls or floors shall utilize Fyre-shield Sealant, S-7, per Section 07900 in lieu of the polyurethane sealant.
 3. Concrete Floor Penetrations - Air to Air:
 - a. Same as Interior Concrete Partitions - Air to Air, except that sleeve will be required.
 - b. Sleeve to extend 2 inches above floor on top side; bottom to be flush with underside.
 - c. Pipe riser clamp used on topside.
 4. Concrete Walls - Air to Ground:
 - a. Core smooth-walled opening with coring machine. Grout smooth any irregularities in opening.
 - b. Size of cored opening as required by seal manufacturer.
 - c. Seal with rubber link compression seal.
 5. Concrete Walls - Liquid Containing Structures to Air or Ground:
 - a. Limited to only those locations shown on the Drawings.
 - b. Core smooth-walled opening with coring machine. Grout smooth any irregularities in opening.
 - c. Size of cored opening as required by seal manufacturer.
 - d. Seal with rubber link compression seal.
 6. Foundation Walls Below Grade (Frost Walls) - Ground to Ground:
 - a. Core smooth-walled opening with coring machine. Grout sleeve into place using non-shrink grout.
 - b. Sleeves to be as required for New Construction - Foundation Walls Below Grade (Frost Walls) - Ground to Ground.

- c. Holes bored with equipment leaving a smooth hole, less than 1-inch larger than the pipe will not require a sleeve, unless otherwise specified.
 - d. Minimum 1/2 inch annular space between cored opening or sleeve and pipe or insulation.
 - e. Firmly pack with oakum and seal both ends with polyurethane sealant, S-6 per Section 07900 for standard penetrations. Penetrations through fire rated walls or floors shall utilize Fyre-shield Sealant, S-7, per Section 07900 in lieu of the polyurethane sealant.
7. Other conditions shall be installed as reviewed and accepted by the Engineer.
- C. Rubber Link Seals:
1. Multi-rubber link type with pressure plates, bolts, nuts and sealing element providing a leakproof seal.
 2. General Service:
 - a. Glass Reinforced Nylon Pressure Plate.
 - b. Carbon steel zinc-phosphated nut and bolt.
 - c. Sealing element: EPDM rubber.
 - d. -40°F. to 250°F. rating.
 3. Corrosive Service: (Where Applicable):
 - a. Use: Sludge holding and transfer wells, digesters, and elsewhere as shown on the Drawings.
 - b. Glass Reinforced Nylon Pressure Plate.
 - c. Bolt and nut, 18-8 stainless steel.
 - d. Sealing element: EPDM rubber.
 4. Acceptable Manufacturers:
 - a. Link Seal by Thunderline Company
 - b. Or equivalent.
 5. Refer to details on Process Drawings.
- D. Wall Plates: Provide split type cast iron or brass wall plates on pipes penetrating walls in finished spaces such as labs and offices. Refer to details on Process Drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. New construction:
1. Concrete: Set sleeves in proper location prior to placing concrete. Sleeves set by mechanical, plumbing, and HVAC trades as appropriate.
 2. Masonry: Mechanical, plumbing, and HVAC trades to provide sleeves and locations to masonry trades for installation.
 3. Partitions: Set sleeves in place as work progresses.
- B. Hollow Concrete Roof or Floor Planks:
1. Provide planks with sleeve cast-in-place at time of construction,
 2. Or core drill planks in location reviewed and accepted by Engineer and plank manufacturer. Submit written approval of locations from plank manufacturer.

3. Firmly grout sleeve in place.
- C. Existing Construction:
1. The location will be reviewed and accepted by the Engineer prior to cutting hole.
 2. For concrete, holes shall be located to avoid the reinforcing steel when possible.
 3. Patch all damaged work as required to maintain a neat and clean appearance.
- D. Rubber Link Seals: Install as required and in strict accordance with the manufacturer's instructions and recommendations.

END OF SECTION