

## SECTION 15120 - PIPING SPECIALTIES

## PART 1 GENERAL

## 1.1 DESCRIPTION OF WORK:

- A. Extent of piping specialties work required by this section is indicated on drawings and schedules and by requirements of this section.
- B. Piping specialties furnished as part of factory-fabricated equipment, are specified as part of equipment assembly in other Division-15 sections.

## 1.2 QUALITY ASSURANCE:

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of piping specialties of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
  - 1. FCI Compliance: Test and rate "Y" type strainers in accordance with FCI 73-1 "Pressure Rating Standard for "Y" Type Strainers". Test and rate other type strainers in accordance with FCI 78-1 "Pressure Rating Standard for Pipeline Strainers Other than "Y" Type".
  - 2. ASME B 31.9 "Building Services Piping" for materials, products, and installation.
  - 3. Safety valves and pressure vessels shall bear the appropriate ASME label.
  - 4. Fabricate and stamp air separators and compression tanks to comply with ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.
  - 5. ASME "Boiler and Pressure Vessel Code", Section IX, "Welding and Brazing Qualification" for qualifications for welding processes and operators.

## 1.3 SUBMITTALS:

- A. Product Data: Submit manufacturer's technical product data, including installation instructions, and dimensioned drawings for each type of manufactured piping specialty. Include pressure drop curve or chart for each type and size of pipeline strainer. Submit schedule showing manufacturer's figure number, size, location, and features for each required piping specialty.
- B. Shop Drawings: Submit for fabricated specialties, indicating details of fabrication, materials, and method of support.
- C. Maintenance Data: Submit maintenance data and spare parts lists for each type of manufactured piping specialty. Include this data, product data, and shop drawings in maintenance manual; in accordance with requirements of Divisions 15.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURERS:

- A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
1. Combination Pressure and Temperature Relief Valves:
    - a. Amtrol, Inc.
    - b. Bell & Gossett ITT; Fluid Handling Div.
    - c. Spirax Sarco.
    - d. Watts Regulator Co.
  2. Pressure Reducing Valves:
    - a. Amtrol, Inc.
    - b. Armstrong Pumps, Inc.
    - c. Bell & Gossett ITT; Fluid Handling Div.
    - d. Taco, Inc.
    - e. Keckley
  3. Air Vents:
    - a. Armstrong Machine Works.
    - b. Bell & Gossett ITT; Fluid Handling Div.
    - c. Hoffman Specialty ITT; Fluid Handling Div.
    - d. Spirax Sarco.
    - e. Amtrol, Inc.
  4. Air Separators:
    - a. Amtrol, Inc.
    - b. Armstrong Pumps, Inc.
    - c. Bell & Gossett ITT; Fluid Handling Div.
    - d. Taco, Inc.
    - e. The John Wood Co.
  5. Air Eliminator
    - a. Spirotherm, Inc.
  6. Air Eliminator and Dirt Separator
    - a. Spirotherm, Inc.
  7. Compression Tanks:
    - a. Amtrol, Inc.
    - b. Armstrong Pumps, Inc.
    - c. Bell & Gossett ITT; Fluid Handling Div.
    - d. Taco, Inc.
    - e. The John Wood Co.

8. Diaphragm-Type Compression Tanks:
  - a. Amtrol, Inc.
  - b. Armstrong Pumps, Inc.
  - c. Bell and Gossett ITT; Fluid Handling Div.
  - d. Taco, Inc.
  - e. The John Wood Co.
  - f. Wessles
  
9. Pump Suction Diffusers:
  - a. Amtrol, Inc.
  - b. Armstrong Pumps, Inc.
  - c. Bell & Gossett ITT; Fluid Handling Div.
  - d. Taco, Inc.
  - e. Victaulic Company of America
  
10. Automatic Flow Control Valves:
  - a. Griswold
  
11. Hydronic System Safety Relief Valves:
  - a. Kunkle Valve Co., Inc.
  - b. Lunkenheimer Co.
  - c. Watts Regulator Co.
  - d. Lonergan
  - e. Keckley
  - f. Bell & Gossett ITT; Fluid Handling Div.
  - g. Conbraco
  
12. Pressure Regulating Valves:
  - a. A.W. Cash Valve Mfgr. Corp.
  - b. Armstrong Machine Works, A-Y Division
  - c. Fisher Controls International, Inc.
  - d. Hoffman Specialty ITT; Fluid Handling Div.
  - e. Leslie Co.
  - f. Spirax Sarco
  - g. Spence Engineering Co., Inc.
  - h. Wilkins Regulator/Div Zurn Industries Inc.
  - i. Watts Regulator Co.
  
13. Pipe Escutcheons:
  - a. Chicago Specialty Mfg. Co.
  - b. Producers Specialty & Mfg. Corp.
  - c. Sanitary-Dash Mfg. Co.
  
14. Low Pressure Strainers:
  - a. Armstrong Machine Works.
  - b. Hoffman Specialty ITT; Fluid Handling Div.
  - c. Metraflex Co.
  - d. R-P&C Valve; Div. White Consolidated Industries, Inc.

- e. Spirax Sarco.
- f. Trane Co.
- g. Victaulic Co. of America.
- h. Watts Regulator Co.

15. High Pressure Y-Type Strainers:

- a. Armstrong Machine Works.
- b. Hoffman Specialty ITT; Fluid Handling Div.
- c. Metraflex Co.
- d. R-P&C Valve; Div. White Consolidated Industries, Inc.
- e. Spirax Sarco.
- f. Trane Co.
- g. Watts Regulator Co.

16. Basket Strainers:

- a. R-P&C Valve
- b. Keckley

17. Dielectric Waterways

- a. Victaulic Co.
- b. Perfection Corp.
- c. Flow Design Inc.
- d. Perfection Corp.
- e. Rockford-Eclipse Div.

18. Mechanical Sleeve Seal:

- a. Thunderline Corp.
- b. Metra Flex.

2.2 HYDRONIC PIPING SPECIALTIES:

- A. General: Provide factory-fabricated piping specialties recommended by manufacturer for use in service indicated. Provide piping specialties of types and pressure ratings indicated for each service, or if not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes as indicated, and connections, which properly mate with pipe, tube, and equipment connections. Where more than one type is indicated, selection is Installer's option.
- B. Hydronic System Safety Relief Valves: Diaphragm operated, cast-iron or brass body valve, with low inlet pressure check valve, inlet strainer removable without system shut-down, and noncorrosive valve seat and stem. Select valve size, capacity, and operating pressure to suit system. Valve shall be factory-set at operating pressure to suit system and have the capability for field adjustment. Safety relief valve shall be designed, manufactured, tested and labeled in accordance with the requirements of Section IV of the ASME Boiler and Pressure Vessel Code. Valve body shall be cast-iron, with all wetted internal working parts made of brass and rubber; 125 psig working pressure and 250 degrees F maximum operating temperature. Select valve to suit actual system pressure and BTU capacity. Set valve to relieve at 10 psi above operating pressure.
- C. Pressure Reducing Valves: Diaphragm operated, bronze or brass body valve, with low inlet pressure check valve, stainless steel inlet strainer removable without system shut-down, and

stainless steel valve seat and stem. Select valve size, capacity, and operating pressure to suit system. Valve shall be factory-set at operating pressure and have the capability for field adjustment.

- D. Coin Operated Manual Air Vent: Bronze body and nonferrous internal parts; 150 psig working pressure, 212 degrees F operating temperature; manually coin operated and having discharge outlet connection and 1/8 inch NPT male connection.
- E. Manual Air Vent: Provide ball valves as specified in Part 3.
- F. Automatic Air Vent: 100 psi working pressure, 240 degrees working temperature, stamped brass body and non-metallic float, with threaded outlet connector for "safe waste" discharge pipe.
  - 1. Amtrol 703 or approved equivalent.
- G. High Capacity Automatic Air Vent: 150 psig working pressure, 250 degrees working temperature, cast iron body, bronze pilot mechanism. Snap acting operation, preventing opening under negative pressure conditions. Capable of 18 scfm elimination at 30 psig.
  - 1. Amtrol 720 or approved equivalent.

EDIT NOTE: Traditional Air Separator

- H. Air Separators: Welded black steel; ASME constructed and labeled for minimum 125 psig water working pressure and 350 degrees F operating temperature; perforated stainless steel air collector tube; tangential inlet and outlet connections; screwed connections up to and including 3 inch NPS; flanged connections for 4 inch NPS and above; threaded blowdown connection; sized as indicated for full system flow capacity.
- I. Air Eliminator: Furnish and install as shown on the drawings coalescing type air eliminators. Pipe size is not a factor and all units shall be selected per the manufacturer's recommendations. All eliminators shall be fabricated steel, rated for 150 psig working pressure the entering velocities not to exceed 4 feet per second at specified GPM. Eliminators specifically designed for high velocity systems may have an entering velocity of up to 10 feet per second. Units shall include an internal bundle filling the entire vessel to suppress turbulence and provide high efficiency. The bundle must consist of a copper core tube with continuous wound copper medium permanently affixed to the core. A separate copper medium is to be wound completely around and permanently affixed to each internal element. Each eliminator shall have a separate venting chamber to prevent system contaminants from harming the float and venting valve operation. At the top of the venting chamber shall be an integral full port float actuated brass venting mechanism. Units shall include a valved side tap to flush floating dirt or liquids and for quick bleeding of large amounts of air during system fill or refill. Eliminators shall include a bottom connection for use as a blow down connection for periodic cleaning. Air eliminators shall be capable of removing 100% of the free air, 100% of the entrained air and up to 99.6% of the dissolved air in the fluid.
  - 1. Spirovent Senior by Spirotherm, Inc. or approved equal.

EDIT NOTE: Addition of a dirt separator to an air eliminator. See notes for air eliminator above.

- J. Air Eliminator and Dirt Separator: Furnish and install as shown on the drawings combination coalescing type air eliminator and dirt separators. Pipe size is not a factor and all units shall be selected per the manufacturer's recommendations. All combination units shall be fabricated steel, rated for 150 psig working pressure with entering velocities not to exceed 4 feet per second at specified GPM. Units specifically designed for high velocity systems may have an entering velocity of up to 10 feet per second. Units shall include an internal bundle filling the entire vessel to suppress turbulence and provide high efficiency. The bundle shall consist of a copper core tube with continuous wound copper medium permanently affixed to the internal element. Each eliminator shall have a separate venting chamber to prevent system contaminants from harming the float and venting valve operation. At the top of the venting chamber shall be an integral full port float actuated brass venting mechanism. Units shall include a valved side tap to flush floating dirt or liquids and for quick bleeding of large amounts of air during system fill or refill. Air separators shall be capable of removing 100% of the free air, 100% of the entrained air and up to 99.6% of the dissolved air in the system fluid. Dirt separation shall be at least 80% of all particles 30 micron and larger within 100 passes.
1. Spirovent by Spirotherm, Inc., or approved equal.
- K. Compression Tanks: Size and number as indicated; construct of welded carbon steel for 125 psig working pressure, 375 degrees F maximum operating temperature. Provide taps in bottom of tank for tank fitting; taps in end of tank for gauge glass. Tank with taps constructed shall be tested and labeled in accordance with ASME Pressure Vessel Code, Section VIII, Division 1. Furnish with the following fittings and accessories:
1. Air Control Tank Fitting: Cast-iron body, copper-plated tube, brass vent tube plug, and stainless steel ball check (100 gallon unit only); sized for compression tank diameter. Design tank fittings for 125 psig working pressure and 250 degrees F maximum operating temperature.
  2. Tank Drain Fitting: Brass body, nonferrous internal parts; 125 psig working pressure and 240 degrees F maximum operating temperature. Fitting shall be designed to admit air to the compression tank and drain water, plus close off the system.
  3. Gauge Glass: Full height and have dual manual shutoff valves, 3/4 inch diameter gauge glass, and slotted metal glass guard.

OR

Diaphragm-Type Compression Tanks: Size and number as indicated; construct of welded carbon steel for 125 psig working pressure, 240 degrees F maximum operating temperature. Separate air charge from system water to maintain design expansion capacity, by means of a flexible heavy duty diaphragm securely sealed into tank. Diaphragm shall be permanently sealed for tank sizes up to 45 gallon acceptance volume. For acceptance volumes greater than 45 gallons, tank shall have replaceable diaphragm/bladder. Diaphragm/bladder shall be suitable for glycol service and system water treatment chemicals. Provide taps for pressure gauge and air charging fitting, and drain fitting. Support vertical tanks with steel legs or base; support horizontal tanks with steel saddles. Tank, with taps and supports, shall be constructed, tested, and labeled in accordance with ASME Pressure Vessel Code, Section VIII, Division 1.

- L. Pump Suction Diffusers: Cast-iron body, with threaded connections for 2 inch and smaller, flanged connections for 2-1/2 inch and larger; 175 psig working pressure, 300 degrees F maximum operating temperature; and complete with the following features:

1. Inlet vanes with length 1-1/2 times pump suction diameter or greater.
2. Cylinder strainer with 3/16 inch diameter openings with total free area equal to or greater than 5 times cross-sectional area of pump suction, designed to withstand pressure differential equal to pump shutoff head.
3. Disposable fine mesh strainer to fit over cylinder strainer.
4. Permanent magnet, located in flow stream, removable for cleaning.
5. Adjustable foot support, designed to carry weight of suction piping.
6. Blowdown tapping in bottom; gauge tapping in side.

- M. Automatic Flow Control Valves: Class 150, cast iron housing, stainless steel operating parts; threaded connections for 2 inch and smaller, flanged connections for 2-1/2 inch and larger. Factory set to automatically control flow rates within plus or minus 5 percent design, while compensating for system operating pressure differential. Provide quick disconnect valves for flow measuring equipment. Provide a metal identification tag with chain for each valve, factory marked with the zone identification, valve model number, and rate flow in GPM.

### 2.3 PIPE ESCUTCHEONS:

- A. General: Provide pipe escutcheons as specified herein with inside diameter closely fitting pipe outside diameter, or outside of pipe insulation where pipe is insulated. Select outside diameter of escutcheon to completely cover pipe penetration hole in floors, walls, or ceilings; and pipe sleeve extension, if any. Furnish pipe escutcheons with nickel or chrome finish for occupied areas, prime paint finish for unoccupied areas.
- B. Pipe Escutcheons for Moist Areas: For waterproof floors, and areas where water and condensation can be expected to accumulate, provide cast brass or sheet brass escutcheons, solid or split hinged.
- C. Pipe Escutcheons for Dry Areas: Provide sheet steel escutcheons, solid or split hinged.

### 2.4 LOW PRESSURE PIPELINE STRAINERS:

- A. General: Provide strainers full line size of connecting piping, with ends matching piping system materials. Select strainers for 125 psi working pressure, with Type 304 stainless steel screen. Two inches and smaller steam and liquid strainers shall have 20 mesh screens. Provide 3/64 inch perforations for 2-1/2 inch and 3 inch steam and liquid strainers. Provide 1/8 inch mesh perforations for 4 inches and larger liquid strainers. Provide 1/16 inch mesh perforations for 4 inches and larger steam strainers.
- B. Threaded Ends, 2 inch and Smaller: Bronze or Cast-iron body, screwed screen retainer with centered blowdown fitted with pipe plug.
- C. Threaded Ends, 2-1/2 inches and Larger: Cast-iron body, bolted screen retainer with off-center blowdown fitted with pipe plug.
- D. Flanged Ends, 2-1/2 inches and Larger: Cast-iron body, bolted screen retainer with off-center blowdown fitted with pipe plug.
- E. Butt Welded Ends, 2-1/2 inches and Larger: Schedule 40 cast carbon steel body, bolted screen retainer with off-center blowdown fitted with pipe plug.
- F. Grooved Ends, 2-1/2 inches and Larger: Tee pattern, ductile-iron or malleable-iron body and access end cap, access coupling with EDPM gasket.

## 2.5 HIGH PRESSURE PIPELINE STRAINERS:

- A. General: Provide strainers full line size of connecting piping, with ends matching piping system materials. Select strainers for 250 psi working pressure, with Type 304 stainless steel screens. Two inches and smaller steam and liquid strainers shall have 20 mesh screens. Provide 3/64 inch perforations for 2-1/2 inch and 3 inch steam and liquid strainers. Provide 1/8 inch mesh perforations for 4 inch and larger liquid strainers. Provide 1/16 inch mesh perforations for 4 inch and larger steam strainers.
- B. Threaded Ends, 2 inches and Smaller: Cast-iron body, screwed screen retainer with centered blowdown fitted with pipe plug.
- C. Threaded Ends, 2-1/2 inches and Larger: Cast-iron body, bolted screen retainer with off-center blowdown fitted with pipe plug.
- D. Flanged Ends, 2-1/2 inches and Larger: Cast-iron body, bolted steel retainer with off-center blowdown fitted with pipe plug.
- E. Butt Welded Ends, 2-1/2 inches and Larger: Schedule 80 cast carbon steel body, bolted screen retainer with off-center blowdown fitted with pipe plug.

## 2.6 BASKET STRAINERS:

EDIT NOTE: Delete item A except for low (<50 psig) pressure systems.
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- A. For 50 psig systems or less (thru 12 inches): High-Tensile ASTM A126 Class B cast iron, angle design, ductile iron clamped cover, flanged ends, stainless steel screen assembly, suitable gasket material, bottom threaded drain outlet. Steam screen size shall be .045 inch perforations for through 6 inch diameter piping; .062 inch for 8 inch and larger. Liquid screen size shall be .045 inch perforations for through 3 inch diameter piping; .125 inch for 4 inch and larger.  
  
R-P&C 528-C12, Class 125
- B. For 125 psig systems or less (thru 12 inch): High-Tensile ASTM A126, Class B cast iron, angle design, bolted cover, flanged ends, stainless steel screen assembly, suitable gasket material, bottom threaded drain outlet. Steam screen size shall be .045 inch perforations for through 6 inch diameter piping; .062 inch for 8 inch and larger. Liquid screen size shall be .045" perforations for through 3 inch diameter piping; .125 inch for 4 inch and larger.  
  
R-P&C 528-V12, Class 125
- C. For systems operating greater than 125 psig (thru 12 inch): High-Tensile ASTM A126 Class B cast iron, angle design, bolted cover, flanged ends, stainless steel screen assembly, suitable gasket material, bottom threaded drain outlet. Steam screen size shall be .045 inch perforations for through 6 inch diameter piping; .062 inch for 8 inch and larger. Liquid screen size shall be .045 inch perforations for through 3 inch diameter piping; .125 inches for 4 inches and larger.  
  
R-P&C 528-B25, Class 250

## 2.7 DIELECTRIC WATERWAY:

- A. General: Zinc electroplated nipple with non metallic lining for use in service indicated, which effectively isolate ferrous from non-ferrous piping (electrical conductance), prevent galvanic action, and stop corrosion. Union style not acceptable.

## 2.8 MECHANICAL SLEEVE SEALS:

- A. General: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve, connected with bolts and pressure plates which cause rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation, as manufactured by Link-Seal or equal.
- B. Sleeve Seals: Provide sleeve seals for sleeves located in foundation walls below grade, or in exterior walls, of one of the following:
  - 1. Mechanical Sleeve Seals: Installed between sleeve and pipe.

## 2.9 FABRICATED PIPING SPECIALTIES:

- A. Drip Pans: Provide drip pans fabricated from corrosion- resistant sheet metal with watertight joints, and with edges turned up 2-1/2 inches. Reinforce top, either by structural angles or by rolling top over ¼ inch steel rod. Provide hole, gasket, and flange at low point for watertight joint and 1 inch drain line connection.
- B. Pipe Sleeves: Provide pipe sleeves of one of the following:
  - 1. Sheet-Metal: Fabricate from galvanized sheet metal; round tube closed with snaplock joint, welded spiral seams, or welded longitudinal joint. Fabricate from the following gauges: 3 inches and smaller, 20 gauge; 4 inches to 6 inches 16 gauge; over 6 inch, 14 gauge.
  - 2. Steel-Pipe: Fabricate from Schedule 40 galvanized steel pipe; remove burrs. Provide fully welded waterstop/anchor ring fabricated from minimum 1/8 plate, extending minimum 1 inch from O.D. of sleeve, where noted in Part 3.
  - 3. Iron-Pipe: Fabricate from cast-iron or ductile-iron pipe; remove burrs.
  - 4. Sleeves for use with firestopping shall be fabricated in accordance with the installation instructions of the firestopping system.

## PART 3 - EXECUTION

### 3.1 INSTALLATION OF PIPING SPECIALTIES:

- A. Pipe Escutcheons: Install pipe escutcheons on each pipe penetration thru floors, walls, partitions, and ceilings where penetration is exposed to view; and on exterior of building. Secure escutcheon to pipe or insulation so escutcheon covers penetration hole, and is flush with adjoining surface.
- B. Strainers: Install strainers full size of pipeline, in accordance with manufacturer's installation instructions. Install pipe nipple and shutoff full port ball valve with ¾ inch hose end and cap in

strainer blow down connection. Where indicated, provide drain line from shutoff valve to plumbing drain, full size of blow down connection.

1. Provide strainers in supply line ahead of the following equipment, and elsewhere as indicated.

Edit the following list and coordinate details on drawings.

- a. Pumps
  - b. Pressure reducing valves
  - c. Temperature or pressure regulating valves
  - d. Control valves
- C. Dielectric Waterway: Install at each piping joint between ferrous and non-ferrous piping. Comply with manufacturer's installation instructions.
- D. Mechanical Sleeve Seals: Loosely assemble rubber links around pipe with bolts and pressure plates located under each bolt head and nut. Push into sleeve and center. Tighten bolts until links have expanded to form watertight seal.
- 3.2 HYDRONIC SPECIALTIES INSTALLATION:
- A. Manual Air Vent: Provide manual air vents at all high points and drops in the direction of flow, of all mains and risers of the hydronic systems, at heat transfer coils, radiation and elsewhere shown and as required for system air venting.
1. Provide enlarged air collection standpipe where large air quantities can accumulate.
  2. Use a 1/2 inch ball valve with a soft copper tubing discharge pipe directed to a convenient collection point except as noted below.
  3. Use a coin operated air vent inside terminal unit and baseboard radiation enclosures.
- B. Provide automatic air vents where shown on drawings. Provide high capacity automatic air vents at all air separators, provide an isolation valve to allow removal of all automatic air vents, provide minimum 1/4 inch soft copper tubing to a convenient drain location, and to avoid water damage.

EDIT NOTE: Delete air outlet piping on systems with diaphragm compression tanks.

- C. Air Separator or Air Eliminator: Install inline air separators in hydronic systems pump suction lines. Run air outlet piping to compression tank with 1/4 inch per foot (2 percent) upward slope towards tank. OR Provide high capacity air vent on air outlet. Install drain valve on units 2 inch and larger.
- D. Pump Suction Diffuser: Install pump suction diffusers on hydronic systems pump suction inlet, adjust foot support to carry weight of suction piping. Install nipple and ball valve in blowdown connection. Arrange installation to allow strainer removal and replacement.
- E. Compression Tank: Install compression tanks in hydronic systems above air separator. Install gauge glass and cocks on end of tank. Install tank fitting in tank bottom and charge tank. Use manual vent for initial fill to establish proper water level in tank.

OR

- F. Diaphragm-Type Compression Tank: Install diaphragm-type compression tanks in hydronic systems on floor stand as indicated. Provide Schraeder valve on air charge fitting. Vent and purge air from the water side, and charge tank with proper air charge to suit system design requirements.
1. Provide support from the floor or structure adequate to carry twice the weight of the tank, piping connections, fittings, and weight of water assuming a full tank of water. Do not overload building components and structural members.

### 3.3 INSTALLATION OF FABRICATED PIPING SPECIALTIES:

- A. Drip Pans: Locate drip pans under piping as indicated. Hang from structure with rods and building attachments, weld rods to sides of drip pan. Brace to prevent sagging or swaying. Connect 1" drain line to drain connection, and run to nearest plumbing drain or elsewhere as indicated.
- B. Pipe Sleeves: In fire resistive construction, coordinate the use of sleeves with the firestopping system requirements. See Section 15050. Do not install sleeves through structural members of work, except as detailed on drawings, or as reviewed by Architect/Engineer. Install sleeves accurately centered on pipe runs. Size sleeves so that piping and insulation will have free movement in sleeve, including allowance for thermal expansion; but not less than 2 pipe sizes larger than piping run. Install length of sleeve equal to thickness of construction penetrated, and finish flush to surface; except floor sleeves where noted below. Provide temporary support of sleeves during placement of concrete and other work around sleeves, and provide temporary closure to prevent concrete and other materials from entering sleeves.
1. Interior gypsum board, plaster, and masonry partitions: Install sheet metal sleeves.
  2. Interior cast in place concrete walls: Install steel pipe sleeves.
  3. Interior cast in place floors: Install steel pipe sleeves with water stop/anchor ring.
    - a. Extend floor sleeves in rooms 1/2 inch above level floor finish, in rooms 3/4 inch above floor finish sloped to drain and 2 inches above finished floor in all mechanical equipment rooms and pipe chases.
  4. Below ground and exterior cast-in-place concrete or masonry: Install steel pipe sleeves with waterstop/anchor ring.
  5. For core drilled solid concrete or precast concrete with blockouts, no sleeve is required, except provide sheet metal "collar" fastened and caulked to floors required to have extended sleeves.
- C. See Section 15241 for acoustical sleeve requirements.

END OF SECTION 15120