

## **SECTION 15150 PLUMBING**

### **PART 1 – GENERAL**

#### **1.01 DESCRIPTION**

- A. Section consists of furnishing and the installation of plumbing systems, complete with pipe and fittings, appurtenances, components and other accessories as shown on the Contract Drawings and specified herein.

#### **1.02 REFERENCE STANDARDS**

- A. American Society of Mechanical Engineers (ASME):
  - 1. B1.1 Unified Inch Screw Threads
  - 2. B16.1 Gray Iron Pipe Flanges and Flanged Fittings (Classes 25, 125, and 250)
  - 3. B16.3 Malleable Iron Threaded Fittings
- B. American National Standards Institute (ANSI)
  - 1. A13.1 Scheme for for Identification of Piping Systems
- C. American Society for Testing and Materials (ASTM International):
  - 1. A53 Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
  - 2. A74 Specification for Cast Iron Soil Pipe and Fittings
- D. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
  - 1. SEIS Seismic Restraints: Guidelines for Mechanical Systems

#### **1.03 SUBMITTALS**

- A. Refer to Section 15000, Basic Mechanical Requirements, for additional submittals.
- B. Product Data: Submit technical literature covering drawings and details of equipment, fixtures and accessories furnished under this Section.

#### **1.04 COORDINATION**

- A. Coordination: Coordinate plumbing with the other mechanical work, and all underground piping work in accordance with the requirements of this Section. Coordinate plumbing with concrete work and masonry work where pipe sleeves may be required.

- B. Codes and Regulations: Where larger sizes are required by the applicable code, the more stringent requirements shall prevail.
- C. Should field conditions or other causes necessitate rearrangement of plumbing work, obtain Engineer's approval of the proposed arrangement before work is started.
- D. Space Limitation: Keep plumbing work within the spaces indicated in the design to receive such work. Conceal piping in finished spaces. Should other openings or spaces be necessary, notify the Engineer and make such openings or spaces.

## **PART 2 – PRODUCTS**

### **2.01 GENERAL**

- A. Furnish and install materials and accessories as shown on the Contract Drawings and as required, complete with components, trims and miscellaneous facilities.
- B. Threads: Conforming to ASME B1.1.

### **2.02 PIPE**

- A. Pipe: ASTM A74, cast iron, Class 150
- B. Pipe: ASTM A53, galvanized or black iron pipe, threaded
- C. Flanges: ASME B16.1, cast iron, Class 125, threaded
- D. Fittings: ASME B16.3

### **2.03 GATE VALVES**

- A. Iron Body, Bronze Trim, Rising Stem and Handwheel, OS&Y, Single Wedge, Flanged Ends, Class 125.

### **2.04 CHECK VALVES**

- A. Iron Body, Bronze Trim, Swing Disc, Renewable Disc and Seat, Flanged Ends, Class 150.

### **2.05 DIELECTRIC CONNECTIONS**

- A. Joints between ferrous and non-ferrous piping shall be made with dielectric insulating unions, suitable to withstand the pressure, temperature and characteristics of service. Where flanged dielectric joints are required, special insulating gaskets, sleeves, and washers shall be provided to ensure proper connection.

### **2.06. HANGERS AND SUPPORTS**

- A. Hangers and supports shall be capable of adjustment after piping is erected. Hanger and support shall be standard product and type best suited for the

service or condition required, as manufactured by Superstrut, Grinnell, or Engineer approved equal.

- B. Hanger spacing and seismic restraints shall be as required in SMACNA SEIS.

## **2.07 PIPING IDENTIFICATION**

- A. Band or Tape: Permanent type linear polyethylene, fiberglass or mylar snap-on bands or pressure-sensitive, color-coded tapes with contrasting lettering to identify each piping service per ANSI A13.1.
- B. Flow arrow shall be of the same color as pipe service.

## **2.08 UNDERGROUND CORROSION PROTECTION**

- A. Corrosion Protective Tape: Type suitable for application specified. Furnish in widths as recommended by the manufacturer as best suited for pipe size being wrapped.
- B. Primer: As required by tape manufacturer.

## **PART 3 – EXECUTION**

### **3.01 GENERAL PIPING WORK**

- A. Arrange and provide for the necessary openings in walls and the proper roughing-in of the plumbing work. Rough in shall be exact to measurements furnished by the manufacturer.
- B. Clean pipe, fittings, and valves of grease, dirt, and scale before installation. Keep temporary pipe openings closed during the performance of the Work. Ream pipe ends smooth and remove all burrs before installation.
- C. Cut pipe accurately to measurements taken on the job. Install offset connections for alignment of vertical to horizontal piping and where required to make a true connection. Bent or sprung pipe is not acceptable. Piping connections shall have unions where necessary for replacement and repair of equipment. Install gate valves where shown and where necessary for proper operation and service. Install vertical piping plumb and horizontal piping parallel to walls of the storm water lift system structure and similar structures. Support piping as required to prevent vibration. Coordinate anchor supports with pre-cast concrete structure fabrications.
- D. Provide venting of plumbing work as required by applicable code and as shown on the Contract Drawings.
- E. Threaded joints shall be full and clean cut. Ream ends of pipe to the full inside diameter, and not more than three threads exposed beyond fittings. Make-up joints tight with graphite joint compound. Use manufacturer approved pipe compound on screwed joints.

- F. Factory prepare as much of the plumbing system internal to the storm water lift system as possible. Field install plumbing system in accordance with manufacturer's recommendations and this Section.
- G. Finally adjust hangers, both in the vertical and horizontal directions.
- H. Coordinate the plumbing system with the electrical work other trades associated with the installation and operation of mechanical equipment.
- I. Sleeves: As specified in Section 15000, Basic Mechanical Requirements.

**3.02 PIPING IDENTIFICATION**

- A. Apply piping identification bands or tapes to identify each piping service per ANSI A13.1.
- B. Point arrow in the direction of flow and apply at location with maximum visibility.

**3.03 UNDERGROUND CORROSION PROTECTION**

- A. Spiral wrap carbon steel and copper pipe installed underground or below concrete slabs with corrosion protective tape to a 20 mil thickness. Thoroughly clean, dry, and remove sharp points, and then prime before wrapping.
- B. Apply tape tightly with 1/2 inch minimum overlap, free from wrinkles and voids. Use wrapping machine as recommended by tape manufacturer.

**END OF SECTION**