

SECTION 22 10 00 - PLUMBING

PART I - GENERAL

1.01 DESCRIPTION

- A. Section 01 11 00 Summary of Work, Section 20 05 00 Common Work Results for Mechanical, and Section 20 07 00 Mechanical Insulation shall be considered a part of these specifications.
- B. Codes, Ordinances and Permits: All permits, connection fees, tap fees, licenses, approvals and other arrangements, including plumbing and riser diagrams, if required, shall be obtained by the Plumbing Contractor at his expense. Should any changes be necessary in the drawings or specifications to secure such approval, this Contractor shall include in his bid all costs for such changes to comply with these departments without extra costs to Walgreen Co. It will be this Contractor's responsibility to provide all systems complete and operable.
- C. Scope of Work: Contractor shall furnish all materials, tools, equipment, labor and services and pay all costs of whatever nature, as may be necessarily expended, for a proper workmanlike and fully operable installation, and completion of all plumbing and related work. The Plumbing Contractor shall provide the following within, beneath and up to 5 feet beyond the building(s).
 - 1. Complete system of sanitary, soil, waste, and vent piping connecting each and every plumbing fixture or other piece of equipment requiring same, with sanitary sewer including pipe, fittings, and other necessary appurtenances.
 - 2. Complete system of storm water drainage including downspouts, roof drains, pipe, fittings and other necessary appurtenances.
 - 3. Complete systems shall be connected to adequate source of supply or disposal of the local public utility company or municipality commonly serving the area. It will be the Contractor's responsibility to provide all systems complete and operable.
 - 4. Complete system of cold water supply and distributing piping of hot and cold water connecting to every plumbing fixture, cooling tower, evaporative condenser, or other pieces of equipment requiring same, including isolation valves for each piece of equipment, hangers, supports, and other necessary appurtenances.
 - 5. Funnel or other drains for air conditioning units, refrigeration, and fire protection piping.
 - 6. All floor and wall sleeves.
 - 7. All plumbing fixtures, except as hereinafter noted.
 - 8. Water heaters.
 - 9. Water coolers.
 - 10. Connections to the supply lines of the fixtures and outlets for equipment furnished by Walgreen Co.

11. Backflow preventer and water meter for the irrigation system.

1.02 SUBMITTALS

A. This Contractor shall submit product data for all plumbing fixtures, trim and accessories.

1.03 QUALITY ASSURANCE

A. At Walgreens discretion, any store where the sewer/drainage system operation, installation or material is considered "suspect" shall be inspected, at the Landlord's/Contractor's expense, using a sewer line video camera. All necessary repairs shall be made at the Landlord's/Contractor's expense.

PART II - PRODUCTS

2.01 PIPING & VALVES

- A. See section 33 10 00 of the specifications for pipe more than 5 feet outside of the building.
- B. Drain tile shall be standard form tile to conform to ASTM standards. Drain tile shall be placed with open joints and wrapped with building paper, set true to grade, and pitched to drain to sump. All tile shall be encased with a minimum of 6 inch clean gravel.
- C. All underground sanitary and storm sewers shall be standard weight cast iron soil pipe with hub and spigot fittings conforming to ASTM A74 and C564.
- D. Above ground sanitary sewer and vent 2 1/2 inches and larger shall be standard weight cast iron soil pipe with no-hub couplings conforming to CISPI 301 and ASTM A888.
- E. All rough-ins for plumbing fixtures, including all waste lines and all branch soil pipe below floor from plumbing fixtures, shall be standard weight cast iron pipe.
- F. All waste and vent piping above floor, 2 inches and smaller, can be either type "M" copper with wrought copper fittings, soldered connection or galvanized carbon steel with threaded connections.
- G. All inside downspouts, 2" and smaller from roof drains to point 6 inches above floor can be either type "M" copper with wrought copper fittings, soldered connection or galvanized carbon steel with threaded connections.
- H. Where such use is acceptable to the authority having jurisdiction, all storm and sanitary lines and fittings, below and above floor, may be schedule 40 PVC DWV with solvent welded joints per ANSI/ASTM D2665 and D3311. All piping, valves, fittings and solvent shall be furnished by the same manufacturer.
- I. Underground water main 2 1/2 inch diameter and larger shall be class 150 ductile iron pipe, AWWA C151, with mechanical joint or bell and spigot ends, AWWA C110 or C153.
- J. Underground water main 2 inch diameter and smaller shall be ASTM B88 Type "K" copper pipe with wrought copper fittings and soldered joints.
- K. All above floor hot and cold water piping within the building shall be ASTM B88 Type "L" copper with wrought copper fittings. All fittings shall be soldered.

- L. Provide dielectric fittings between ferrous and copper piping.
 - M. Isolation valves on domestic water shall be ball type Jomar T/S100, Nibco T-685-80-LF or Milwaukee UPBA 400/500.
 - N. Balancing valves shall be the same as above with a memory stop.
- 2.02 PLUMBING FIXTURES
- A. Contractor shall furnish and install all plumbing fixtures as indicated on plumbing drawings.
- 2.03 WATER HEATING
- A. Storage Type:
 - 1. Water Heater: Provide water heater with all accessories including ASME rated combination temperature and pressure relief valve as shown on plumbing drawings and meeting local code requirements.
 - 2. Pipe relief outlets to drain.
 - 3. Provide a thermometer on hot water supply from water heater. Range: 30 to 240 F.
- 2.04 WATER METER
- A. Water meter provided by the water utility or Contractor shall be of diaphragm type, rotary type or turbine type as approved by the water utility. Furnish with optional pulse or 4-20mA output suitable for remote flow rate indication and flow totalization by an Energy Management System.

PART III - EXECUTION

3.01 INSTALLATION

- A. Cold Water Supply: If water pressure on domestic service exceeds 80 PSI, this Contractor shall furnish and install pressure reducing valve on main domestic service line set for 65 PSI.
- B. Piping in General: All pipes shall be run with proper grades to provide for easy draining. They must be thoroughly reamed and cleaned before installation. This Contractor shall consult and cooperate with other piping Contractors as to obtain the proper grouping of pipes and to avoid interference. Pipes run overhead shall be placed as close to the roof deck as possible to maintain proper headroom and to present a neat appearance, all consistent with the correct pitching of pipes. The Plumbing Contractor shall consult with the Construction Superintendent before installation of any pipe lines which will reduce the proper headroom in any way. Piping shall be run as shown on the drawings, but the Construction Superintendent reserves the right to make slight changes (without extra charge) to avoid conflict with other work.
- C. Protection: Underground water piping cover shall be measured from top of pipe to finished grade with due consideration given to future or final grade and nature of soil. Top of pipe shall be no less than one foot below local frost line. Minimum cover shall be 3 feet below

pavements. No piping shall run under buildings except for fire service main shall be permitted to enter the building adjacent to the foundation. Back filling shall be tamped in layers to prevent lateral movement or settlement and shall contain no ashes, cinders, refuse, organic, corrosive, or frozen materials. In trenches cut through rock, tamped granular backfill shall be provided a minimum of 6 inches under and around piping with a minimum of 2 feet of granular cover.

- D. Vent Pipes: All vent pipes that pass through roof openings shall be kept at a reasonable distance from the walls to permit proper application of built-up roofing and base and counter-flashings. All vent pipes shall be flashed.
- E. Cooler/Freezer Wastes: Condenser wastes from refrigeration equipment shall discharge into a minimum 3 inch drain connected to the sewer.
- F. Floor Drains: Furnish and install all floor drains.
- G. Cleanouts: Full-sized brass screw plugs, cleanout plugs shall be furnished and installed at the foot of all soil and waste stacks, internal downspouts and at all points where necessary to permit the entire drainage system to be rodded out easily. Provide cleanouts at the end of each branch, changes in directions greater than 45 degrees, and as required by Code. All cleanouts shall be visible and accessible.
- H. Connections to Equipment Furnished by Walgreen Co.: This Contractor shall rough-in and connect all fixtures and equipment to be furnished by Walgreen Co. This shall include all hot and cold water, waste, and vent piping required to connect completely to equipment.

3.02 TESTING

- A. Domestic Hot and Cold Water Systems: 100 PSI (minimum) air for one hour without leakage.
- B. Sewer Systems: 10 feet (minimum) hydrostatic for one hour without leakage.

3.03 DISINFECTION

- A. Clean and disinfect potable domestic water piping as follows:
 - 1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
 - 2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:
 - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
 - b. Fill and isolate system according to either of the following:
 - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.

- 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
- c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
 - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.
- B. Prepare and submit reports of purging and disinfecting activities.
- C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

END OF SECTION