

SECTION 22 11 00

WATER DISTRIBUTION PIPING AND SPECIALTIES

This document is intended to note the Owners Design Requirements (ODR) for the titled specification section. Design professional to review and integrate ODR into the project's technical specifications. This ODR document should not be viewed as a standalone technical specification.

PART 1 - GENERAL REQUIREMENTS

- ◆ Spare parts
 - Maintenance Stock: Furnish one valve key for each key-operated wall hydrant, hose bibb, fixture supply, or faucet installed.

PART 2 - PRODUCTS AND MATERIALS

- ◆ Manufacturers
 - Master Thermostatic Mixing Valves
 - Symmons Industries, Inc.
 - Electronic Trap Primers and Distribution Units
 - Precision Plumbing Products, Inc.
 - Recirculation pumps
 - Taco
- ◆ Pipe and tube materials, general
 - Pipe and Tube: Refer to Part 3, Articles "Above Ground Water Distribution Pipe and Fittings" or "Below Ground Water Distribution Pipe and Fittings", for identification of systems where the materials listed below are used.
 - Copper Tube: ASTM B88, Type L Water Tube, drawn temper.
 - Copper Tube: ASTM B88, Type K Water Tube, annealed temper.
- ◆ Fittings
 - Wrought Copper Solder-Joint Fittings: ANSI B16.22, streamlined pattern.
 - Bronze Flanges: ANSI B16.24, Class 150, raised ground face, bolt holes spot faced.
 - PVC to Ductile Iron Adapter Flanges: EBBA Iron, Inc. Series 2000PV or approved equivalent.
- ◆ Joining materials
 - Solder Filler Metal: ASTM B32, 95-5 Tin-Antimony.
 - Brazing Filler Metals: AWS A5.8, BAg Silver.
 - Gasket Material: Thickness, material, and type suitable for fluid to be handled and design temperatures and pressures.
- ◆ General-duty valves
 - General-duty valves (i.e., check, ball, and butterfly valves) are specified in Division 22 Section "General Duty Valves for Plumbing Piping." Special duty valves are specified below by their generic name; refer to Part 3, Article "Valve Applications" for specific uses and applications for each valve specified.
- ◆ Piping specialties
 - Trap Primers: Electronic trap primers are preferred.
 - Master Thermostatic Mixing Valves:
 - Master mixing skids shall be flanged and have isolation valves to easily switch the master mixing skid.

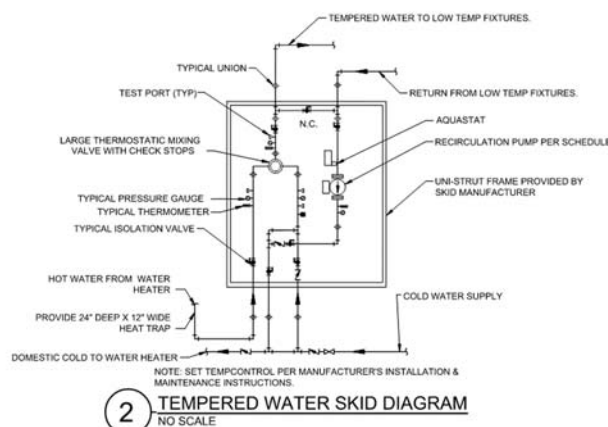
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PART 3 - EXECUTION

- ◆ Above ground water distribution pipe and fittings
 - Install Type L, drawn copper tube with wrought copper fittings and solder joints for pipe sizes 8 inches and smaller, within the building.
 - Install Type K, copper tube with wrought copper fittings and solder joints for condensate piping.
- ◆ Pipe and tube joint construction
 - Soldered Joints: All copper piping 1½" and below shall have soldered joints. Comply with the procedures contained in the AWS "Soldering Manual." Soldered joints using lead-free 95/5 solder except where tubing is installed below grade or below the base slab, in which case joints shall be soldered with silver solder (Sil-Fos).
 - Brazed Joints: All copper piping 2" and above shall have brazed joints Comply with the procedures contained in the AWS "Brazing Manual."
 - Mechanically Press Connect Joints: Press Connect Fitting are allowed for up to 2". Conform to ASME B75.
 - Joints Containing Dissimilar Metals: Provide dielectric unions for 2" and smaller and dielectric flanges for piping 2-1/2" and larger. Provide dielectric waterway fittings for 2" and smaller in concealed locations. Dielectric unions, waterway fittings and flanges are specified in Section "Basic Piping Materials and Methods".
- ◆ Valve applications
 - Shut-off duty: Ball and butterfly valves.
 - Throttling duty: Use globe, ball, and butterfly valves.
- ◆ Installation of valves
 - Master Mixing Valves: Install custom skid extending 6" beyond the physical boundary of the mixing valve and firmly attach backboard to the wall. Connect hot water return piping per the manufacturer's published recommendations. Set temperature as scheduled on the drawings.



- ◆ Field quality control
 - Piping System Test: Ensure CCDOA inspectors are present for the testing:
 - Test for leaks and defects all new water distribution piping systems and parts of existing systems that have been altered, extended or repaired. If testing is performed in

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segments, submit a separate report for each test, complete with a diagram of the portion of the system tested.

- Leave uncovered and unconcealed all new, altered, extended, or replaced water distribution piping until it has been tested and approved. Expose all such work for testing that has been covered or concealed before it has been tested and approved.
 - Test the domestic water system by pressurizing piping with 10psig compressed air for 3 hrs without a drop in pressure of more than 5%. If the air test is approved, test the system by filling it with water and then isolating the system from its source. Keep the system closed for a period of twenty-four hours with no fixture being used. The pressure differential for this test period shall not exceed 10 psig.
 - Cap and subject the piping system to a static water pressure of 125 psig. Isolate the test source and allow to stand for 4 hours. Leaks and loss in test pressure constitute defects that must be repaired.
 - Repair all leaks and defects with new materials and retest system or portion thereof until satisfactory results are obtained.
 - Reports: Prepare inspection reports and required corrective action signed by the plumbing official and turn over to the Architect upon completion of the project.
- ◆ Adjusting and cleaning
- Clean and disinfect water distribution piping as follows:
 - Purge all new water distribution piping systems and parts of existing systems that have been altered, extended, or repaired prior to use.
 - Use the purging and disinfecting procedure described below:
 - Flush the piping system with clean, potable water until dirty water does not appear at the points of outlet.
 - Fill the system or part thereof with a water/chlorine solution containing at least 50 parts per million of chlorine. Isolate (valve off) the system or part thereof and allow to stand for 24 hours.
 - Drain the system or part thereof of the previous solution and refill with a water/chlorine solution containing at least 200 parts per million of chlorine and isolate and allow to stand for 3 hours.
 - Following the allowed standing time, flush the system with clean, potable water until chlorine residual is lowered to incoming city water level.
 - Submit water samples in sterile bottles to the authority having jurisdiction. Repeat the procedure if the biological examination made by the authority shows evidence of contamination.
 - Reports: Prepare disinfection reports signed by the authority having jurisdiction and turn over to the Architect upon completion of the project.
- ◆ Commissioning
- Fill the system. Check compression tanks to determine that they are not air bound and that the system is completely full of water.
 - Before operating the system, perform these steps:
 - Close drain valve, hydrants, and hose bibbs.
 - Open valves to full open position.
 - Remove and clean strainers.

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- Check pumps for proper direction of rotation. Correct improper wiring.
- Lubricate pump motors and bearings.

END OF SECTION 22 11 00