

OKLAHOMA STATE UNIVERSITY - BUILDING DESIGN STANDARDS

PART 1 GENERAL

1.01 Intent of Document

- A. The information included in this section is intended to identify the SPECIFIC ITEMS required by Oklahoma State University in the design and construction of facilities on the campus. Items of "normal, code, industry or standard construction practice" are not included in this section.

1.02 Design Criteria

A. Hydronic Piping

1. Refer to NFPA 99 for special piping standards for medical gases, including vacuum, compressed air, nitrogen, carbon dioxide, and oxygen.
2. Hot Water Heating
 - a. Black Steel, Schedule 40, 150 lbs. Threaded or welding fittings.
 - b. Copper, Type L Hard Drawn, wrought copper fittings with 95% tin, 5% antimony solder joints or propress fittings.
3. Chilled Water Cooling
 - a. Black Steel, Schedule 40, 150 lbs. Threaded or welding fittings.
 - b. Copper, Type L Hard Drawn, wrought copper fittings with 95% tin, 5% antimony solder joints or propress fittings.

B. Electrolysis

1. Use insulated nipples between dissimilar metals.

- C. Specify manual air vents at all changes in elevation downward in direction of flow with full size air chamber. Provide manual valve in discharge piping to drain.

- D. Specify bladder-type compression tanks compatible with system chemicals. Inhibited ethylene glycol antifreeze solution may be used only when approved by OSU Architectural & Engineering Inspection Services.

- E. Components exposed in systems containing chemicals, shall be compatible with the specified chemicals (especially seals and gaskets).

- F. No mechanical joints for pressurized piping allowed in pipe shafts.

1. Architectural & Engineering Inspection Services or an authorized representative to witness all piping pressure test.
2. Cleaning/Testing Methods
 - a. All piping and tubing shall be reamed and all burrs removed.
 - b. Mechanical cleaning: Remove loose dirt, scale, and debris by brushing, wiping, or high pressure water jetting.
 - c. Water flush: Flush piping for 2 hours (minimum) or until effluent is clean and contains no visible particulate matter. Flushing pressure shall not exceed maximum operating pressure specified for pipe, fittings and all devices.

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Minimum flushing velocity shall be 6 ft/s in the largest pipe size with a full pipe. Provide flow measurement verification. Clean all strainers.

- d. Hydrostatic pressure testing: Use clean, fresh city water for test. Test duration must be 125 psi minimum for a continuous 12 hour period.
- e. When required, piping and tubing shall be flushed, cleaned, and treated.

PART 2 MATERIALS

2.01 General

- A. Materials for heating water systems shall conform to information shown on the following sketches.

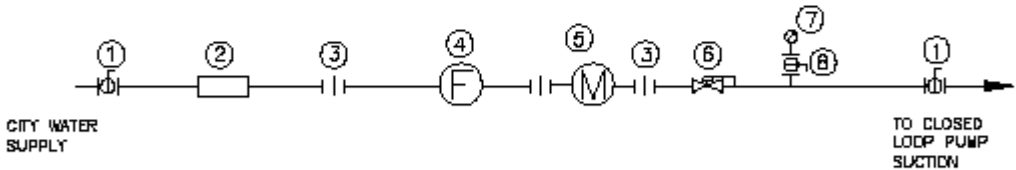
PART 3 INSTALLATION

3.01 General

- A. Design of heating water systems shall conform to information shown on the following sketch(es).

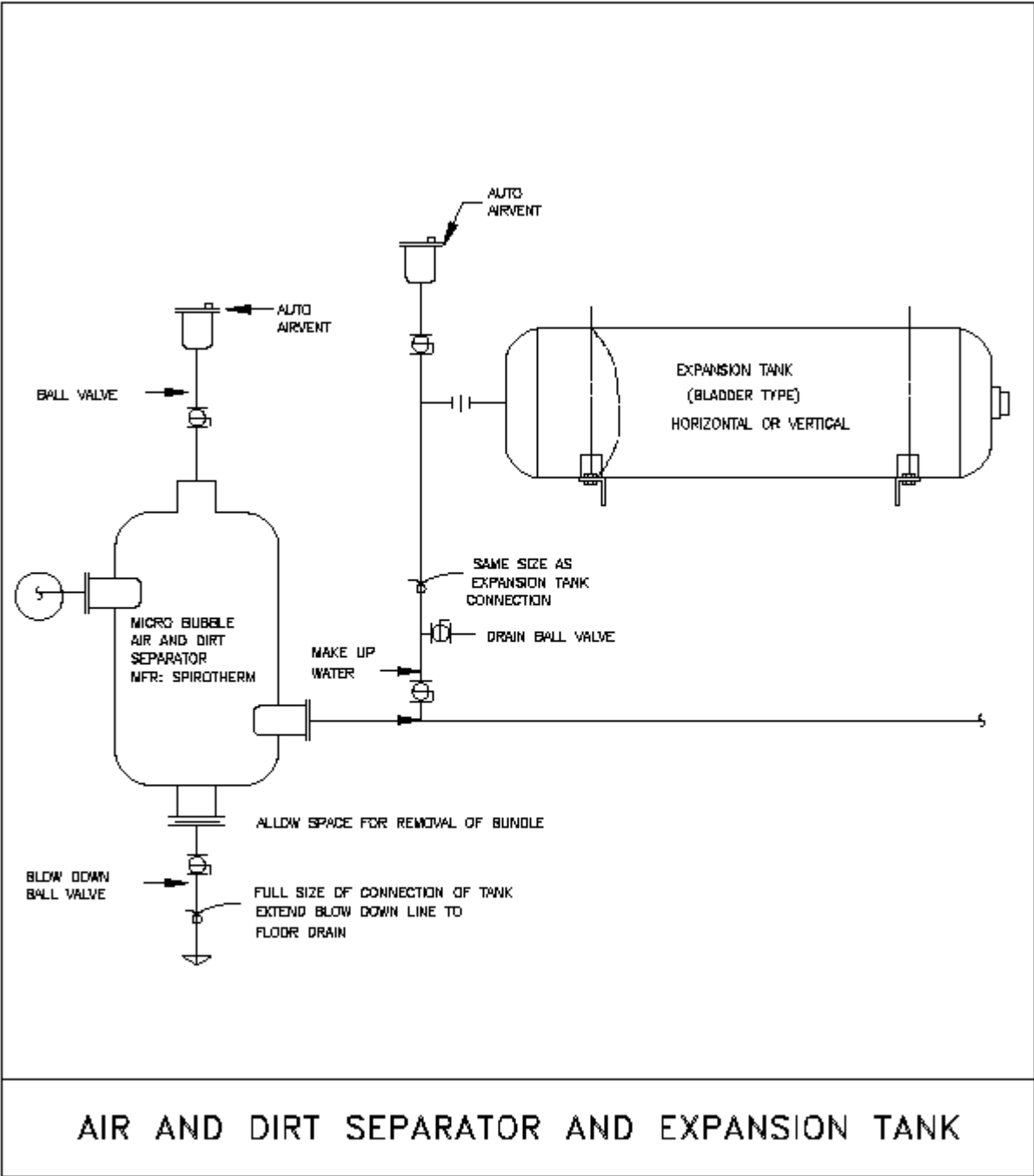
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ITEM #	DESCRIPTION	MODEL #
1	3/4" BALL VALVE	
2	3/4" BACK FLOW PREVENTER, REDUCED PRESSURE	WATTS 009 M2
3	3/4" UNION	
4	3/4" WATER FILTER - 5 MICRON NOMINAL	CUNO CT102 HOUSING G788-2N FILTER
5	WATER METER	
6	3/4" PRESSURE REDUCING VALVE	WATTS US LP
7	1/4" PRESSURE GAUGE, LIQUID FILLED 0-100#	
8	1/2" BALL VALVE	



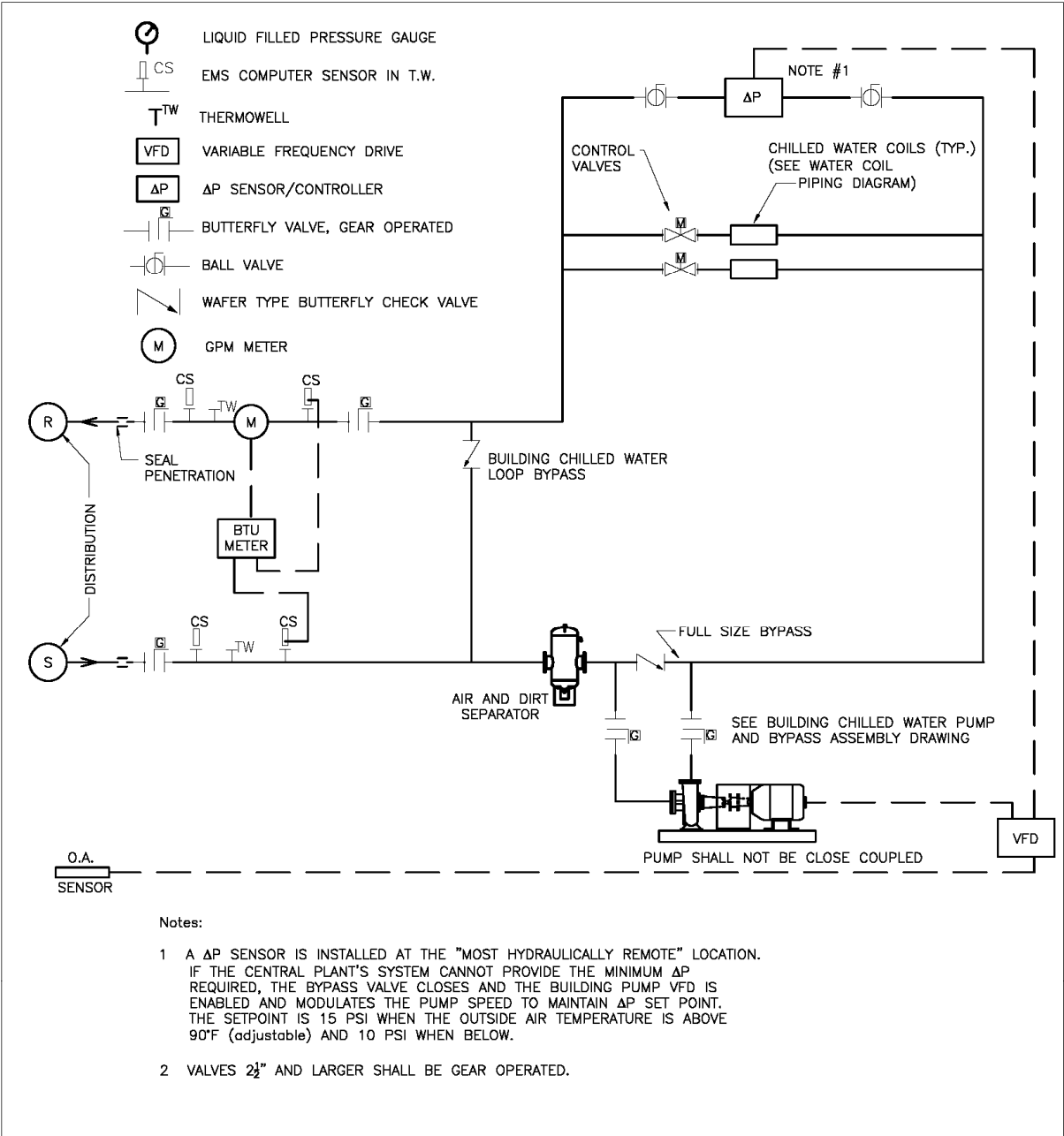
HYDRONIC SYSTEM CLOSED LOOP MAKE-UP WATER

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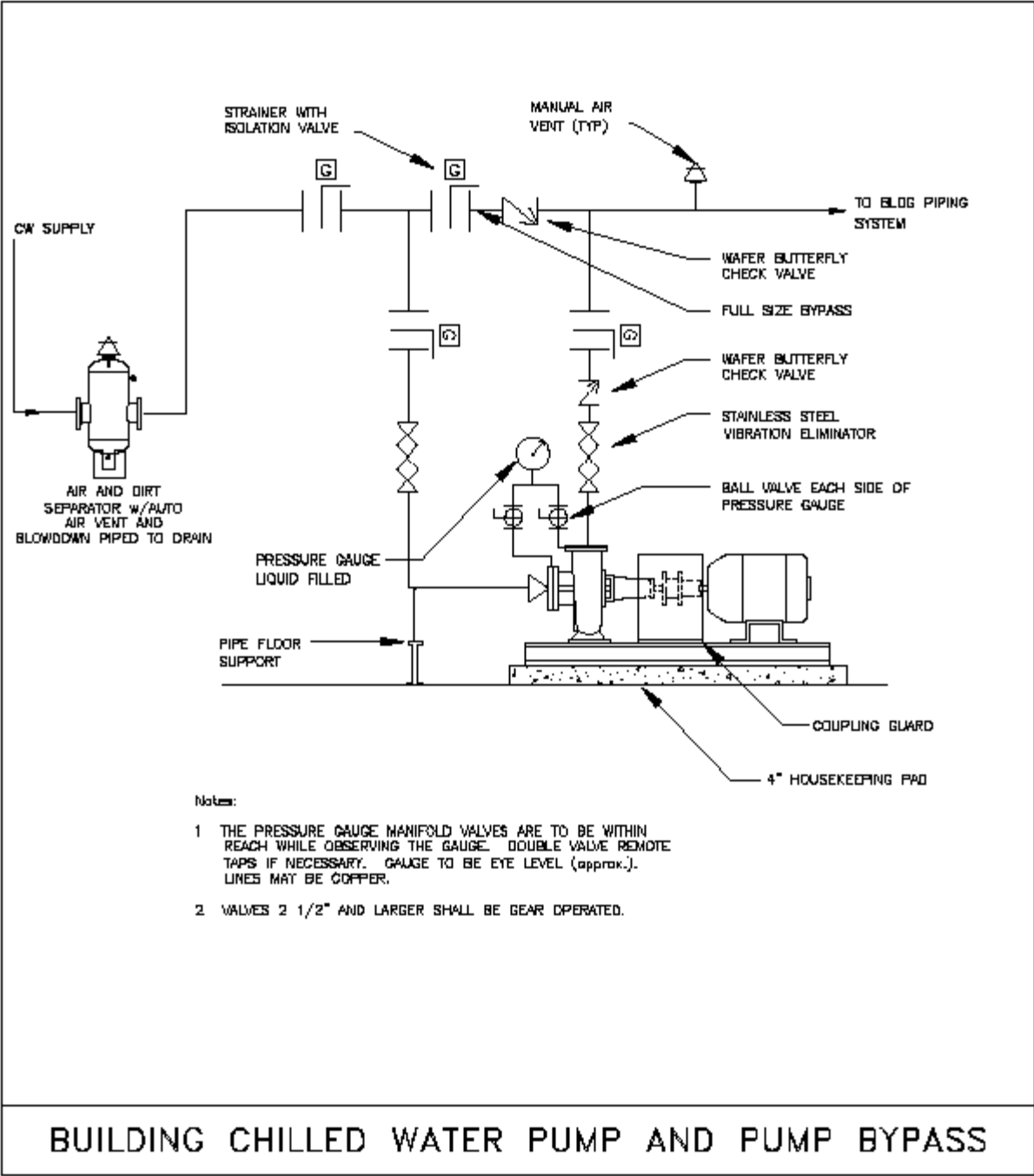
AIR AND DIRT SEPARATOR AND EXPANSION TANK

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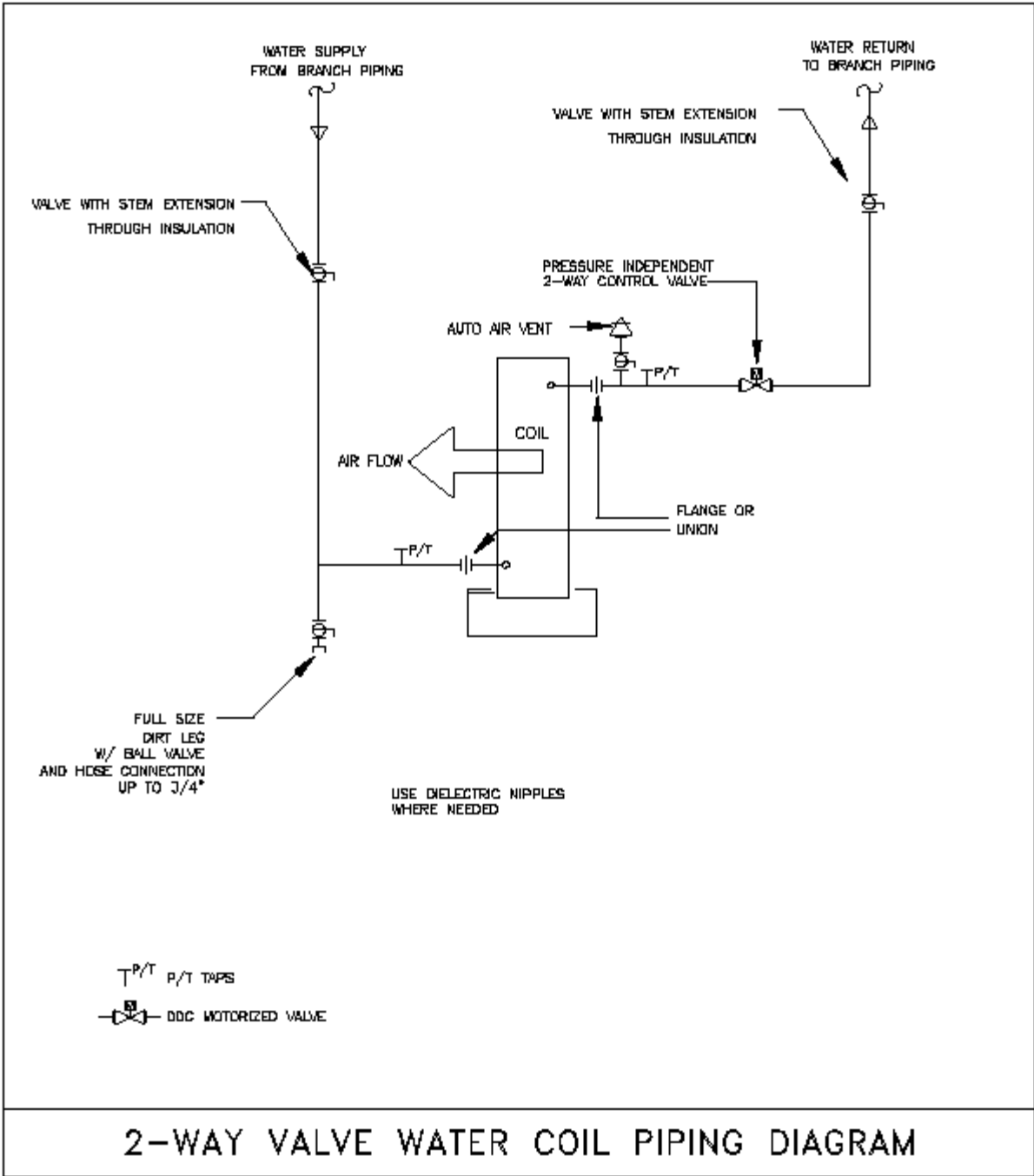


BUILDING CHILLED WATER PIPING SCHEMATIC

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