

DIVISION 22 - PLUMBING

22 00 00 PLUMBING

22 05 00 COMMON WORK RESULTS FOR PLUMBING

22 05 01 GENERAL REQUIREMENTS

- 1 Avoid water-filled plumbing on outside walls or in unheated areas.
- 2 Provide for exterior hose bibs (located so that a 50 foot hose can be used to provide water to lawn areas) at an accessible height on the building. Place bibs so that they are accessible from established paths.
- 3 Shut-off valves located on the building exterior, flush with grade, shall have an 18"x18"x3" thick concrete pad surround. Pour concrete flush with valve cover. Paint valve cover blue. See Appendix C, Standard Detail 22.001.
- 4 Plumbing installed for service sinks located in Janitors Closets shall be provided with Watts Series 800M4QT anti-siphon pressure vacuum breakers on both hot and cold water supplies. See Appendix C, Standard Details #22.002a,b,c & d.
- 5 Valve tag schedules, to be provided as part of project closeout documentation, shall properly list and identify all valves and locations. Use room numbers as one possible benchmark for valve location. Generic locations, such as "First Floor" are not acceptable. An example of acceptable identification is "First floor, south wing corridor, above ceiling, adjacent to room 104".
- 6 All piping is to be labeled and color-coded according ANSI Z535.1-1991 Safety Color Code and ANSI A13.1-1981 Scheme for Identification of Piping Systems. Pipe markings must effectively communicate the contents of the pipes and give additional information if special hazards (such as extreme temperatures or pressures) exist, ie. "Steam 100 PSIG". Arrows shall indicate direction of flow. Label placement shall insure that labels can be easily read based upon label elevation and viewing angle of individual. Labels, at a minimum, shall be placed near valves (within 6 feet max.), where change in direction occurs, on entry/re-entry points thru walls and floors, and on straight segments with spacing between labels that allows for easy identification.
- 7 Mechanical pipe joints such as Vitalic, Groove-Lok, etc, shall be permitted in dry fire protection systems and in mechanical rooms only. Under no circumstances shall this type of piping be permitted above classroom, laboratory, office, auditorium, theatrical or otherwise publicly occupied spaces.
- 8 Provide temperature transmitter for domestic hot water system, connected to University Energy Management System (EMS) to monitor both supply temperature and storage tank temperature and alarm when temperature is below either the Code required minimum or minimum established by the U.S. Department of Energy.
- 9 Access panels: See 08 31 00.

22 05 19 METERS AND GAUGES FOR PLUMBING PIPING

- 1 Water Meter: University will purchase, from Allendale Township, the required water meter(s) for the project. The Contractor is responsible for obtaining meter(s) from Allendale Township and installing meter(s) along with all other components necessary and required for a complete installation.
- 2 Require that Contractor obtain Township documentation and certification and deliver to the Commissioning Authority.

22 05 23 GENERAL DUTY VALVES FOR PLUMBING PIPING

- 1 Specify proper valve stem orientation.
- 2 Provide ball valves on 2" or smaller pipe. Provide butterfly valves on 2 ½" or larger pipe. Do not provide gate valves.

- 3 Provide isolation valves at all pieces of equipment for maintenance and service.
- 4 Each restroom fixture to have shut off on hot and cold water.
- 5 Each restroom facility to have separate shutoffs.
- 6 Locate valves where they can be reached for service, in hallways and public spaces wherever possible. Do not place valves in classrooms, offices or other related spaces where emergency service may be disruptive to activities occurring within the room. Where access panels are provided, placement shall allow clear and direct access to valves with no obstructions, i.e.: ductwork, piping, conduit, etc.
- 7 Install check valves in hot and cold water supply, which serve janitor sinks and laundry rooms.
- 8 Label all valves in plumbing systems. Provide a listing of the labels at close out.
- 9 Tempering Valves: Shall be Powers series tempering valve. No exceptions without University authorization.

22 06 00 SCHEDULES FOR PLUMBING

22 06 10 SCHEDULES FOR PLUMBING PIPING AND PUMPS

- 1 Pumps: Bell and Gosset pumps shall be the sole supplier for heating, cooling and any other type of water recirculation application.
- 2 Variable frequency drives shall be Dan Foss, Graham or Takasawa. Drives shall include a control card that will communicate, seamlessly, to the University's HVAC controls. The drives shall have a harmonic distortion that is less than three (3%) percent.

22 07 00 PIPING INSULATION

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- 1 Piping insulation shall conform to code requirements. If PVC elbows and fitting covers are used, the PVC cover must be reinforced against collapse.

22 08 00 COMMISSIONING OF PLUMBING

- 1 Require the arrangement for and payment for pump manufacturer's representative to perform pump alignment, lubrication and start up. Require a written report, prepared by the manufacturer's representative, to the design engineer, the Commissioning Authority, and the Owner. This is a required submittal.

22 10 00 PLUMBING PIPING AND PUMPS

22 11 00 FACILITY WATER DISTRIBUTION

- 1 Wells: If a well is approved for a project, the well must be tested for water flow, water quality, chemical content, and performance. Non-performing wells will be rejected.

22 14 00 FACILITY STORM DRAINAGE

1. Any roof drains, downspouts or leaders exposed to outdoor temperatures shall be heated in such a way as to prevent freezing and buildup of ice formations.

22 40 00 PLUMBING FIXTURES

22 42 00 COMMERCIAL PLUMBING FIXTURES

- 1 Require waterless or low-flow urinals. Require low-flow water closets, shower heads, faucets for sinks and lavatories, metering faucets, and replacement aerators.
- 2 Faucets: single or double lever type is acceptable: They shall be chrome finish over solid brass body with a 1 piece replacement valve and service friendly. Brand shall be limited to American Standard, Delta and Kohler. Plastic body valve construction is not acceptable.
- 3 Vanity sinks to be attached to counters; not just caulked.
- 4 Individual tubs or tub/shower combination units shall be set in mortar bed, except with expressly not required by the manufacturer.
- 5 All drain sealing compounds shall be clear or white silicone. Plumbers putty is NOT to be used.

END OF SECTION