

DIVISION 15 - MECHANICAL

SECTION 15400 - PLUMBING

PART 1 – GENERAL

1. CHEMICAL WASTE PLUMBING - Due to their high construction and ongoing maintenance costs, new buildings and major renovations should be designed to not include building-wide chemical waste and neutralization systems, unless so directed by regulatory authorities. So as to comply with Chapter 7 of the IPC, chemical wastes and wastes detrimental to the public sewer shall be collected and accumulated in portable containers designed for such purpose for handling and disposal in accordance with the policies of UNH Environmental, Health, and Safety. As a result, cup sinks and fume hoods shall not be connected to the normal sanitary sewer system and laboratories shall not be provided with floor drains without specific written approval.

PART 2 - PRODUCTS

Underground Services to new construction or additions:

1. Water supply from the main
 - a. Pipe - ductile iron
 - b. Valves - non-rising stem gate valves, bronze trim, flanged connections, **OPEN LEFT**, 150 PSI with curb box.
2. Steam supply from the main
 - a.. Pipe - Schedule 80, Black Iron, welded joints.
 - b. Valves - Gate valve, flanged connections, 150 psi, **OPEN LEFT**.
 - c. Insulation - pre-insulated pipe or foam glass insulation with Pit Wrap II jacket.
 - d. Expansion joints - externally pressurized preferred with flanged connections, temp. 400 degrees F, 150 psi - Pathway Brand only, model "X-:Press".
3. Condensate return to main
 - a. Pipe - Schedule 80, Black Iron pipe, welded joints.
 - b. Valves - non-rising stem gate valves, bronze trim, flanged connections, **OPEN LEFT**, 150 psi.
 - c. Insulation - pre-insulated pipe or foam glass insulation with Pit Wrap II jacket.
 - d. Expansion joints - externally pressurized expansion joints preferred with flanged connections, temp. 200 degrees F, 150 psi - Pathway Brand only, model "X-Press".
 - e. Meter with flanged connections, temp. 200 degrees F.

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4. Hot water supply for heating and return
 - a. Pipe - Schedule 80, Black Iron pipe, welded joints.
 - b. Valves - non-rising stem gate valves, bronze trim, flanged connection, **OPEN LEFT**, 150 psi.
 - c. Insulation - pre-insulated pipe or foam glass insulation with Pit Wrap II jacket.
 - d. Expansion Joints - externally pressurized expansion joints preferred, flanged connections, temp. 200 degrees F, 150 psi - Pathway Brand only, model "X-Press".

5. Gas supply (Propane)
 - a. Pipe - Schedule 80, Black Iron pipe, plastic jacket, welded joints
 - b. Pipe fittings - malleable.
 - c. Valves - gas cock, 150 psi.
 - d. Cathodic protection to be installed as necessary
 - e. Polyethylene Pipe - Plexo Yellowpipe PE 2406 for Gas Distribution (ASTM D 2513)

Utility Services inside building:

1. Water supply
 - a. Isolation valve at exterior wall, gate valve, bronze trim, flanged connections, **OPEN LEFT**, 150 psi.
 - b. Piping after the isolation valve shall - type "K" copper, **lead-free-solder**.
 - c. Meter - flanged connections, sized to manufacturer's specs, provide a by-pass line around meter. Water meters shall be Badger Meter RCDL disc type with NPT connections or Badger Meter Recordall compound type. All meter housings shall be cast bronze. Water meter registers shall read in gallons. Water meters shall have a Badger RTR type head in order to provide both a local register reading and a dry contact pulse output. Compound meters shall have an RTR head on both the low and high sides (two RTRs per meter). Technical information on Badger Meter devices is available from OConnor & Senecal; Sutton, Massachusetts; 508-865-5600. Output wires from the RTR heads shall be run in conduit to a watertight gasketed 6x6x4 nonmetallic pullbox located on the building exterior, on the side of the building facing an existing UNH meter reading radio antenna. Locations of existing antennas shall be provided by UNH Energy Office.
 - d. Back-flow preventers - one on down stream side of meter and on by-pass.
 - e. Valves - all other valves down stream of meter to be of the ball type, 125 psi at branches and fixtures.
 - f. Ground rods to be connected before valve and meter (upstream).

2. Steam supply
 - a. Isolation valve at exterior wall, gate valve with flanged connections, **OPEN LEFT**, 150 PSI.
 - b. Piping - Schedule 80, Black Iron.

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- c. Insulation - fiberglass insulation with covering jacket, also pre-formed jacket pieces at elbows, tees, reducers, valves, etc.
 - d. Reducing valves - such as in dining halls, sized according to equipment specs, with threaded connections, insulation re-useable blanket.
3. Condensate return
- a. Isolation valve at exterior wall, gate valve, bronze trim. flanged connections, **OPEN LEFT**, 150 psi.
 - b. Piping after isolation valve Schedule 40, Black Iron.
 - c. Insulation - fiberglass insulation with covering jacket, also pre-formed jacket pieces and elbows, tees, reducers, valves, etc.
 - d. Duplex pumps on receiver with minimum of 60 psi output pressure.
4. Hot Water (Heating)
- a. }same as condensate return
 - b. }same as condensate return
 - c. }same as condensate return
5. Gas (Propane)
- a. Isolation valve - Gas cock 150 psi.
 - b. Meter - threaded connections, reads in cubic ft., remote reading unit capability..
 - c. Piping - threaded joints, Schedule 40, malleable fittings
 - d. Reducing valve - sized according to equipment specs
6. Domestic Hot Water Systems
- a. Electric - copper lined tanks, 460 VAC immersion heaters
 - b. Exchanger - plate type
 - c. Steam converter
 - d. Propane fired gas units - Lochnivar preferred
 - e. Piping - Type "L" copper, **lead free solder**
 - f. Mixing valves - bronze, flanged connections, maintain 130 system temperature.
 - g. Captive air shock absorbers on all lines with solenoid valves, hot or cold.

Building Fixtures and Hardware

1. Lavatories
- a. Wall hung type
 - b. Ball valves on both hot and cold supplies
 - c. Hardware of the heavy duty, hard-use type
 - d. **WATER SAVER FIXTURES**
2. Toilets
- a. Wall hung type
 - b. Tankless
 - c. **WATER SAVER TYPE FLUSH VALVE**
 - d. Tank type - **WATER SAVER**

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3. Urinals
 - a. Wall hung type
 - b. 1" MINIMUM supply with ball valve
 - c. WATER SAVER TYPE FLUSH VALVE
4. Shower Hardware
 - a. Integral Stops
 - b. No scald
 - c. All metal construction, **NO PLASTIC**
 - d. Shower heads - WATER SAVER
5. Sill Cocks (Hose Bibb)
 - a. Built-in atmospheric vacuum breaker
 - b. Frost proof
6. Floor Drains
 - a. A minimum of one per toilet room
 - b. A minimum of one per shower room
7. Faucets
 - a. One each hot and cold per toilet room
8. Specialties
 - a. Unions required on all hard-piped specialties

PREFERRED BRANDS

1. DHW Systems
Propane fires gas units Lochnivar
2. Meters
Water Hersey w/remote readout
 Badger w/remote readout
Gas (Propane) American (in cubic ft.)
3. Valves
DHW Mixing Leonard, Type TM
 Sarco Spirex
Ball Type Jamesbury
Gate Lunkenheimer
Globe Lunkenheimer
Gas Pr. Reducing Fisher
Flush Sloan, WATER SAVER
Shower Powers #410, no scald
 Simmons, no scald
Water Service Clow, Model C-509 Resilient Seated Gate
 Valve, **OPEN LEFT**
4. Back Flow Preventors Watts, Beeco

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| 5. | Fire Hydrants | H.B. Smith #205, OPEN LEFT |
| 6. | Sill Cocks | Zurn |
| 7. | Plumbing | Kohler, American Standard, Crane |
| 8. | Showerheads | Sloan, Simmons, Powers - WATER SAVER
without turn-off control |
| 9. | Floor Drains | Josam, Zurn |
| 10. | Solder | LEAD FREE ONLY |
| 11. | Shock Absorbers | Josam |
| 12. | Heating Specialties | Yarway, Bell & Gossett, Warren, Webster |
| 13. | Condensate Pumps | Skidmore Duplex |
| 14. | Faucets | Kohler, 4" on center (lavatories)
American Standard (kitchen) |
| 15. | Pumps | Armstrong, Bell and Gossett |

PART 3 – EXECUTION

1. Lavatory hot water supply and drainage piping including architectural millwork and/or other protective systems designed to protect against scalding by exposed piping shall provide knee and toe clearances to the first obstruction as provided for by applicable regulation except that knee clearances shall be increased to no less than 9”.

END OF SECTION