

Plumbing Design Guide

22 00 10 General

- A. Construction documents shall reference local codes and standards with all local amendments.
- B. Contractor shall be required to obtain all relevant permits.
- C. ASHRAE Standard 90.1 or International Energy Code shall be used to verify all energy requirements. Verify with local authority and/or ADECA for which version is required.
- D. Reference as applicable, UAB Sustainability Standard and LEED Requirements.
- E. Provide vibration isolators for pumps.
- F. Provide housekeeping pads (minimum 4" thick, reinforced concrete) for water heats and water booster pumps.
- G. Access panels shall be provided for all serviceable devices concealed by walls or inaccessible ceilings, (valves, pumps, plumbing devices, etc.).
- H. Exterior ferrous equipment, piping, and supports shall be painted with 2 coats of rust preventative, zinc rich paint.
- I. Manufacturer's requirements for equipment clearance shall be maintained and indicated on drawings.
- J. Manufacturer (or factory trained representative) shall startup and test all equipment to verify manufacturer's recommendations have been followed. Adjust equipment as needed. A start up report shall be included in the closeout documents.
- K. All systems shall be cleaned, flushed, and pre-treated (where required) prior to startup.
- L. Contractor shall provide training for owner on major equipment installed.

22 00 90 Plumbing Performance Verification

- A. Plumbing Performance Verification shall be provided for plumbing equipment and systems, including VFDs, vibration isolation, plumbing fixtures, drainage systems, water systems, and fuel gas systems.
- B. Plumbing Performance Verification shall be provided by a Plumbing Performance Verification Supervisor with ten years experience in plumbing contracting.

22 04 05 Identification for Plumbing Piping and Equipment

- A. Paint for piping and equipment shall be Sherwin Williams or equal.
- B. All pipes for any services shall be identified as to their service after application of insulation and / or final painting, by color code, banding, and stenciling and shall include pipe content and direction of fluid flow.

- C. Exposed and concealed piping shall be identified.
- D. Identification shall be at each valve, at each point entry and exit at each wall, on each riser and tee joint, and at minimum 25 foot intervals on long continuous runs.
- E. Valve tags shall be attached to each valve and a schedule shall be provided to the owner of all valves installed including, the valve number, service, valve location, and area served.

22 04 07 Plumbing Systems Insulation

- A. Piping insulation for indoor piping above grade shall be Glass Fiber or Foamed Plastic and shall be ASTM E-84 flame spread rating of less than 25 and smoke density rating of less than 50.
- B. Provide piping insulation for
 1. Above grade domestic cold, hot, and hot water recirculating piping.
 2. Roof drains and above grade horizontal storm piping.
 3. Above grade floor drains, traps, and waste piping between floor drain and waste stack for floor drains serving refrigeration equipment, ice machine and HVAC units.
 4. Non potable water lines between backflow preventor and connection to system.
- C. Piping hangers shall bear on the outside of insulation and insulation shall be protected with piping shields at each hanger. For piping over 2" provide calcium silicate or cellular glass insert.
- D. Not potable water lines outdoors above grade shall be insulated with Cellular Glass type insulation and aluminum jacketing.

22 10 16 Plumbing Piping

- A. For domestic water piping 2" and smaller, provide Type L copper above grade and Type K copper below grade. Below grade joints are not allowed for piping less than 50 ft in length.
- B. For above grade domestic water piping 2-1/2" and larger provide Schedule 10 stainless steel or Type L copper.
- C. For below grade domestic water piping 2-1/2" to 3" provide Type K copper.
- D. For below grade domestic water piping 4" and larger provide ductile iron.
- E. For above grade drainage piping (soil, waste, vent, indirect, and storm) provide cast iron, hubbed or no hub piping, or Type DWV (or heavier) copper piping.
- F. For below grade drainage piping (soil, waste, vent, indirect, and storm) provide cast

iron, hubbed or no hub piping. PVC waste piping is allowed underground in applications where the pipe will not receive waste 140 °F or greater.

- G. Use wye fittings with eighth bends for changes in direction of drainage piping. Use sanitary tee fittings in vertical pipe only. Sanitary crosses are not allowed.

22 13 17 Acid Waste and Vent Piping

- A. Provide Schedule 40 polyethylene pipe and fittings, Schedule 40 polypropylene piping and fittings, Schedule 40 PVDF pipe and fittings, or Schedule 40 CPVC Type IV pipe and fittings. Acceptable manufacturers shall include, Orion, Charlotte Pipe, and Enfield.
- B. Piping used in spaces used as return air plenums shall be ASTM E-84 flame spread rating of less than 25 and smoke density rating of less than 50.

22 42 00 Plumbing Fixtures

- A. Provide water saving type plumbing fixtures.
- B. Exposed waste assemblies shall be chrome plated.
- C. Exposed waste assemblies below handicap fixtures shall be protected with pre-molded insulated protectors.
- D. Water closets shall be floor mounted bottom outlet where existing architecture permits. Dual flush 1.1 gal and 1.6 gallons per flush. Provide with minimum 1-1/2" water connection.
- E. Lavatories shall have grid type strainers and battery powered electric gooseneck faucet with 0.5 GPM and water mixing valve for nominal 109 °F temp.
- F. Sinks shall be stainless steel with 4" wrist blade gooseneck faucets on 8" centers, and grid drains.
- G. Urinals shall be wall hung, flush valve with extended lip, and shall be 0.125 gallon per flush.
- H. Emergency Eyewash and Drench Showers shall provide potable tepid water at discharge between 60 °F and 100 °F, per ANSI Z358.1.
- I. Electrical Water Coolers shall be wall hung, single unit, regular and barrier free, stainless steel tops, refrigeration unit, sensor activated bottle filling station with 1.0 GPM laminar flow over the ADA unit, and self closing push bar valves.