

22 00 00 Plumbing:

General:

1. The city water pressure is approximately 450 kPa (65 psig). City water temperatures vary from a low of 10C (35F) in mid-winter to a high of 25C (77F) in late summer.
2. The minimum water service ~~VtbbYVW]cb g]nY]g * X]Ua YhYf"~~
3. Water service connections shall be designed to prevent breakage due to settlement and frost heaving. This may be accomplished either by a firm support or a flexible pipe connection.
4. All water service connections must include premise backflow protection. Two full size backflow preventors must be installed in parallel to ensure no interruption in water

IDENTIFICATION OF PIPING SYSTEMS		
SERVICE	COLOUR	CLASS
Brine	Green	Safe
Chilled Water Return	Green	Safe
Chilled Water Supply	Green	Safe
Condenser Water Return	Green	Safe
Condenser Water Supply	Green	Safe
Controls Compressed Air	Green	Safe
Cooling Tower Water Return	Green	Safe
Cooling Tower Water Supply	Green	Safe
Deionized Water	Green	Safe
Domestic Cold Water	Green	Safe
Nitrogen	Green	Safe
Lab Compressed Air	Green	Safe
Plumbing Vent	Green	Safe
Sanitary Drain	Green	Safe
Storm Drain	Green	Safe
Ammonia	Yellow	Dangerous
Condensate	Yellow	Dangerous
Condensate Vent	Yellow	Dangerous
Domestic Hot Water Supply	Yellow	Dangerous
Domestic Hot Water Return	Yellow	Dangerous
Fuel Oil	Yellow	Dangerous
Glycol Yellow Dangerous	Yellow	Dangerous
Hot Water Heating Supply	Yellow	Dangerous
Hot Water Heating Return	Yellow	Dangerous
Lab Vacuum	Yellow	Dangerous
Natural Gas	Yellow	Dangerous
Pumped Condensate	Yellow	Dangerous
Refrigerant Liquid	Yellow	Dangerous
Refrigerant Suction	Yellow	Dangerous
Steam	Yellow	Dangerous
Halon Fire Protection	Red	Fire Protection
Sprinkler Water Red	Red	Fire Protection



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Facility Water Distribution:

1. Dielectric couplings shall be used when pipes or equipment of dissimilar metals are joined.
2. Piping should be located so as not to require heat tracing.
3. Where possible, pipe expansion should be accommodated with "U" bends or braided flexible connectors rather than mechanical expansion compensators.
4. Hot, cold, and recirculating water above ground piping shall be Type L hard tempered ductile iron pipe, stainless steel, or Victaulic copper may be used.
5. Pure water piping shall not be glass.
6. All soldered joints shall be made with lead-free solder.
7. Lead inserts shall not be used between hangers and copper pipe. The hangers should be copper, or epoxy coated, or copper coated. Black steel hangers should not be used to prevent dissimilar metals from interacting.
8. Domestic Water Conditioning
 - a. Where purified water is required, it shall be provided by reverse osmosis and appropriate filters. Stills shall not be used.
 - b. Ensure that purified water faucets will provide adequate flow from the small static head available.
 - c. Purified water piping shall not be glass. Plastic piping is preferred.
10. Backflow Preventors
 - a. RP backflow preventors, where required, shall include a relief valve monitoring mechanical rooms.
 - b. All backflow preventors to include an upstream strainer.
 - c. Premise backflow preventors and backflow preventors impacting critical equipment shall be installed in parallel, full-size pairs.

Domestic Water Heaters:

1. Domestic Hot water tanks are to be set at a minimum of 140 degrees F.
2. Domestic Hot water system to include a thermostatic mixing valve for distribution to occupants.
3. Except for point of use hot water tanks, duplex circulating pumps to be included.
4. Dielectric couplings shall be used when connecting copper pipe to steel tanks.
5. Storage tanks are to be used to minimize peak demand loads on the system.
6. To reduce the rate of scale build-up, tube bundles for steam to hot water converters shall not be helically wound. Tube bundles to be stainless steel.



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Commercial Bathtubs:

1. Stain-resisting, acid resisting, one-piece, porcelain enameled steel, glossy white finish, with non-