

## Commercial and residential plumbing system maintenance tips

These plumbing system maintenance tips are offered to help you prevent property damage and business interruption due to a plumbing failure. These tips are not all inclusive of possible mitigation practices.

### COMMON PLUMBING PIPING MATERIALS

- Copper (2150 B.C. to current)
  - Uses: potable water, wastewater, gasses, granular and liquid products.
  - Pros: extremely long life, soft metal, available as pipe or tubing.
  - Cons: expensive, freezes easily, requires soldered joints or special tools for mechanical connection, connection to dissimilar materials results in electrolysis.
- Stainless (1913 to current)
  - Uses: medical, educational, industrial facility liquids and gasses, fixture connection.
  - Pros: extremely long life, hard metal, available as pipe and tubing format.
  - Cons: expensive, subject to freezing, requires threaded joints or special tools for mechanical connection to prevent marring of finish.
- Glass (unknown to current)
  - Uses: medical, educational, industrial facility liquids and acids.
  - Pros: resistant to acids, long lasting.
  - Cons: fragile, expensive, specialty connectors.
- Galvanized steel/black iron (1800s to current)
  - Uses potable water, gasses, wastewater (older facilities).
  - Pros: variable long life, hard metal, available as pipe.
  - Cons: moderately expensive, subject to freezing, requires threaded joints, rusts, deteriorates from interior due to mineral build up, leaks with age.
- PVC/CPVC/ABS (1950s to current)
  - Uses: potable water, wastewater, gasses (with special pipe, fittings and solvents).
  - Pros: inexpensive, long life, plastic, easy to cut and connect, available as pipe and tubing.

- Cons: subject to freezing, special primers and solvent cements.
- PEX (cross-linked polyethylene) (1970s Europe/1980s U.S.A. to current)
  - Uses: potable water (residential and light commercial).
  - Pros: inexpensive, long life, plastic, easy to cut and connect, available as pipe and coil tubing, freeze tolerant but not freeze resistant.
  - Cons: subject to freezing (polyethylene fittings are less freeze tolerant), special tools and fittings are required (early version connectors are subject to rusting).

### GENERAL PREVENTION AND MAINTENANCE

#### General

- Conduct annual visual inspections of the plumbing piping and components.
- Inspection should include concealed areas when possible.
- Repair/replace components that are leaking, rusting or defective that could result in a failure.
- Have maintenance and repair work conducted by a licensed and insured plumbing contractor.
- Maintain valves and components per the manufacturer's guidelines.
- Maintain adequate separation between wastewater and potable systems. Never introduce contaminants, including gray or black wastewater, into a potable water system through a back-siphon process.
- Potable water pipe with joints in concrete slabs are not typically permissible.

*The information contained in this service bulletin was obtained from reliable sources. However, UFG accepts no legal responsibility for the correctness or completeness of this information.*

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### Freezing

- Know your region's freeze zone and minimum depth requirements of the local authority having jurisdiction (LAHJ).
- Insulate pressurized water piping systems to prevent freezing and condensation.
  - DWV piping can also condensate due to hot water and waste flow.
- Fire sprinkler systems exposed to freezing temperatures should be dry pipe type.
- Frostproof sillcocks should be used in areas that incur extended below freezing temperatures.
- Tightly cover 100% of exterior exposed pipe, valves and fittings with commercially available products or nonabsorbent insulating materials.
- Cover exposed lawn sprinkler piping, including backflow preventer.
- Heat interior areas when possible.
- Use electric heat tape or cables on piping.
  - Do not use light gauge extension cords or daisy chain cords.
- Keep pipe insulation in place year-round, where possible, and inspect annually before winter.
- Be proactive with freeze prevention.

### Pressure pipe and valves

- Label all piping.
- Label and number all control valves indicating their destination.
- Have a piping isolation plan that includes the valve numbers.
- Have personnel trained in leak response and safe isolation and lockout-tagout procedures.
- Valves of all types should be exercised annually, at minimum.
  - For boiler valves – see steam boiler and piping section.

- Use a formal plan to ensure that valves are returned to their previous state after exercising them.
- Repair leaking valves, valve stems and bonnets (packings) without delay.
- If a valve cannot stop the flow of liquids, replace it. (Remember, slowing is not the same as stopping.)
- Replace any missing handles or control knob.
- Ensure that exposed piping is insulated.
- Insulate piping capable of condensation (sweating).
- Ensure that all suspended piping is adequately supported and anchored.
- Do not use piping as support structure for other components or goods. (No clothes hanging.)

### Natural/propane/butane and other gasses

- Gasses are potentially dangerous (flammable, explosive, or toxic) and installation and maintenance should be performed by an experienced, licensed and insured contractor.
- If you are not comfortable with the risk, don't take it.
- Never mix valves used for water with those designed for gas; gas valves are marked for a type of gas.
- Gas piping, fittings and valves should be of the type approved by the LAHJ.
- Polyethylene gas pipe is typically colored yellow for low density gases, or black with yellow stripes, or solid black for high density gasses.
- Rubber, cloth covered, or slip-on flexible gas supply hoses should never be used.
- Use of open flame space heaters should be avoided.
- A flow of fresh air is important for the safety of occupants.
- Carbon monoxide monitors and smoke detectors should be used in occupant spaces with combustion gas heating.

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### Water well

- Insulate the above ground piping and pump.
- An annual well maintenance check, including a bacterial test, is recommended.
- Drinking water should be checked any time there is a change in taste, odor, or appearance, or when the well system is serviced.
- Visually verify that the well cap is in place.
- Don't discharge chemicals near the well.
- Always maintain proper separation between your well and buildings, waste systems or chemical storage facilities.
- Maintain records of the well, including construction, annual testing, maintenance and water testing.

### Steam boilers, water heaters, radiators and piping

- Boiler maintenance should only be performed by an experienced, licensed and insured contractor.
- Utilize the pressure pipe and valves maintenance recommendations above.
- Have boiler and pressure vessels inspected annually (per ASME code standards).
- Ensure that vent pipe/flue is in good condition, is not obstructed and has a rain cap.
- Ensure that there are no goods stored or obstructions within 3 feet of boiler and water heaters.
- Water heater should be installed in a pan and the drain plumbed to the exterior of the building.
- Pressure relief valves should be piped in accordance with the LAHJ guidelines to avoid spraying occupants if activated.
- Expansion tanks, if utilized, should be maintained in good condition.
- Pressure relief valves on radiators should not be painted and should be unobstructed.

### Drain, waste and vent system

- Ensure that all floor, roof and sink drain covers are in place to prevent debris from entering the drains.
- Ensure that clean-out plugs are in place to prevent object intrusion.
- Do not allow grease, oils and other materials than can solidify to be disposed of in drains.
- Maintain septic system per manufacturer's guidelines.
- For new construction, contractor should verify that no plugs or test balls were left in place via camera examination or quality control program and certification.
- Ensure that no clean-out plugs, piping or valves create a trip or injury hazard along walk surfaces.

### Storm sewer/septic/grease traps

- Ensure that manholes are kept in place.
- If manhole cover must be left open and unmonitored for any period, barricades must be utilized.
- Drain grates should be maintained in good condition and in place.
- Any waste spillage should be cleaned and remediated, as is appropriate.
- Have a cleaning and maintenance schedule for grease traps and septic systems.
- Maintain microbial balance of the septic systems per manufacturer's guidelines.
- Never introduce hazardous chemicals into these systems.

*NOTE: Local authority having jurisdiction codes and guidance shall prevail in all matters addressed by these maintenance tips.*

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