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).

© 2024 United Fire & Casualty Company. All rights reserved.

Commercial and residential plumbing system maintenance tips

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-syphon process.
- Potable water pipe with joints in concrete slabs are not typically permissible.

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.
  - DVW 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.*

© 2024 United Fire & Casualty Company. All rights reserved.

Commercial and residential plumbing system maintenance tips

- 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.
- Polyethene 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.

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.

© 2024 United Fire & Casualty Company. All rights reserved.

Commercial and residential plumbing system maintenance tips

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.

UFG Insurance is the marketing name used to refer to United Fire & Casualty Company and its property and casualty subsidiaries and affiliates. The information contained herein was obtained from reliable sources. However, UFG Insurance accepts no legal liability or responsibility for the correctness or completeness of this information and encourages consultation of additional safety information and resources.

This is for informational purposes only and is accurate as of the publication date. It may not reflect subsequent revisions and is intended for use only by UFG Insurance, UFG Insurance agents and their customers, and/or UFG Service Center employees. UFG Insurance does not undertake any obligation to update the information herein between publications.

© 2024 United Fire & Casualty Company. All rights reserved.