Mastering Facility Plumbing A Tactical Guide for Proactive Managers

Welcome to your no-nonsense, tactical guide tailored for facility managers who want to take charge of maintaining top-notch plumbing systems.

By the end of this guide, you will be fully empowered to identify and handle all the most common commercial plumbing issues within your building.

We will:

- Offer tangible tips on troubleshooting and fixing the most common plumbing issues
- Help you spend less on surprise issues
- Provide invaluable insights to help you get the most life out of your plumbing systems
- Show you how to keep your facility's plumbing health in peak condition

Read on!





Recognizing early warning signs can spare you the stress of expensive repairs or emergency situations. While you can troubleshoot many issues on your own, if you lack plumbing experience, you may need to seek professional assistance to prevent potential water damage or injuries.

Here's What to Look Out For:

Leaking

Water heater leaks are usually due to faulty temperature & pressure relief valves, loose connections, or a crack in the tank itself.

Hot Tip: Many issues can stem from water heater pressure or temperature being set too high. Start by making sure the system's water pressure is set between 40-60psi - never exceeding 80psi - and the temperature is set between 135°F-140°F.

The Fix

First, you must power off at the circuit board or gas valve, and stop cold water flow into the system.

If water is leaking from the top of the system:

• Tighten the warm water outlet pipe and and cold water inlet pipe

If the drain valve is leaking:

• Ever so slightly tighten the drain value if loose. Tightening the value too much can cause the leak to worsen

If the temperature and pressure relief valve is leaking:

- Adjust the temperature and pressure as directed above
- () Hot Tip: Check the thermal expansion tank. Put a tire pressure gauge on its schrader valve to make sure the tank pressure equals the building water pressure but does not exceed 80psi. If no air comes out, the expansion tank needs to be replaced.
- If all the above is OK, the T&P valve needs to be replaced

If water is pooling at the base of the tank, it may have a crack. In this case, the water heater will need to be replaced.

Banging Noises

Banging occurs when there is a sudden change in water flow within a plumbing system due to sudden valve closure, high water pressure, or loose pipes. This is a serious issue that can cause ruptured pipes or property damage.

The Fix

- Ensure that water pressure is set between 40psi-60psi
- Water hammer arrestors may need to be installed
- Pipes may need to be tightened or properly secured
- When in doubt, contact a professional, as banging noises in pipes can lead to severe ruptures and property damage if left untreated



Water Heaters Cont.

Rusty Water

Rusty water is likely due to corrosion inside the tank, or a failing anode rod.

The Fix

- Corrosion is the most common cause of rusty water. Especially if there is visible corrosion on the tank's exterior, it is best to have your system evaluated and replaced.
- (1) Hot Tip: A rotten egg smell could be a sign of bacteria in the tank reacting with the anode rod. In this case, the anode rod should be replaced by a zinc-aluminum rod.
- Anode rods last about 5 years. It's important to clean them once a year and replace them when needed, as they protect your system from corrosion.
 - Replacement (when needed) is usually part of a water heater maintenance visit

Popping, Vibrating, or Hissing Noises

These noises are usually a sign of steam bubbles bursting through sediment buildup at the tank's base.

The Fix

• A descaling product can fight the sediment, or flush and drain the tank to remove it

Inadequate Hot Water

Could indicate a heating element or thermostat problem, or sediment buildup in the tank

The Fix

- Make sure the thermostat is set between 135°F-140°F. Then,
 - Check for a tripped circuit breaker, and for a gas water heater, check that the pilot light is on
 - Check for leaks or loose fittings
 - Flush the water heater
 - When all else fails, it might be time for a replacement

Visible Sediment in Water

The Fix

• Flush your water heater once a year to clear sediment accumulation

Tankless Water Heaters

If any of these issues exist in a tankless water heating system, follow these steps:

- Drain the tankless water heater
- Flush the heat exchanger with a manufacturer approved solution
- Clean water inlet filter
- Clean air intake filter
- Make sure intake and exhaust pipes are clear of debris





A commercial building can be brought to an immediate halt by a plumbing issue, so don't put off thinking about proper drainage until you have a problem on your hands. Recognizing early warning signs of drainage issues is vital to preventing expensive pipe damage and time-consuming emergencies.

Here's What to Look Out For:

- Sluggish drainage in sinks, tubs, or showers
- Persistent, unpleasant odors near drains or sewer access points
- Drains or pipes producing gurgling noises

Addressing Drainage Issues

Regular cleaning: Implement routine drain cleaning using commercial cleaners or enzymatic solutions **Plunger and Snaking:** Use a plunger or plumbing snake to clear minor clogs

When Typical Clearing Isn't Enough: Understanding Hydro Jetting

Hydro jetting is a highly effective, eco-friendly method used to clear pipes, drains, and sewer lines. It involves a video inspection of your system to locate blockages, and the use of high-pressure water to remove debris, scale, grease, roots, and other buildup from the interior surfaces of plumbing pipes.

Here are the signs that your pipes may be in need of this procedure:

- You find yourself requesting frequent, reactive maintenance for clogged drains
- Recurring, stubborn clogs despite traditional clearing methods
- Simultaneous issues in more than one fixture
- Frequent backups, especially in toilets
- Visible tree root intrusions

How to Maintain Proper Drainage

- () Hot Tip: Pay special attention to the cleanliness of the floor around floor strainers, as any build up in the surrounding area can eventually find its way into your drains
- Regularly inspect storm drains to ensure they are free of leaves and debris







Maintaining adequate water pressure is not only essential for the well-being and safety of your building's occupants but is also a critical factor in upholding the integrity of the entire municipal water system. Before calling a plumber, there are several steps to take on your own.

Here's What to Look Out For:

Audible Banging Noises in Pipes when Faucets Are Turned Off

Banging noises in pipes are a serious issue, as discussed in the Water Heaters section of this guide.

The Fix:

- Adjust water pressure regulators to 40-60psi, never exceeding 80psi
- Ensure pipes are properly tightened and secured
- Consider installing water hammer arrestors or adjusting existing ones

Extended Toilet Tank Filling Times

This is usually due to a partially closed or faulty fill valve in the tank.

The Fix:

- Make sure the fixture valve at the wall / floor is fully open
- Check the supply line for kinks
- Adjust the tank float so water level is not above the fill tube
- Check for screens in the water inlet on the tank, and clear of any debris
- For commercial toilets with a metal flush valve:
 - Turn off water to the toilet
 - Open the top of the flush valve and clean the diaphram

Issues with Appliance Functionality, Such as Dishwashers or Washing Machines

This could be due to a local clog, or an issue with the water supply valves.

The Fix:

- Check that the water supply valve leading to the appliance is fully open
- Check for clogs or debris in appliance inlet filters

Visible Sediment in Water

Visible sediment may indicate clogged fixtures or pipes that are negatively affecting water pressure.

The Fix:

- Open up faucets on sinks and flush the water until it runs clear
- If the issue persists, consider a filtration sistem and / or a water softener

Reduced Performance of Sprinkler Systems

The Fix:

- Clean or replace clogged nozzles
- Check for leaks in the product
- Ensure the water pressure meets the manufacturers recommendations



Water Pressure Cont.

Low Flow on Sink Faucets

The Fix:

- Remove and clean faucet aerators
- Check filter screens on mixing valves
- Check supply lines for kinks
- Make sure fixture valves are fully open

How to Keep Your Facility And Employees Safe and Healthy

- In Pittsburgh, commercial buildings are mandated to have functional backflow prevention devices to ward off contamination and water pollution resulting from backflow incidents.
 - Failure to pass your annual testing could lead to the suspension of your water supply until a satisfactory result is produced.
 - Always be sure to schedule this test in advance of your due date to avoid municipal water issues.
- Keep all public handwashing sinks at a maximum of 110°F by adding point-of-use mixing valves.

How to Maintain Proper Water Pressure

- Always ensure that your water pressure is set within the range of 40psi-60psi, and never higher than 80psi.
- Adjust the main pressure reducing valve as needed
 - Make sure the screen filter on the pressure reducing valve is clean and free of debris

Hot Tip: If you don't already have a pressure gauge:

- You can buy a one with a female hose adapter for less than \$50
- Attach it to your hose bib to easily check your water pressure







Legionella is a type of bacteria that can cause a severe respiratory illness known as Legionnaires' disease, as well as a milder form called Pontiac fever. These bacteria are naturally occurring in freshwater environments but can pose a significant risk when they multiply and spread in human-made water systems.

What Facility Managers Need to Know

Modes of Transmission

- Legionella is transmitted to humans through:
 - The inhalation of contaminated water droplets, typically in the form of aerosols or mists
 - Infected water systems, such as cooling towers, humidifiers, plumbing systems, and air conditioning units
- Facilities with complex water systems, such as healthcare facilities, hotels, gyms, and large office buildings provide conditions for Legionella to thrive if not properly managed.

Recommended Prevention Strategies (1)

- Maintain hot water storage at temperatures around 135°F-140°F, ensuring that circulating hot water does not dip below 120°F.
- Recirculate your water with a recirculation pump at your hot water heater
- Maintain a chlorine residual throughout the water distribution system of at least 0.2 mg/L (2)
- Conduct weekly flushing of low-flow piping runs and dead ends, including toilets, water fountains that aren't in use, and any other infrequently used fixture.
- Continually test water in cooling towers if applicable

Sources

- (1) "Controlling Legionella in Potable Water Systems," last modified February 03, 2021, https://www.cdc.gov/legionella/wmp/control-toolkit/potable-water-systems.html.
- (2) PA Bulletin. Rules & Regulations, page 2510. PDF File. April 28th, 2018. https://www.pacodeandbulletin.gov/secure/pabulletin/data/vol48/48-17/48-17.pdf.





Maintenance Schedule



MONTHLY	J	F	Μ	Α	Μ	J	J	Α	S	0	Ν	D
Track water utility bill												
Track gas utility bill												
Check that drain openings are clean & free of debris												
Check for any visible odors												
Check for noticable leaks and pipe corrosion												
Check that fixture valves are operational												

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Ensure main water shut-off valve is operational		
Ensure that your water pressure is within the range of 40 - 60psi		
Confirm the location of main water shut-off valve in case of emergency		
Check for visible pipe leaks and / or corrosion		
Check for visible pipe leaks and / or corrosion		
Preventive maintenance appointment		

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Annual backflow testing

Ensure all sewer vents are clear of blockages

Properly winterize hose bibs

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