

Ensuring Water Quality in Building Premise Plumbing

GUIDANCE FOR BUILDING OWNERS AND MANAGERS DURING AND AFTER COVID-19

Due to the COVID-19 pandemic, many buildings are experiencing periods of little to no water usage due to shutdowns or a reduction in business activities. Water quality problems can arise as water sits in building plumbing systems. Examples of these problems include:

- Warming of cold water and cooling of hot water to temperatures that provide ideal growth conditions for bacteria, including opportunistic pathogens such as *Legionella* that can pose a health threat.
- Sediment build-up in pipes, leading to mechanical issues and bacterial growth.
- Loss of disinfectant residual and formation of disinfection byproducts.
- Increased lead and copper levels due to stagnant water increasing corrosion of pipes and fittings.
- Growth of bacteria in water treatment equipment such as softeners and filters, plumbing fixtures, and hot water heaters that have not been in use regularly.

Actions for Building Owners and Managers

- **Watch for information about any upcoming flushing of water mains near your building.**

Building owners may notice colored water entering their building after the water mains are flushed. Flushing of mains often will stir up sediments that will move into building water plumbing. When you flush the water in your building, the water will become clear again.

- **Share information about flushing.**

We recommend that large building owners share their building flushing schedules with other large users in the immediate area. Try to stagger flushing times to avoid a low pressure incident and/or high water demand, which could happen if everyone flushes their building plumbing at the same time.

- **Flush all water in your building.**

You should flush all water lines and plumbing fixtures in your building to remove stagnant water. Run the water in each fixture until the water runs cold, for cold-water taps, and hot, for hot water taps. Having a method to measure temperature is helpful. Begin the flushing process closest to where the water enters the building, working your way out to the most distant points. Be sure to flush and clean appliances that use water such as dishwashers and ice machines.

- **Remove and disinfect all showerheads and faucet screens.**

Remove and disinfect all showerheads and faucet screens to remove any visible slime or biofilms that may harbor bacteria.

- **Check water quality.**

If your water supply is chlorinated, measure chlorine residuals throughout the building. If you find an area without chlorine, you should flush the plumbing again. Consider measuring temperature and pH, which also indicate water quality. *Note:* Industrial users may not expect a chlorine residual since water may be treated for process use.

- **Clean all decorative water features.**

Clean all water features according to the manufacturer's instructions to remove any visible slime or biofilms that may harbor bacteria. Maintain recommended disinfectant levels.

- **Maintain all pools and spas.**

Ensure refillable pool spas, whirlpools, and hot tubs are free of slime and biofilm before filling. Maintain the recommended disinfectant levels as directed by the manufacturer and according to local regulations.

- **Maintain all cooling towers.**

Cooling towers that are not properly maintained harbor and amplify pathogens that may be distributed into the air and cause illness such as Legionnaire's disease. Follow all manufacturer's recommendations for startup, shutdown, and maintenance of these systems.

- **Continue to maintain your water system.**

Do not allow water in your building to become stagnant. Water quality can deteriorate in less than a week of low water use. Establish a water management plan for your building to maintain water quality. This may include periodic flushing of plumbing lines, measuring chlorine residuals, and checking hot and cold water temperatures.

Additional considerations: A well designed and implemented flushing program is both an effective and safe method of restoring water quality, and shock disinfection of premise plumbing is usually not needed. When performing an inspection, flushing, or disinfection, make sure to wear appropriate personal protective equipment (PPE) for the hazard (including chemical, physical, and bacteriological hazards) and to inform water users of any hazardous conditions (e.g. elevated chlorine residual). Also keep in mind that plumbing and well repair work require hiring properly licensed professionals.

For More Information

- Information on water management plans: [Prevention with Water Management Programs](https://www.cdc.gov/legionella/wmp/index.html) (<https://www.cdc.gov/legionella/wmp/index.html>)
- Downloadable flushing plans and videos for large buildings: [Flushing Plans](https://engineering.purdue.edu/PlumbingSafety/resources/flushing-plans) (<https://engineering.purdue.edu/PlumbingSafety/resources/flushing-plans>)
- [Building Water Quality and Coronavirus: Flushing Guidance for Periods of Low or No Use \(PDF\)](https://esprininstitute.org/wp-content/uploads/2020/04/FINAL_Coronavirus-Building-Flushing-Guidance-20200403-rev-1.pdf) (https://esprininstitute.org/wp-content/uploads/2020/04/FINAL_Coronavirus-Building-Flushing-Guidance-20200403-rev-1.pdf)
- [Guidance for Building Water Systems: Ensure the safety of your building water system and devices after a prolonged shutdown](https://www.cdc.gov/coronavirus/2019-ncov/php/building-water-system.html) (<https://www.cdc.gov/coronavirus/2019-ncov/php/building-water-system.html>)
- Minnesota Department of Health [Spa Pools, Whirlpools and Hot Tubs](https://www.health.state.mn.us/communities/environment/recreation/pools/spapoolinfo.html) (<https://www.health.state.mn.us/communities/environment/recreation/pools/spapoolinfo.html>)
- [COVID-19 Public Pool Closure Guidance](https://www.horizonpoolsupply.com/news-media/covid-19-public-pool-closure-guidance) (<https://www.horizonpoolsupply.com/news-media/covid-19-public-pool-closure-guidance>)

ENSURING WATER QUALITY IN BUILDING PREMISE PLUMBING

- [Cooling Technology Institute's Legionellosis - Guideline: Best Practices for Control of Legionella \(PDF\)](http://www.cti.org/downloads/WTP-148.pdf)
(<http://www.cti.org/downloads/WTP-148.pdf>)
- [Improving Water Quality in Schools and Childcare Facilities During COVID-19](https://www.healthandenvironment.org/webinars/96535)
(<https://www.healthandenvironment.org/webinars/96535>)

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To obtain this information in a different format, call: 651-201-4700.