

Water Quality and Your Business: Tips for Re-opening After Closure

Make Sure Your Building's Water System and Devices Are Safe to Use

Disinfectant may quickly dissipate from stagnant water inside of an unused building, leaving plumbing susceptible to the growth of biofilm bacteria and potential pathogens such as Legionella. A decrease in hot water temperature to 77-108°F (25-42°C) may allow the growth of Legionella. When water is stagnant, there is also the potential that heavy metals and pathogens may build up in the pipes.

Sediment, temperature, age, and residual (STAR) are four important factors affecting water quality in premise plumbing. To optimize building water quality:

- Keep cold water cold, and hot water hot.
- Flush to waste any rusty, discolored or smelly water
- Reduce water age with periodic flushing (replace all water inside building pipes with fresh water)
- Flush pipes to refresh the water supply and restore an adequate disinfectant residual

Flushing the Building

To prepare your building for reopening, the first action is to flush the entire building ([See step 3 below in the 8 Step Plan](#)), including all water-using appliances like ice machines, humidifiers, and dishwashers. Flushing will clear out the potentially contaminated water that has accumulated in plumbing and replace it with fresh water. The fresh water will help mitigate the problems (loss of protective scale and biofilm growth) that occurred while the water was not being used.

If staff are not knowledgeable about how the plumbing in the building works or flushing methods, consider contacting a plumber for help. Inspect any mechanical equipment that uses water, such as cooling towers, boilers, pumps, backflow preventers, etc., and determine if they are functioning properly. Clean shower heads, faucets and other fixtures that can produce aerosols that people could inhale. If your building serves a high-risk population (young children, elderly, or immune compromised) and there is a Legionella or heavy metal concern, consider collecting a water sample to be tested if your water is discolored, smells, or tastes funny.

8-Step Plan for Preparing Your Building for Reopening

[See CDC's Plan](#)

1. Develop a comprehensive water management program (WMP) for your water system and all devices that use water. Guidance to help with this process is available from CDC and others.

- **Water Management Program Toolkit:** This [toolkit](#) is designed to help people understand which buildings and devices need a *Legionella* water management program to reduce the risk of Legionnaires' disease, what makes a good program, and how to develop it.
- **Preventing Legionnaires' Disease: A Training on *Legionella* Water Management Programs:** Take this [training from CDC](#) and partners on creating a water management program to reduce risk of Legionnaires' disease.
- **Hotel Guidance: [Considerations for Hotel Owners and Managers: How to Prevent Legionnaires' Disease.](#)**
- **Operating Public Hot Tubs for pool staff and owners: [Guidance for Operating Hot Tubs.](#)**
- **Healthcare Facilities:** Water management programs in healthcare facilities are an important way to help protect vulnerable patient populations as well as staff and visitors. See the [CDC Guidance From Plumbing to Patients.](#)
- **Preventing Occupational Exposure to *Legionella*:** The National Institute for Occupational Safety and Health (NIOSH) has a [factsheet on Preventing Occupational Exposure to Legionella](#) in workplaces.

2. Ensure your water heater is properly maintained and the temperature is correctly set.

- Determine if your manufacturer recommends draining the water heater after a prolonged period of disuse. Ensure that all maintenance activities are carried out according to the manufacturer's instructions or by professionals.
- Make sure that your water heater is set to at least 120°F. Do not turn the heater off as water temperature is important to prevent microorganisms from growing in the water heater and being aerosolized.
- Higher temperatures can further reduce the risk of *Legionella* growth, but ensure that you take measures to prevent scalding if your water heater is set to >130°F.

3. Flush your water system.

- Disconnect hoses and close valves to prevent backflow or siphoning of contaminants back into plumbing.
- Flush hot and cold water through all points of use (e.g., showers, sink faucets)
 - Flushing may need to occur in segments (e.g., floors or individual rooms) due to facility size and water pressure. The purpose of building flushing is to replace ALL water inside building piping with fresh water.
 - Flush building zone by zone. The first zone to be flushed should be the one nearest the building supply and then working outward from the supply.
 - Cold water lines should be flushed before hot water.
 - Remove all aerators from faucets before turning on water.
 - Run water through all outlets. Parts of the water system most important to flush to prevent sickness are: Drinking fountains, ice machines, refrigerators with ice machines, faucets used for drinking water or food preparation, kitchen sink sprayers, and showers.
 - Flush until the hot water reaches its maximum temperature.
 - Run water through each line for a minimum of 10 minutes.
 - Replace all point-of-use filters, including filters in appliances like a refrigerator.

4. Clean all decorative water features, such as fountains.

- Be sure to follow any recommended manufacturer guidelines for cleaning.
- Ensure that decorative water features are free of visible slime or biofilm.
- After the water feature has been re-filled, measure disinfectant levels to ensure that the water is safe for use.

5. Ensure hot tubs/spas are safe for use.

- Check for existing guidelines from your local or state regulatory agency before use.
- Ensure that hot tubs/spas are free of visible slime or biofilm before filling with water.
- Perform a hot tub/spa disinfection procedure before use: [CDC Guidance](#) (start at Step 4).

6. Ensure cooling towers are clean and well-maintained.

- Ensure that cooling towers are maintained (including start-up and shut-down procedures) per manufactures guidelines and industry best practices
- Ensure that the tower and basin are free of visible slime or biofilm before use
 - If the tower appears well-maintained, perform an online disinfection procedure.
 - [Guidance on disinfection procedures](#) from the Cooling Technology Institute.

7. Ensure safety equipment including fire sprinkler systems, eye wash stations, and safety showers are clean and well-maintained. Regularly flush, clean, and disinfect these systems according to manufacturers' specifications.

8. Maintain your water system.

- Consider contacting your local water utility to learn about any recent disruptions in the water supply. This could include working with the local water utility to ensure that standard checkpoints near the building or at the meter to the building have recently been checked or request that disinfectant residual entering the building meets expected standards.
- After your water system has returned to normal, ensure that the risk of *Legionella* growth is minimized by regularly checking water quality parameters such as temperature, pH, and disinfectant levels.
- Follow your water management program, document activities, and promptly intervene when problems arise.

For more details see the [guidance](#) developed by the CDC to help businesses safely reopen after being closed for an extended period or contact your local municipality water utility if you have further questions.