



Important Steps to Take Before your Business or Building Reopens after Periods of Low and No-Flow Water Conditions:

What is the problem and who does it apply to?

When buildings are closed to the public or have limited access for an extended period, the resulting drop in building water use increases the risk for *Legionella* growth in building plumbing and associated equipment. Building closures and reduced occupancy affect all environmental systems, these systems must be actively managed and maintained to protect the health of building users. In addition to managing systems during shutdown periods, building owners and operators need to implement well thought out start-up protocols to ensure public health protection. By implementing procedures now, you can protect the public and minimize the steps needed to safely re-open closed or partially closed facilities.

Buildings most at risk are:

- Commercial Buildings
- Medical and Outpatient Facilities
- Dental Offices
- Eye Surgery Centers
- Hospitality
- Schools / Day Care
- Cultural Buildings
- Primary Care Facilities
- Workout Facilities
- Manufacturing

Examples of building water systems that should be addressed as part of a building water management plan:

- Potable Water Systems (including potable water storage tanks)
- Ice Machines
- Filters
- Hot Tubs / Spas
- Non-potable Water Systems (including items such as water features/fountains)
- Ventilation and Air Conditioning (HVAC)
- Cooling Towers
- Pools

To prevent sewer gases intrusion into a building, it is essential to add water to every fixture, floor sink, and trench drain/floor drain.

Guidance for Building Water System Impacted by Low and No-Flow Water Conditions

The focus of this guidance is to reduce *bacteria* growth and other pathogen and corrosion concerns that occur when there is a large drop in building water use. The guidance focuses on potable water distribution systems inside buildings. Each building is different and will require different actions based on its plumbing systems, use patterns, and source of water supply. Stagnant, or standing water can cause conditions that increase the risk for growth and spread of *Legionella* and other biofilm-associated bacteria. Stagnant water can also lead to low or undetectable levels of disinfectant, such as chlorine. Ensure that your water system is safe to use after a prolonged shutdown to minimize the risk of bacteria growth and other diseases associated with water. If *Legionella* grows during low use periods, building users have a higher risk of contracting Legionnaires' disease and Pontiac Fever during the shutdown and when full use resumes. While *Legionella* is a primary risk, other opportunistic pathogens (*Mycobacterium avium*) and corrosion concerns (lead scale) are increased by closure or reduced use situations.



8 Steps to Take Before Your Business or Building Reopens:

1. Develop a comprehensive water management program (WMP) for your water systems and all devices that use water. Guidance to help with this process is available from the CDC (link below*) and others.
2.
 1. Ensure your water heater is properly maintained and the temperature is correctly set.
 2. 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.
 3. Make sure that your water heater is set to at least 120° F
 4. 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:
 1. Flush hot and cold water through all points of use (e.g., showers, sinks, faucets, water closets, etc.)
 2. 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 the building piping systems with fresh potable water.
 3. Flush until the hot water reaches its maximum temperature
 4. Check for disinfectant residual
4. Clean and disinfect all decorative water features, such as fountains.
 1. Be sure to follow any recommended manufacturer guidelines for cleaning and disinfection
 2. Ensure that decorative water features are free of visible slime or biofilm
 3. 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
 1. Check for existing guidelines from your local or state regulatory agency before use
 2. Ensure that hot tubs/spas are free of visible slime or biofilm before filling with water
 3. Perform a hot tub/spa disinfection procedure before use
CDC Guidance (start at Step 4, link below**)
6. Ensure cooling towers are clean and well-maintained
 1. Ensure that cooling towers are maintained (including start-up and shut-down procedures) per manufacturer's guidelines and industry best practices
 2. Ensure that the tower and basin are free of visible slime or biofilm before use
 - a) If the tower appears well-maintained, perform an online disinfection procedure
 - b) Guidance on disinfection procedures from the Cooling Technology Institute (link below***)
7. Ensure safety equipment including fire sprinkler systems, eye wash stations, and safety showers are clean and well-maintained
 1. Regularly flush, clean, and disinfect these systems according to manufacturers' specifications.
8. Maintain your water system
 1. Consider contacting your local water utility to learn about any recent disruptions in the water supply.
 - a) 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.
 2. 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.
 3. Follow your water management program, document activities, and promptly intervene when problems arise.

* <https://www.cdc.gov/legionella/wmp/toolkit/index.html>

** <https://www.cdc.gov/legionella/wmp> (Consideration for Public Hot Tub Operators tab)

*** <https://www.cti.org/downloads/WTP-148.pdf> (or search CTI WTP-148)