



Flushing Building Water Systems to Control *Legionella*

Legionellosis is an infection caused by the bacterium *Legionella* that can develop into two distinct illnesses -- Pontiac fever and Legionnaires' disease. Individuals are exposed to *Legionella* by breathing in tiny droplets of water that splash, spray, or mist from sinks, showers, and other water devices. Stagnation in cold and hot-water distribution lines and fixtures can lead to the growth of harmful bacteria such as *Legionella*. Flushing water through plumbing fixtures, especially during periods of non-use or changes to the distribution system, can help reduce stagnation and *Legionella* growth. The following checklist provides step-by-step guidance to reduce *Legionella* exposures caused by stagnant water lines. This document supplements the current ODH guidance on flushing and disinfection of unoccupied to partially occupied buildings

(<https://odh.ohio.gov/know-our-programs/legionella-environmental/media/unoccupied-building-recommendations>). The flushing checklist also supplements Legionella newsletters developed for hotel operators and healthcare providers.

All persons conducting inspections or investigations in a building should follow appropriate regulations and policies for worker safety and health. Persons who are at increased risk of developing Legionnaire's disease if exposed to *Legionella* (e.g., immunocompromised individuals) should not participate in investigation, sampling, or flushing activities.

Step 1: Prior to flushing the water lines.

Employ a qualified and experienced Legionella consultant if necessary.	
Locate the facility's Water Management Program (WMP) Resources to create a WMP are provided below.	
If an environmental facility assessment was not completed in the past year, complete CDC's "Legionella Environmental Assessment Form" (LEAF) document. Information about the LEAF available here.	
Characterize and identify cold and hot water distribution lines.	
Create a list of all water fixtures and features. (i.e., sinks, showers, drinking fountains, sprays, hot tubs/spas, ice machines etc.)	
Identify and prioritize high hazard areas for correction.	
Complete high hazard plumbing and system corrections identified by the environmental assessment, if possible.	
Take any other required environmental remedial action identified during the assessment.	

Step 2: Steps for flushing a building's water lines.

NOTE: Flushing can be done in segments (floors or individual rooms). It is recommended that flushing should be completed in one day to ensure normal water use.

Notify your building occupants of the status of the water systems and the flushing program.	
Ensure the hot water system is operating as specified in the WMP (e.g., temperatures at boilers, faucets.)	

Drain and clean all water storage units such as hot water heaters and tanks.	
Flush the service line that runs from water main into the building for 10 minutes.	
Flush the cold water distribution lines. Run water through all points-of-use for 10 minutes.	
Flush the hot water distribution lines. Flush all fixtures for 10 minutes.	
Flush the toilets with lids closed.	
Follow the manufacturer's instructions to conduct a thorough flushing, cleaning, and disinfection of any water treatment systems (e.g., aerators, filters, water softeners).	
Follow the manufacturer's instructions to conduct a thorough flushing, cleaning, and disinfection of water using devices (e.g., humidifiers, ice machine, dishwashers).	

Additional considerations while flushing (some of these can be concurrent with previous steps).

Limit access to water use during flushing activities.	
Check environmental parameters like temperature and disinfectant residual in the water distribution system.	
Determine if disinfection is needed for the water system at your facility. If chlorine products are used for disinfection, completely flush all water lines until free chlorine levels are below 4 mg/L.	
Determine if <i>Legionella</i> testing in water is needed. Identify key locations and sample according to CDC protocol. CDC Sampling Procedure available here.	
Determine whether continuous disinfection may be needed to protect sensitive populations if <i>Legionella</i> is detected in the water system.	

Contact Information

Ohio Department of Health
Bureau of Environmental Health and Radiation Protection
BEH@odh.ohio.gov
(614) 466-1390

Resources

ODH "Recommendations for Unoccupied to Partially Occupied Buildings for Flushing and Disinfection to Reduce Legionella Growth"

<https://odh.ohio.gov/know-our-programs/legionella-environmental/media/unoccupied-building-recommendations>

CDC Legionella Environmental Assessment Form <https://www.cdc.gov/legionella/downloads/legionella-environmental-assessment-p.pdf>

CDC Sampling Procedure <https://www.cdc.gov/legionella/downloads/cdc-sampling-procedure.pdf>

CDC "Reopening Buildings After Prolonged Shutdown or Reduced Operation"
<https://www.cdc.gov/nceh/ehs/water/legionella/building-water-system.html>

CDC "Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings"
[CDC WMP Toolkit](#)

US EPA "Information on Maintaining or Restoring Water Quality in Buildings with Low or No Use"
<https://www.epa.gov/coronavirus/information-maintaining-or-restoring-water-quality-buildings-low-or-no-use>