

Information on Maintaining or Restoring Water Quality in Buildings During Extended Periods of Low or No Use During the COVID-19 Stay Home/Stay Safe Executive Order

This webpage serves as a partner document to the press release published by the Vermont Department of Environmental Conservation and the Vermont Department of Health.

Due to closures in buildings during the COVID-19 Stay Home/Stay Safe Executive Order, water quality concerns must be addressed. When buildings are closed or are vacant for extended periods of time, the stagnation of potable water within plumbing can lead to the deterioration of water quality.

This has the potential to lead to health issues, **unrelated to the COVID-19 virus**.

To protect public health, it is important for building owners and managers to address stagnant water in the building's plumbing before consumption and usage resumes.

Potential microbial hazards that should be considered prior to reopening after a period of building inactivity include *Legionella* and other microbial hazards such as non-tuberculous mycobacteria. Building inactivity can also create changes in water chemistry that can lead to corrosion, which can enable the release of metals into water. Increased water age can also lead to increased disinfection byproducts.

***Legionella* and Legionnaires' disease:**

Stagnant water can lead to low or undetectable levels of disinfectant, such as chlorine, which then increases the risk for growth and spread of *Legionella* and other opportunistic plumbing pathogens. When water is stagnant, hot water temperatures can decrease, or cold water temperatures can increase, to the *Legionella* growth range (77-108°F).

Ensure that your facility is safe to use after a prolonged shutdown to minimize the risk of Legionnaires' disease and other waterborne diseases.

Legionella in drinking water analysis can be performed at the [following laboratories](#).

Follow the below steps prior to re-occupancy:

Develop a water management plan:

If you do not already have a water management plan, consider consulting with a water management specialist to ensure that the appropriate steps have been taken to reopen your business or building. Every plan should reflect the building's unique characteristics and include a flushing strategy and thermal regulation plan for reopening the building now and for future low or no use events.

Check the system integrity:

Before taking preventive or remedial actions, it is important to ensure that the building water system is working properly. This involves inspection of mechanical and plumbing components to identify leaks, depressurization, adequate backflow prevention, and assess functionality (e.g., hot water supply and return temperatures, on-site treatment/equipment functioning as intended). You may want to consult with a plumber to check the water system over. If the facility is served by on-site septic, you will want to identify the wastewater system's capacity to make sure not to inundate your wastewater system when flushing is performed.

Flush the system:

Flushing will help clear out the old, low quality water that accumulated during periods of low or no use and replaces it with high quality water from the public supply or private well. Remember to flush all water-using appliances like ice machines, humidifiers, and dishwashers.

Unless you have a thorough understanding of the building plumbing system and all water using appliances, you should consult with a plumber or water management specialist to set up a flushing plan. Incomplete flushing could result in contaminated water remaining in the system.

Other actions you should take are:

- Clean showerheads, faucets and other fixtures that can produce aerosols that people could inhale.
- Regenerate or replace Point-of-Entry and Point-of-Use treatment devices, such as filters and water softeners. Follow the equipment manufacturers' specifications for maintenance.
- Ensure your water heater is properly maintained, and the hot water temperature is correctly set as per CDC guidelines to prevent *Legionella* growth.
 - **Higher temperatures can further reduce the risk of *Legionella* growth, but anti-scald devices must be present.**
 - See CDC's *Guidance for Reopening Buildings After Prolonged Shutdown or Reduced Operation* linked below in the Additional Resources section.
- Consider using personal protective equipment (PPE) when flushing and reduce water splashing and aerosolization to limit exposure to harmful chemicals and bacteria.
- Consider signing up for the following webinars:
 - [Life after Lockdown: Bringing Water Treatment Systems Back Online](#)
 - [Reopening after COVID19: Ensuring Safe Water Supplies at the Building Scale](#)
 - [COVID-19: Water System Re-entry and Returning to "Normal" Operations](#)

How can we maintain water quality while buildings/businesses are closed?

Please see the below guidance for building owners/managers for various building water system types.

General guidance for building owners/managers:

- Review and understand the plumbing configuration and water usage in your building.
- Inspect the plumbing to ensure it is functioning properly and is in good condition.
- Contact your water utility if you have questions on the status of water usage and quality in the distribution system in your area and to coordinate maintenance activities, if necessary.
- Maintain any water treatment systems used in the building, such as point-of-entry or point-of-use filters or water softeners.
- Maintain the hot water system, including keeping the temperature as per CDC guidelines to prevent *Legionella* growth.
 - **Higher temperatures can further reduce the risk of *Legionella* growth, but anti-scald devices must be present.**
 - See CDC's *Guidance for Reopening Buildings After Prolonged Shutdown or Reduced Operation* linked below in the Additional Resources section.

- Flush the building’s plumbing system regularly.
- Maintain all non-drinking water building water systems and devices according to the manufacturer’s specifications.
- Consider developing a water management program for your building water systems and all devices that use water.

Guidance for building owners/managers that receive water from a public water system:

- Follow the steps described above to replace the water in the building’s plumbing and maintain all building water systems.
- Consider contacting the health department for assistance if you have specific concerns or to determine if any local requirements are necessary prior to reopening.
- Review the potential impact that the degraded water quality might have on your building occupants considering their use of the building and the building’s water systems.
- Based on your review:
 - Consider notifying your building occupants of the status of the building’s water systems and any steps being taken to maintain water quality.
 - See CDC’s *Developing a Water Management Program to Reduce Legionella Growth & Spread in Buildings: A Practical Guide to Implementing Industry Standards* linked below in the Additional Resources section.
 - Consider whether limiting access to or use of the water is an appropriate cautionary phase prior to returning to normal use of water in the building.
 - Consider providing bottled water or access to another drinking water source to residents or occupants.
 - Consider whether a proactive disinfection treatment is necessary, such as that recommended for controlling *Legionella* in ASHRAE Guideline 12, to return the building’s plumbing and other water systems to safe operation prior to reopening.
 - Procedures such as these should only be performed by a trained professional.
 - Drain and clean water storage facilities and hot water heaters following the manufacturer’s instructions.
 - Follow appropriate regulations and policies for worker safety and health while performing all activities.
 - For more information on ensuring the safety of your building’s water system after a prolonged shutdown, CDC provides guidance for building water systems related to reducing risks of *Legionella* that can be applied to other microbiological contaminants.
 - See CDC’s *Guidance for Reopening Buildings After Prolonged Shutdown or Reduced Operation* linked below in the Additional Resources section.

For building managers/water system operators of public community water systems:

For these systems, EPA recommends the following steps for reopening facilities:

- Coordinate distribution flushing with nearby building flushing activities.
- Be prepared to provide information on system disinfection and flushing activities or proactively post information on the utility’s website, such as:
 - Type of disinfectant used (free chlorine vs. chloramine)

- Residual level maintained by the water system.
- Scheduled free chlorine periods (for those systems primarily using chloramines)
- Any additional measures that may be underway to maintain disinfectant residual levels in parts of the water system experiencing reduced usage.
- Ensure meters are working and accurate.
- It may be necessary to flush your distribution system if you serve areas that have previously seen a decrease in water use. Your O&M Manual should include information about the system's flushing procedure.

For managers/operators of public non-transient non-community water systems:

For these systems, EPA recommends the following steps for reopening facilities:

- Consider following the steps described above to replace the water in the buildings' plumbing and maintain all building water systems.
- Consider whether a proactive disinfection/heat treatment is necessary, such as that recommended for controlling *Legionella* in ASHRAE Guideline 12, to return the building's plumbing and other water systems to operation prior to reopening.
- Contact your primacy agency to discuss specific requirements for restarting operations.

For additional resources, please see below:

- United States Environmental Protection Agency (US EPA):
 - [Maintaining or Restoring Water Quality in Buildings with Low or No Use](#)
 - [Restoring Water Quality in Buildings for Reopening](#)
- Centers for Disease Control and Prevention (CDC):
 - [Guidance for Reopening Buildings After Prolonged Shutdown or Reduced Operation](#)
 - [Developing a Water Management Program to Reduce Legionella Growth & Spread in Buildings](#)
- Environmental Science, Policy, and Research Institute (ESPRI):
 - [Building Water Quality and Coronavirus: Flushing Guidance for Periods of Low or No Use](#)
- European Society of Clinical Microbiology and Infectious Disease (ESCMID):
 - [ESGLI Guidance for managing Legionella in building water systems during the COVID-19 pandemic](#)
- Purdue University Center for Plumbing Safety:
 - [Water Quality in Low Occupancy and Shutdown Buildings](#)