Has Your Building Been Unused During COVID-19 Shutdown?

Please note that this risk also applies to any buildings or homes that have been in an extended state of disuse for any reason (i.e. vacation rentals, seasonal homes, schools, etc.)

You could be at risk of **WATER QUALITY DEGRADATION**!

What does this mean for you?

- The disinfectant in the water has dissipated → meaning microorganisms may have grown on pipes, fixtures, & tanks… like *Legionella pneumophila* which has similar transmission traits & risks as COVID-19
- Protective scale on pipes may have destabilized → without this protective scale, you are at risk of toxic metals like lead dissolving or shearing off as particles, ending up in drinking water or food preparation
- Mechanical equipment (i.e. cooling towers, boilers, & pumps) may not have received any routine maintenance → backflow preventers may have gone without annual test cycles
- Decorative water fountains & hot tubs have been sitting stagnant → stagnant warm water is a breeding house for *Legionella;* this contaminated water can splash and spread the bacteria
- Cooling towers → when disinfectant levels are low, cooling tower fans risk spraying *Legionella* contaminated water
- Substances such as disinfection byproducts (DBPs), which are potentially harmful, may have built up

Photo Credit: Dhammika Heenpella

What Can You Do About It Before Reopening?

1. Develop your comprehensive Water Management Plan (WMP)
   - ✓ A toolkit for developing your own WMP can be found at https://www.cdc.gov/legionella/downloads/toolkit.pdf
   - ✓ The CDC also offers a training on *Legionella* WMPs https://www.cdc.gov/nceh/ehs/elearn/prevent-LD-training.html
2. Ensure your water heater is maintained properly & temperature is set correctly
   - ✓ Does your manufacturer recommend draining the water heater after a prolonged period of disuse?
   - ✓ Set water heater to at **least** 140°
3. FLUSH THE ENTIRE WATER SYSTEM!!!
   - ✓ Flush hot & cold water through every point of use
   - ✓ Flush until hot water reaches max temperature
   - ✓ Minimize potential splashing & aerosol generation
   - ✓ Additional cleaning steps may be required for other water-using devices
4. Clean decorative water features
   - ✓ Follow manufacturer guidelines for cleaning
   - ✓ Ensure they are free of visible slime or biofilm
   - ✓ After refilling, measure disinfectant levels
5. Ensure hot tub/spas safety for use
   - ✓ Check current guidelines from local/state regulatory agencies
   - ✓ Ensure they are free of visible slime or biofilm before refilling
   - ✓ Perform a disinfection procedure before use
   - ✓ Consult your local facility water management program staff & relevant health authorities when making *Legionella* testing decisions
6. Ensure all cooling towers are clean and well-maintained
   - ✓ Maintain cooling towers based on manufacturer's guidelines & industry best practices
   - ✓ Ensure that both the tower & basin are free of visible slime, debris, & biofilm before use
   - ✓ If it appears well-maintained, perform an online disinfection procedure
     - ✓ https://cti.org/pub/cticode.php
     - ✓ http://www.cti.org/downloads/WTP-148.pdf
7. Ensure all safety equipment is clean & well-maintained
   - ✓ Regularly flush, clean, & disinfect safety systems according to manufacturer's specifications
     - ✓ Examples of safety equipment: fire sprinkler systems, eye wash stations, safety showers
8. Maintain the water system
   - ✓ Consider contacting the local water utility to ask about any recent disruptions in water supply
   - ✓ Once returned to normal operations, ensure *Legionella* risk is minimized through regular water quality parameters (i.e. temperature, pH, & disinfectant levels)
   - ✓ Follow your water management program, document activities, & efficiently intervene when unplanned issues arise

Photo Credit: hubgoat

How to Flush

Flushing should begin at the service point of entrance and continue to the periphery of the plumbing system.

Water treatment systems should also be cleaned, flushed, & maintained

Initial Flushing & Cleaning *This clears out contaminants that accumulated during disuse & pulls in fresh, high-quality water. Be sure to clean fixtures, which will remove contaminants from discharge points.*

Water Storage

- Identify places where water is stored → drain → flush with cold water
- Some examples of water storage machines are: hot water storage, hot water recirculating loop(s), humidifiers, ice machines, & dishwashers

Flush Each Zone one-by-one

- Zone = the branches of the building's water system with a common source
- Zone 1 = the zone nearest the building water supply
    - Make your way progressively outward from the supply as you flush
- Flush **cold** water plumbing first & then **hot** water plumbing second

Photo Credit: Adam Pan

Your Flushing Checklist

Step 1

- ❑ Begin flushing at the point of use (POU) closest to the origin of that zone
- ❑ Remove any aerators at the POU closest to the beginning of that zone
- ❑ Open taps fully

Step 2

- ❑ Open remaining taps on that same branch → move from the faucet closest to the origin out toward the most distant POU
  - Continue flushing until the final POU has been flushed for a minimum of 5 minutes AND **cold** water temperature at the final POU is consistent
  - Measure chlorine residual to check for increase

Step 3

- ❑ Drain hot water tanks on first flush after resumption of flow of water
  - If draining is not possible, refer to manufacturer's guide for length of time to flush hot water
  - **DO NOT** turn the heater off! Water temperature is critical to prevent microorganisms such as *Legionella* from growing in the heater & being dispersed in aerosols

Minimize your risk to exposure during flushing by wearing PPE! *This can occur when water that is being flushed splashes out and droplets are inhaled*

Photo Credit: Adam Pan

Reference

**This presentation put together by the Water Research Foundation is a trusted source and was used in reference for this presentation to best inform the Public on how to manage and mitigate water quality degradation.*

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Resources

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United States Environmental Protection Agency. (2020, May, 21). *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

To learn more about drinking water and your groundwater resources on the Eastern Shore, please visit http://www.a-npdc.org/accomack-northampton-planning-district-commission/ or email Jessica Steelman, Coastal Planner

Photo Credit: Dennis Wilkinson

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