Environmental Public Health Division
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BUILDING WATER SYSTEM STARTUP GUIDANCE

Requirements of social distancing and the Stay-at-Home Order due to the COVID-19 pandemic has forced schools, businesses, events, and many restaurants to shut down. The physical structures, primarily the buildings that house these entities and activities have been vacated and their water systems shut down. Some will have shut off the water supply and drained the plumbing prior to vacating, and others may have allowed the plumbing to sit stagnant with water in the piping. Either way it is crucial to take precautions when starting up the building water system in preparation for return to normal operations.

As water sits stagnant within water lines and fixtures the water quality may be adversely impacted by either chemical or microbiological contaminants that can cause significant health risks. Stagnant water allows for metals such as lead and copper to leach into the water within the plumbing due to the corrosive characteristics of water. Stagnant water also allows for biological growth and an increase in the presence of bacteriology such as Legionella and other bio-film associated bacteria.

General Steps to Follow for Startup

1. Inspect the premise plumbing and ensure the integrity of the plumbing system is intact. Repair any supply piping or drain leaks found during the visual inspection and replace any damaged or open plumbing traps.
2. Remove aerators, point of use filters, and shower hoses, and ensure motion sensors have been disabled on automatic faucets.
3. Check the integrity of the water system by closing all faucets within the system.
    a. Shut down any additional systems that may be feeding the overall water system, such as water softeners or other water conditioning apparatus.
    b. Ensure your water heater is properly maintained.
        1. Confirm the temperature is correctly set - generally at a minimum of 120°F.
        2. Determine if the manufacturer recommends draining the water heater after a prolonged period of disuse.
    c. Turn on the main supply to the building water system.
4. Flushing the system
    a. If possible follow the flow of water from the main water supply (use the buildings as-built diagrams if available) and begin flushing at the first location within the system to eliminate all sediment and debris sitting within the main supply line. This may require flushing for up to one hour to properly to remove all sediment and debris from the main line.
    b. Then begin moving along the water system to each faucet, spigot, and/or outlet throughout the system. Flush cold water first, and then move on to the hot water. Times of flushing may vary depending on the amount of sedimentation detected, but most likely flushing the cold water for 1 minute and the hot for 30 seconds will suffice. During flushing activities observe plumbing fixtures to ensure no leakage. Repair any piping, fixture, or drain leaks found during flushing.
    c. If it is a multi-story facility and an as-built is unavailable it is best practice to begin at the lowest level and work your way up.

5. Water testing may be needed.
    a. Sample at various points in the system starting at the point of entry for the main water supply, and then at near, middle, and far locations from the water supply, which may be faucets or spigots.
    b. Samples should be collected for residual disinfectant (will depend on source water), bacteriological components (including legionella), lead, and copper.
6. What to do with the results?
    a. If bacteriology is present in the building water system, then disinfection will be needed. Follow guidance for disinfection which is summarized in the points below for both water well and public water supply sources:
        1. Well Water Source - See note below if you are a SEASONAL WATER SYSTEM. If the physical structure is served by a groundwater source direct from a water well, then follow guidance from the Indiana State Department of Health for well disinfection. Please see following link: https://www.in.gov/isdh/files/Well_Disinfection.pdf
        2. Municipal Water Source - If the physical structure is served by a municipal water source, then follow the CDC guidance related to specific comprehensive water management programs associated with the use of the building. This may be specific to hotels, healthcare facilities, office buildings, or schools. Please see following link for further guidance: https://www.cdc.gov/coronavirus/2019-ncov/php/building-water-system.html
    b. If metals (lead or copper) are present in the building water system, then additional flushing may be needed. If levels are not acceptable, then seek guidance from a water treatment specialist to implement interventions to reduce the health risk exposure.
7. Once testing is completed and/or interventions implemented replace all aerators, point of use filters, shower hoses, and you may initiate motion sensors for automatic faucets. If bacteria sourced contamination is found to be associated with a hot water heater or water softener refer to the manufacturers guidance to clean, disinfect, and recommission those systems, and conduct confirmation sampling once recommissioned.

    NOTE: Seasonal Water Systems: If you are a seasonal water system refer to guidance from IDEM on how to comply with the Revised Total Coliform Rule at the following link: https://www.in.gov/idem/cleanwater/files/dw_rtcr_ref_guide_seasonal.pdf

Additional Resources:

Building Water System COVID-19 Evaluation Tool
https://engineering.purdue.edu/PlumbingSafety/covid19/Guidance-Evaluation-Tool.pdf

Building Water Quality and Coronovirus: Flushing Guidance for Periods of Low or No Use
Environmental Science, Policy & Research Institute
https://esprinstitute.org/wp-content/uploads/2020/04/FINAL_Coronavirus-Building-Flushing-Guidance-20200403-rev-1.pdf