Guidance for Returning Building Water Systems to Service After Prolonged Shutdown

This guidance is intended for building owners, managers, engineers, operators and superintendents.

For all buildings that have been vacant or have had low occupancy due to the New York State (NYS) PAUSE executive order, additional maintenance is needed to restore the quality of the drinking water before a building is reoccupied. Stagnant water that results from low or no use can create health risks. These can include the growth of pathogens (*Legionella*, *Mycobacterium avium* and *Pseudomonas aeruginosa*), leaching of metals (lead and copper), accumulation of sediment, growth of biofilms, taste and odor problems and accumulation of disinfection by-products.

To restore drinking water quality and protect building occupants, take these steps to replace stagnant water with fresh water from the municipal water supply.

Gather information on the building water systems.

- Take inventory of the building's plumbing equipment, considering:
  - Age, size and complexity of the building's plumbing system
  - Major components and how water flows through them and throughout the building, and their distribution pattern
  - Plumbing materials used

Consider factors that will impact your plan.

- Work with licensed plumbers, mechanical contractors, station engineers, water treatment operators and building operation staff that are familiar with your plumbing systems and consider:
  - Water age and usage: How long has the building been out of service? What does the water meter show about usage history and variations in use?
  - Re-occupancy plans: Will occupancy remain partial, with different tenants present at different times?
  - Anticipated use of building and water: Will the building reopen? Will there be a phased-in re-occupancy schedule?

Take the corrective actions set out in Tables A and B, depending on building water system components and use.

- **Table A** provides guidance on flushing the building water system and maintaining appropriate water temperatures.
- **Table B** provides specific guidance related to building water system components.

Table A: Guidance Related to Flushing and Maintaining Temperatures

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- **Turn over stagnant water through flushing**: Perform ongoing flushing of cold and hot water distribution systems, as needed, to ensure water is replaced for any parts of the building that were vacant or where there was low water use for an extended time period. This will remove stagnant water, accumulations and contaminants while refilling the system with water that has a healthy chlorine residual, which helps prevent bacterial growth. Monitor flush water volume and duration to guide the amount of flushing needed to achieve desired turnover.
- **Perform sequenced flushing of water lines:** Flush cold water lines <u>before</u> flushing hot water lines. Flush all the cold water feed piping leading up to the mechanical room/hot water system before flushing the hot water distribution system. Depending on facility size, plumbing layout and water pressure, methodically flush segments in sequence (e.g., floors or individual rooms) from the utility water supply to the most distant locations to achieve thorough replacement of stagnant water in all risers and branches.
- **Aim to flush all outlets**: Locate all sink faucets (kitchen, bath and utility), toilets, bathtub spouts and showerhead outlets, including those that may be difficult to access (e.g., in the basement and in unused spaces).
- **Keep accurate records**: Document activities performed in the building water system and maintain records.

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<tr><td>Aerators and Screens</td><td>

- **Before flushing**: Remove aerators and screens from faucets and shower heads.
- **After flushing**: Clean aerators and screens with 1:99 diluted household bleach and small brush before putting them back in place.

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<tr><td>Cold Water Distribution System</td><td>

- **Flush from the nearest location to municipal water supply to most distant location**: For each branch of water distribution in the building, locate the faucet or outlet closest and furthest away from the water supply, which may be from the water tank, main service line or “lateral” on each floor. Flush the nearest locations first and then proceed outward to the most distant locations.
- **Flush until all outlets are cold**: Bring fresh water throughout the building by flushing all outlets until water is cold and clear.
- **Monitor the chlorine residual**: Make sure that you detect a chlorine residual in cold water. Flush until the most distant cold water faucets or outlets have a chlorine residual similar to the locations nearest the water supply. Even if monitoring is unavailable, still flush water from each outlet for at least 10 minutes.

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<tr><td>Hot Water Distribution System</td><td>

- **Check your boiler, hot water heater and hot water storage tank**: Determine if the manufacturer recommends draining and flushing the boiler or water heater after a prolonged period of disuse.

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	• **Flush from the nearest location to most distant location**: Locate the faucet or outlet closest and furthest away from the hot water supply, which varies for each plumbing layout. Flush the nearest locations first and then proceed outward to the most distant locations. • **Flush until all outlets are hot**: Make sure set temperatures for stored hot water are between 140 degrees and 145 degrees Fahrenheit. Flush to maintain hot water in the distribution and return lines consistently at the highest temperature allowed by NYS and New York City (NYC) regulations. See CDC building water system guidance and NYC Housing Maintenance Code §27-2031. Make adjustments in mechanical systems, as needed, to achieve and maintain these temperatures.

Table B: Additional Recommendations for Building Water System Components

• **Manufacturer's Recommendations**: Review the manufacturer's maintenance, cleaning and disinfection procedures for the specific water system component. • **Contact Time**: For disinfections performed, make sure the right amount of disinfectant (the dose) is used for the proper amount of time to effectively treat the component surfaces.	
If your building has:	*Additional actions to take:*
Hot Water Heat Exchanger	• **Consult with your mechanical service vendor to determine whether additional actions are needed.**
Drinking Water Tank	• **Drain and clean water tanks first:** If your building has been vacant or had low water usage, drain the water tank and clean before use. Do this prior to flushing the building water systems. Also, remember that NYC regulations require an annual cleaning of the drinking water tank by a permitted entity. • **Conduct a visual inspection if necessary:** Have a water tank inspector physically inspect the drinking water tank, its supporting structure and enclosure, as applicable, and take care of any maintenance issues. • Visit **nyc.gov/health** and search for **water tanks** for more information on drinking water tanks, and water tank inspection and reporting requirements.
Drinking Water Fountain	• **Flush**: For drinking fountains with refrigeration units, open all valves and let the water run for at least 15 minutes. For drinking fountains without refrigeration units, open all valves and let the water run for at least one minute until it gets cold.
Decorative Fountain	• **Drain, clean and disinfect:** For any decorative fountains and water features that have recirculating water, drain and clean

	to remove debris, scale, algae, bacteria or fungi growth. Inspect and clean the pump and perform a close visual inspection of fountain surfaces to evaluate the need to perform a disinfection.
Commercial Ice Machines	• **Discard old ice, flush and clean:** Throw away ice made prior to building vacancy. Clean all machine parts, such as evaporator plates, condenser coil and condenser fan blades. Change the water filter and change the air filter, if applicable. Flush the water lines and throw away the first batch of ice before use.
Refrigerator Ice Makers/Dispensers	• **Discard old ice, flush and clean:** Remove ice bin, throw away ice, and clean and completely dry the bin. Clean the ice dispenser opening with a soft cloth and replace the bin. Change the water filter. Flush the water line and throw away the first batch of ice before use.
Floor Drains	• **Make sure traps are not dry:** Add water to floor drains or other fixture drains that have not been used to prevent sewer gas odors.
On-Site Drinking Water Treatment Systems (such as filtration system or supplemental disinfection system)	• **Consult with your treatment system operator for building reopening activities specific to those systems.**

The NYC Health Department may change recommendations as the situation evolves. 6.8.20