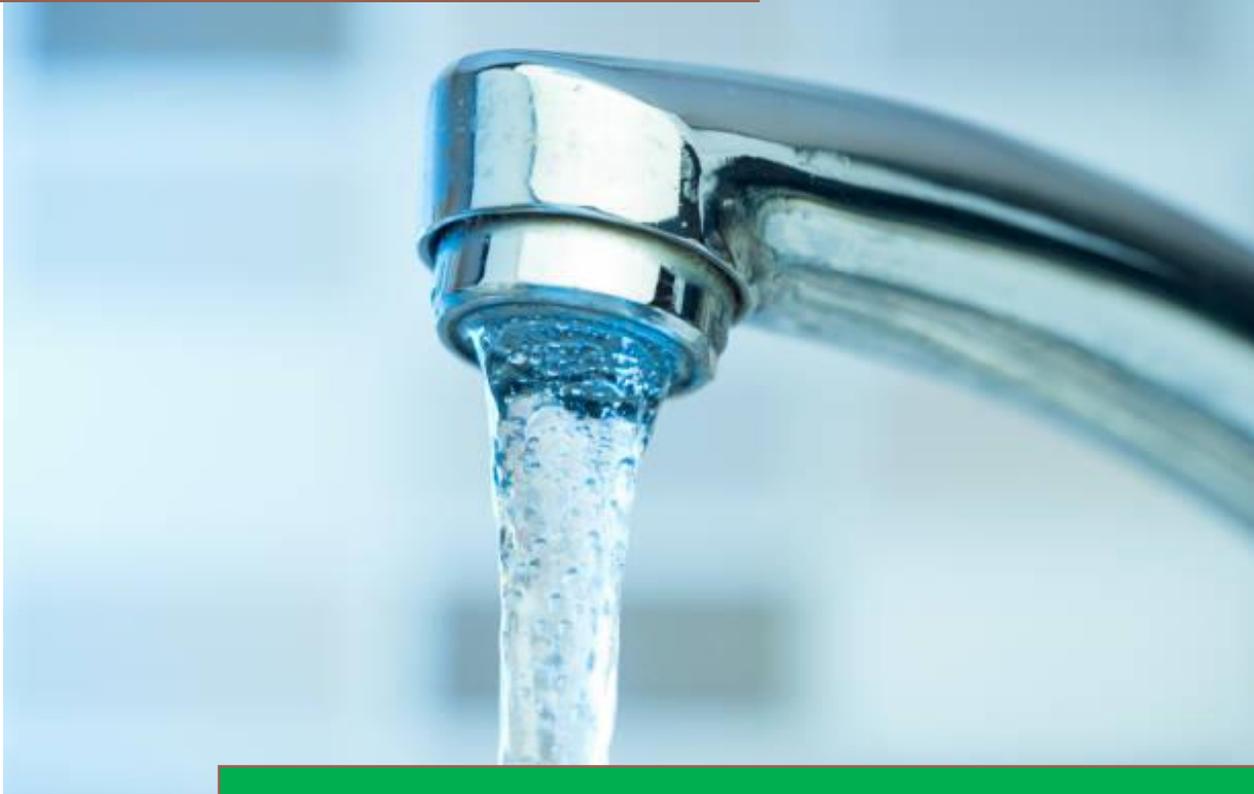


A Made in Niagara Guide



To Flushing Your Facility

Introduction

When a building is not in use/ limited use and the building water system is not actively maintained, the water becomes stagnant within your facility. This can lead to a variety of mechanical and health related issues.



Including but not limited to:

- Microbial or pathogen growth
- Disinfection by-product build up in stagnant water
- Pump failure
- Pipe Failure
- Discoloured water (cold and hot)

To help get your facility back online or at full capacity, the following is intended to assist you through that process. This guideline is not a specific procedure but rather a guide to assist your other procedures and maintenance activities.

This document also contains links and resources you may find helpful within the appendix.

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Develop The Plan

To mitigate issues within your facility, take some time to develop a plan focused around fixture flushing, maintenance checks and equipment that is essential to the operation of your facility.



When developing your facility's plan, keep in mind each facility is unique – a one size fits all approach may not be appropriate.

Your plan should include at minimum some of the following items:

- Identify your critical valves, pumps, tanks and other systems that are essential to the operation of your facility.
 - Have access to your facility's mechanical plans or sketch your own
- Review your facility's water service size and the size of the various waterlines in your facility. Appendix A provides guidance on how to measure this.
 - Larger services and waterlines will need more flushing time
- Identify and document the location and operating temperature of boilers and hot water tanks, ensure hot water is being heated to minimum of 60 °C or 140 °F

- Identify the best places to begin flushing your facility, working from the lowest level to the highest in multi-story facilities, and the location closest to where your water service enters the building for single story.
 - Include food fixtures such as coffee makers, ice machines and water dispensers

 - For hot water, flush out of the fixture closest to your hot water tank or boiler, your facility may have multiple hot water sources.
 - If discolouration persists, please refer to the manufacturer's instructions for additional cleaning steps.

 - Contact your existing contractors, plumbers or other professionals for assistance with items that you are not familiar with such as storage tanks, cooling towers or if your facility services vulnerable populations.

 - Identify the locations of your drains, traps, backwater valves, pumps and other sewage related plumbing.
 - These items may need maintenance as well if they have not been used as much as they were previously.

 - Document and maintain a log of your flushing activities, this may assist you if issues arise and will help plan future maintenance programs.
- 

The Plan is Ready, Now What?



Once you've developed your plan, start to flush the lines and plumbing in your facility. Things to keep in mind while you flush throughout your facility:

- Start slow! Plumbing and fixtures that have not been used as frequently as before may experience issues such as leaks or pipe failure.
 - The drawings or sketches from your plan can help mitigate any issues that have arisen.
- You may see discoloured water, if your facility has been closed or had limited use this can be expected.
 - Document the location and duration of fixtures that produced discoloured water. This will help plan future maintenance.
- Long piping runs or dead ends may require longer and more frequent flushing than areas with a higher rate of usage.
- Your local Municipality ensures there is an appropriate level of disinfection throughout the drinking water distribution system.
 - Your facility flushing program will build off the programs already taking place within your Municipality.
- If you are experiencing a sewer smell, it may be the result of emptied or dried plumbing traps, flushing may resolve this issue.
- Remember, flushing a fixture does not replace cleaning a fixture including touch points and discharge locations.

Appendix A

Cut out the tape measure to the left, if you need help determining service diameter.

To measure larger pipes, print a second Diameter Tape with **Start At** set to highest point on first tape and overlap tapes to extend.

Lightly wet paper tape so it sticks to the pipe or tube.
Select **Check Scale** to test printed scale against standard ruler.



**Incoming Water Service
Measurement Point**

**Various Plumbing Measurement
Points**

Appendix B

CWWA CHECKLIST

Re-Opening Buildings - Building Owners/Operators

- **Before you start - Map or sketch your entire water system**
 - Identify zones and include all treatment equipment, pumps, valves, tanks, etc.
 - list all outlets/fixtures such as taps, fountains, showers, etc.
 - be sure to include any connected food units like ice or coffee makers
- **Flush your entire system**
 - start where the water enters the building and work from closest to furthest, closest zone to furthest zone, closest outlet to furthest outlet
 - flushing requirements vary but run the water until the water maintains a constant cold temperature and the disinfectant (like chlorine) is detected
 - this should be a rigorous flush so you want to open taps fully (remove the aerator filter or shower head – failure to do so may result in plugged or damaged fixtures) but be aware this could cause greater spray and aerosols
 - staff should wear appropriate PPE such as gloves, mask (N95 is recommended), and eye cover while flushing
 - If you are experiencing sewer smell, it may be the result of emptied or dried plumbing traps, flushing may resolve this issue
- **Hot Water**
 - Flush your cold water system first then your hot water system
 - Hot water tanks should be kept above 60°C (140 °F) to ensure a temperature over 50°C throughout the system. Be sure to flush the tank fully to replace all of its water. You may consider draining the tank, but be cautious as this could stir up sedimentation or cause syphoning concerns
 - Then flush the hot water system from closest to furthest from the tank

Cleaning

- If possible, clean, disinfect and rinse all outlets, screens etc.
- **Shocking your system**
 - Shock chlorination may only need to be considered if you have a large system with remote branches, storage tanks, or you still detect issues after flushing, if you serve vulnerable populations or have a history of pathogen problems
 - Such system shocking should be conducted by a water treatment professional
- **Testing**
 - For smaller buildings, after flushing, you should be able to feel a consistent cold temperature and even detect disinfectant (such as chlorine by smell)
 - For larger buildings and any building serving vulnerable populations, professional testing is highly recommended
 - Testing for disinfectant residual - simple equipment and/or testing services are available from local water treatment companies, plumbers and pool professionals
 - Testing for microbial pathogens – for complex systems, buildings serving vulnerable populations, or any with a history of contaminations (like Legionella) – these issues are often related to water in HVAC systems. Your local health unit should be contacted for assistance.

Appendix C

Other Helpful Documents or Guidelines

Health Canada

Guidelines for Canadian drinking water quality summary table.

https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/pdf/pubs/water-eau/sum_guide-res_recom/sum_guide-res_recom-eng.pdf

Guidance for Providing Safe Drinking Water in Areas of Federal Jurisdiction V2

<https://www.canada.ca/en/health-canada/services/publications/healthy-living/guidance-providing-safe-drinking-water-areas-federal-jurisdiction-version-2.html>

Environmental Science Policy & Research Institute (ESPRI)

Building Water Quality and Coronavirus: Flushing Guidance for Periods of Low or No Use.

(https://esprinstitute.org/wp-content/uploads/2020/04/FINAL_Coronavirus-Building-Flushing-Guidance-20200403-rev-1.pdf)

American Water Works Association (AWWA)

Coronavirus (COVID-19) Resources and Tools

(<https://www.awwa.org/Resources-Tools/Resource-Topics/Coronavirus>)

Public Works and Government Services Canada

MD 15161-2013. Control of Legionella in Mechanical Systems, Chapter 6 – Domestic Water.

<https://www.tpsgc-pwgsc.gc.ca/biens-property/documents/legionella-eng.pdf>

Proctor CR, Rhoads WJ, Keane T, Salehi M, Hamilton K, Pieper KJ, Cwiertny DM, Prévost M, Whelton AJ.

Considerations for Large Building Water Quality after Extended Stagnation.

<https://www.iapmo.org/media/23699/considerations-for-large-building-water-quality-after-extended-stagnation.pdf>

Rhoads W, Whelton A, Proctor C.

Building Water System COVID-19 Guidance Document Evaluation Tool.

<https://engineering.purdue.edu/PlumbingSafety/covid19/Guidance-Evaluation-Tool.pdf>

ANSI/ASHRAE Standard 188-2018.

Legionellosis: Risk Management for Building Water Systems

<https://www.ashrae.org/technical-resources/bookstore/ansi-ashrae-standard-188-2018-legionellosis-risk-management-for-building-water-systems>

U.S. Center for Disease Control (CDC)

Toolkit: Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings.

<https://www.cdc.gov/legionella/wmp/toolkit/index.html>

Ontario Municipal Water Association (OMWA)

Webinar – Exiting One Crisis and Mitigating Another

<https://www.omwa.org/water3/may-1-webinar-slides-and-audio-available/>

Purdue University. Frequently Asked Questions- Building Water Safety in Response to COVID-19.

<https://engineering.purdue.edu/PlumbingSafety/covid19/resources/faq-building-water-safety>

Appendix D

Local Municipality	Contact Numbers
Fort Erie	(905) 871-1600
Grimsby	(905) 945-9201
Lincoln	(905) 563-8205
Niagara Falls	(905) 356-1355
Niagara On The Lake	(905) 468-3278
Niagara Region	(905) 980-6000
Port Colborne	(905) 835-2901
Pelham	(905) 892-2607
St. Catharines	(905) 688-5600
Thorold	(905) 227-3521
Welland	(905) 735-1700
West Lincoln	(905) 957-3346