



Commercial Restroom Recommendations for Return-to-Work and Facility Start-up

Presenters



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Learning Objectives

This webinar is designed to:

- Discuss potential conditions that may exist in closed buildings and their possible impact upon workers, the public and various commercial restroom products
- Explain the risks associated with re-opening commercial restrooms in buildings that have been closed due to the COVID-19 pandemic
- Provide guidance and best practices for safety and hygiene when re-opening commercial restrooms for return-to-work and facility start-up

This webinar is not designed to:

- Make recommendations for products other than those found in commercial restrooms
- Substitute for a comprehensive building water management review
- Discuss the timing of return-to-work and facility start-up as they relate to public health



What is The Scope of The Problem?



The Basics – Water Supplies

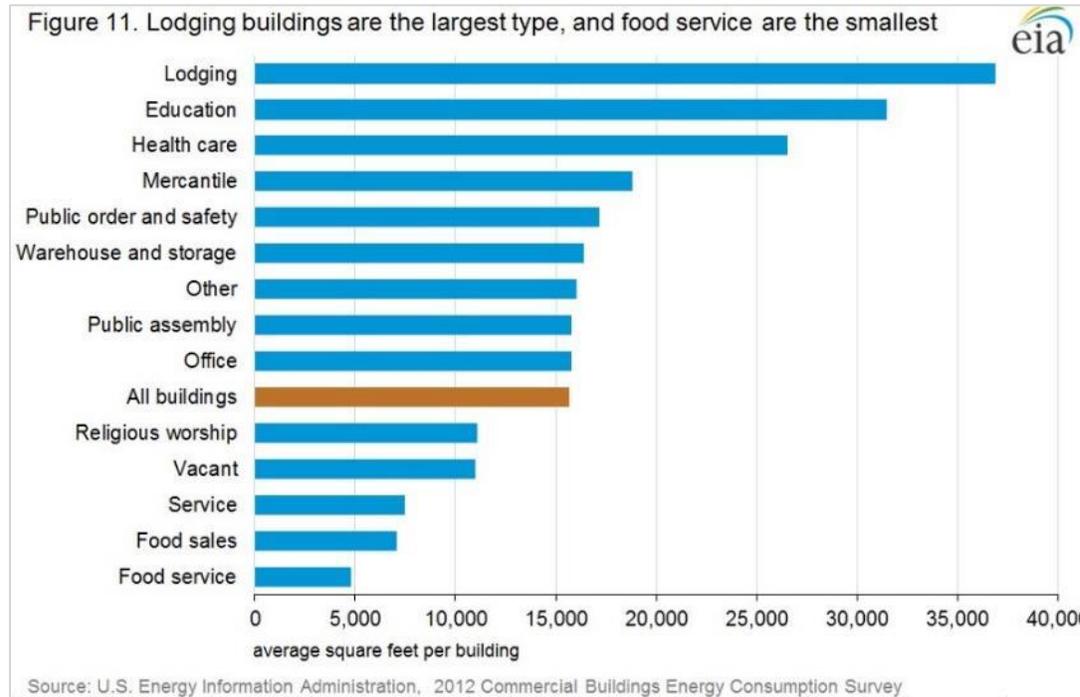
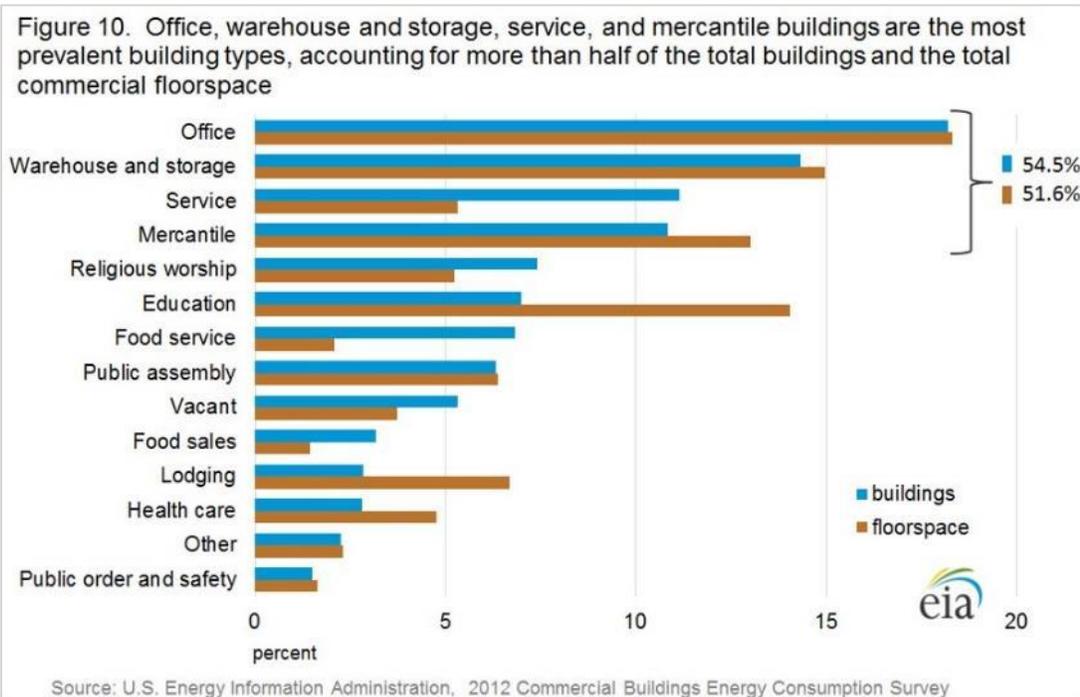
- The USA has 151,000+ public water systems
- All are regulated primarily by the [USEPA Safe Drinking Water Act](#)
- There are 102 contaminants in 6 classes:
 - Microorganisms
 - Disinfectants
 - Disinfection Byproducts
 - Inorganic Chemicals
 - Organic Chemicals
 - Radionuclides



Despite having a national drinking water quality standard, there is no such thing as a standard water supply system in the USA.



The Basics – Building Types

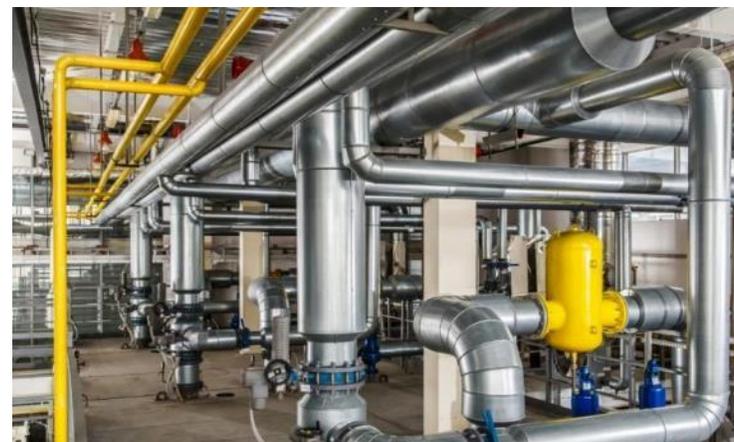


There are 5.6 million commercial buildings in the USA comprising 87 billion square feet (8.1 billion square meters) of floor space.

The Basics – Building Water Systems

- Laws, codes, and regulations vary
- No two buildings are alike
- Plumbing systems are complex
- There is no standard “checklist” for re-commissioning facilities

No comprehensive study has ever been done to understand the impact of prolonged closure upon building water supplies.



The Basics – Length of Closure



Many facilities have been closed or under-utilized for 4+ weeks.

The Basics – Summary

- 151,000+ different public water systems
- 5.6 million buildings (480,600 licensed plumbers)
- 87 billion square feet
- 102 primary and secondary contaminants
- Facilities closed for up to 4 weeks or more

- There is no standard “checklist” for re-commissioning facilities

- No comprehensive study has ever been done to understand the impact of prolonged closure upon building water supplies



What Happens to Water in Unoccupied Buildings?

- Disinfectant loss
- Metals corrosion
- Sediment collection and biofilm growth



Disinfectant Loss

Chlorine is the primary disinfectant

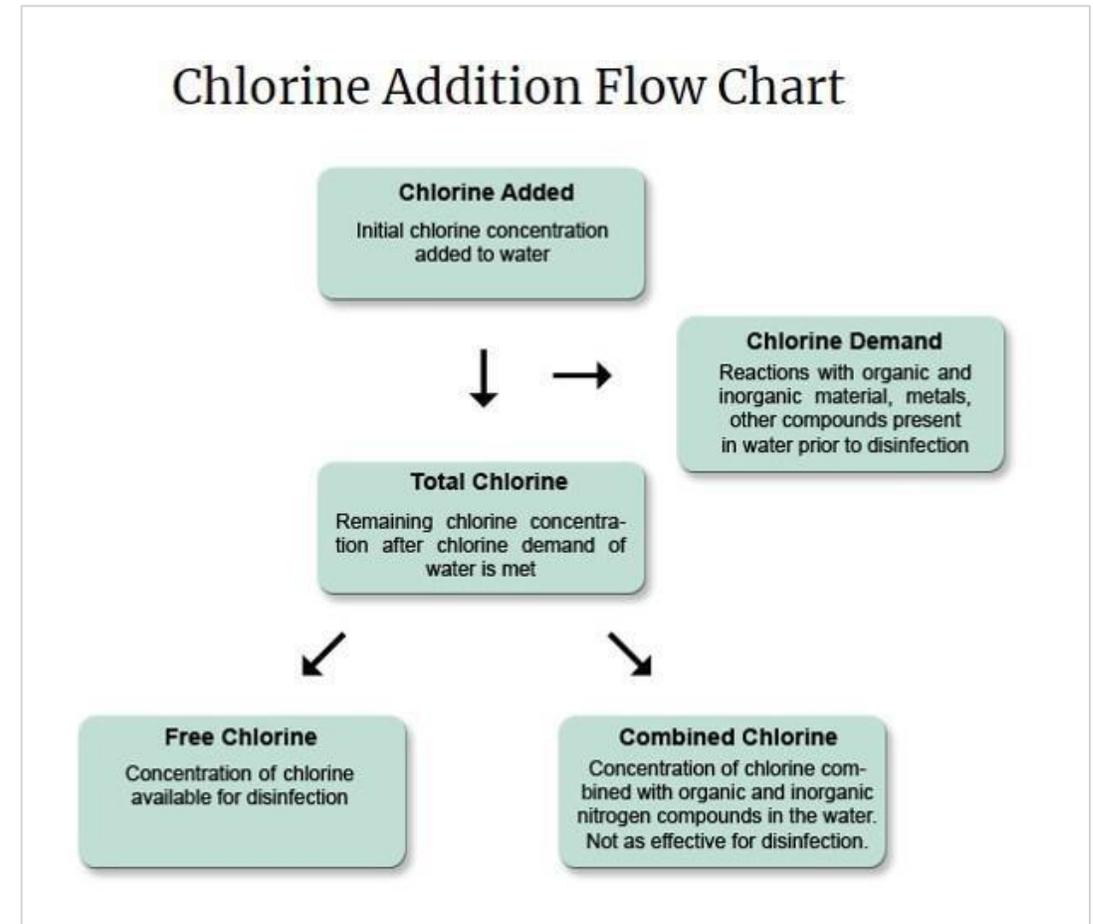
Unstable – reacts with contaminants, diminishes over time

5.0 to 1.0 ppm (parts per million) Free Chlorine desired

Est. time to diminish from 4.0 to 0.5 ppm:

- Galvanized piping systems – 1.5 days
- Unlined cast iron systems – 4.5 days
- PVS or lined cast iron systems – 10 to 14 days

Chlorine Addition Flow Chart



Source: US Centers for Disease Control

Consequences of Disinfectant Loss

OPPPs (Opportunistic Premise Plumbing Pathogens)

- Legionella pneumophila
- Pseudomonas Aeruginosa
- Mycobacterium avium

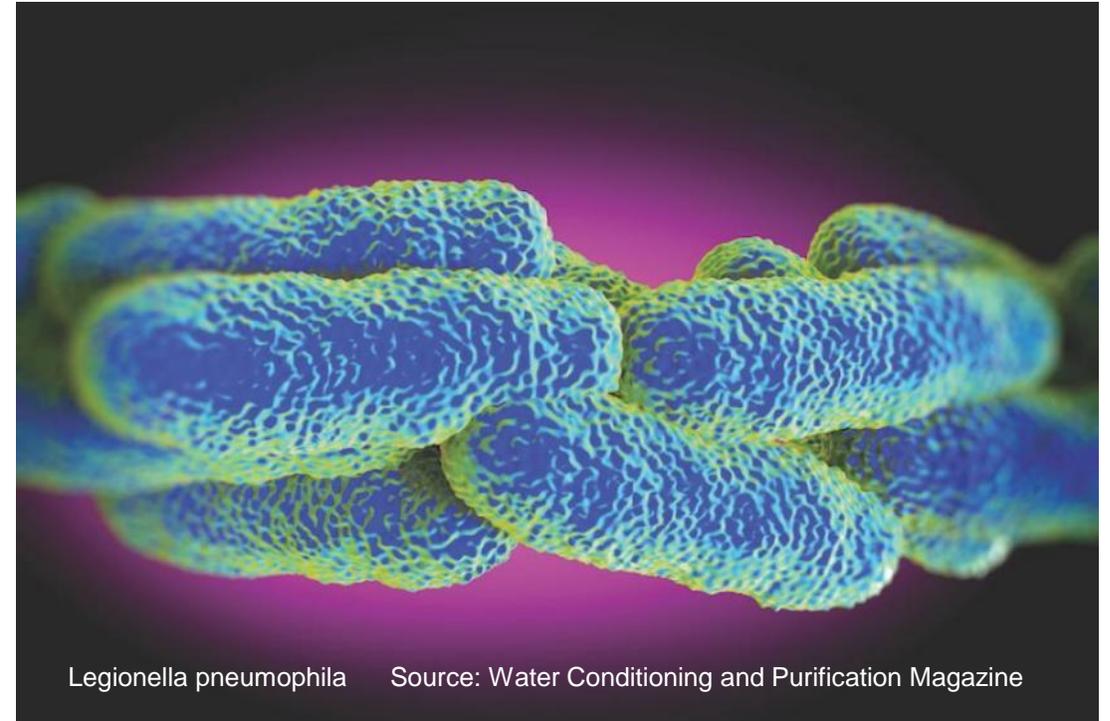
Legionella is the cause of Legionnaires Disease.

8,000 – 18,000 people are hospitalized every year in the USA.

Exposure occurs when people inhale water droplets containing the bacteria (aerosols).

Individuals at risk include:

- Persons 50 years or older
- Current or former smokers
- Persons with chronic lung disease
- Immuno-compromised individuals
- Mortality is 1 in 10



Legionella pneumophila

Source: Water Conditioning and Purification Magazine

Metals Corrosion

Lead is the main concern

Stable scale can become unstable during stagnation

0.5 ppb is the USEPA Maximum Contaminant Limit (MCL)

- Dwell time
- Lack of inhibitors (phosphates or silicates)
- Changes to pH/alkalinity



Sediment Collection and Biofilm Growth

- Increased chlorine demand
- Blocks key components
- Easier to prevent than to control



Source: Aquarius Water Conditioning

Source: Pharmig



Commercial Restroom Start-up

These items need to be addressed in the building distribution system **before** restrooms are opened for use:

- Disinfectant loss
- Metals corrosion
- Sediment and biofilm



Building Water System Start-up Guidance

[Recovering from COVID-19 Building Closures](#). AIHA 2020 Guidance Document (Prepared by Indoor Environmental Quality Committee of the American Industrial Hygiene Society).

[CDC – Coronavirus Disease 2019 - Guidance for Building Water Systems](#)

[Environmental Science, Policy & Research Institute \(ESPRI\) and AH Environmental Consultants, Inc., *Building Water Quality and Coronavirus: Flushing Guidance for Periods of Low or No Use*](#)

[Considerations for Large Building Water Quality after Extended Stagnation](#), Purdue University, April 8, 2020 Caitlin R. Proctor, William J. Rhoads, Tim Keane, Maryam Salehi, Kerry Hamilton, Kelsey J. Pieper, David M. Cwiertny, Michele Prévost, Andrew J. Whelton



Recovering from COVID-19 Building Closures

Guidance Document

aiha.org

Photo courtesy of Getty Images

Safety and Wellness Recommendations

- Updated best practices for workers in a COVID-19 environment can be found on the CDC website [HERE](#)
- Worker safety while flushing the buildings plumbing system must be considered. Initial flushes of stagnant water have the potential to release concentrations of chemical and microbiological contaminants. You can find guidance on worker safety for Legionella control and prevention on the [OSHA website](#)
- Creating a water management program to reduce the risk for Legionella is recommended. The CDC has a [toolkit](#) to help create and implement this type of program



Sinks - Design and Hygiene are Linked



Design Facilitates “Standard Precaution” Best Practices

- Supports proper hand hygiene
- Incorporates “touch-free” interaction
- Minimizes stagnant water supplies
- Minimizes potential injury or “slip and fall” risk
- Use is intuitive and enjoyable

Design Facilitates Proper Cleaning

- Minimizes hard-to-clean surfaces
- Utilizes resilient surface materials
- Does not require complex cleaning procedures
- Minimizes cleaning time
- Minimizes cleaning labor

Design Facilitates Proper Maintenance

- Materials support ease-of-repair
- Capable of quick on-site seamless repair
- Ease of access to key components
- Standardized components
- Common power supplies with back-up if required

COVID-19 Cleaning Guidance

For community facilities (schools, daycare centers, and business settings) that are visited by the general public

How to clean and disinfect hard (non-porous) surfaces:

- If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.
- For disinfection, most common EPA-registered household disinfectants should be effective.
 - A list of products that are EPA-approved for use against the virus that causes COVID-19 is available. Follow the manufacturer's instructions for all cleaning and disinfection products for concentration, application method and contact time, etc.



**CENTERS FOR DISEASE
CONTROL AND PREVENTION**

[Link to CDC
Cleaning Guidelines](#)

[Link to approved
Cleaning Products](#)

Flushometer Water Closets and Urinals

- Start at the water closets and urinals that are located farthest from the branch lines
- Flush the first water closet and/or urinal at least three times
- Each subsequent water closet/urinal after this first one need only be flushed twice
- If the urinal is an ultra-low flush volume (0.125-0.25 gpf), then flush 5-6 times each
- If sediment and biofilm dislodge and foul diaphragms and pistons, these may experience run-ons. Consult the appropriate Sloan [maintenance instructions](#)
- Contact Sloan [Tech Support](#) for additional assistance



Pressure Assisted and Tank Type Toilets

- Flush a pressure assist vessel a minimum of three times, allowing full setup/re-pressurization in between each flush
- Trouble-shooting information and videos can be found on the [Flushmate website](#)
- Tank type toilets located farthest from the branch lines should be flushed at least three times
- Each subsequent water closet after this first one need only be flushed twice
- Contact Sloan [Tech Support](#) for additional assistance



Faucets

- Automatic (sensor) faucets are easily flushed by placing a hand under the faucet for a minimum of 30 seconds
- Sprayheads should be removed after the flushing process, debris removed, and sanitized in a bleach solution or replaced
- Debris in the solenoid can cause run-ons. Consult the appropriate Sloan [maintenance instructions](#) if solenoid cleaning is required
- Many Sloan sensor faucets include a line flush feature that can be programmed to flush water at programmed intervals. The [Optima Smart Faucets](#) can be programmed wirelessly with the [SloanConnect smart phone app](#)
- Contact Sloan [Tech Support](#) for additional assistance



Faucets

- Sprayhead inserts and inlet filters should be removed after the flushing process, debris removed, and sanitized in a bleach solution or replaced
- Check if hardened soap residue is preventing full drainage



Source: Terry Love Plumbing



Source: A. Warnes

Showerheads

- Showers should be run at full opening (both hot and cold) for at least three minutes
- Contact Sloan [Tech Support](#) for additional assistance



Summary

- Start-up involves real risks
- Educate yourself:
 - Know best practices
 - Have a plan
 - Train your team
 - Bring proper PPE
 - Bring enough parts and supplies
 - Protect the public
- Rely on the experts
- Pursue recommendations from HVAC, fire equipment, pump, and other manufacturers



Upcoming Sloan Training Webinars



May 7th

Battery Truths and Myths



May 14th

Touch-Free Hygiene in
K-12 and Higher
Education Facilities



May 21st

Regal vs Sloan vs Royal



May 28th

PWT New Product
Launch



Thank You – Questions?

Training Comments, Questions, or Suggestions?

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