



WATERSAVER
SOLUTIONS

The H₂ROI people®

Protecting Spouts, Optimizing
Flow, & Preventing Infection:

Proper Fixture Flushing &
Management for Safer
Healthcare Environments





Gregory Paul

ASHRAE-188 Committee
Member, SSPC 400
Building Water System
Risk Management

Director of Business
Development for Water
Saver Solutions





A Team that's
100%
Committed
to Healthcare

Level 3 Water Audits
NPC-5 Guidelines
Departmental Mapping



Identify, Manage, &
Implement Projects
with Proven

ROI



Appeals to
Sustainability Initiatives
&
Infection Prevention



Keck Hospital of USC
Keck Medicine of USC

 KAISER PERMANENTE®

 UC Irvine Health

 **PROVIDENCE**
Health & Services

 LOMA LINDA UNIVERSITY
HEALTH

 Dignity Health®

 **CHOC** Children's

 UC San Diego
MEDICAL CENTER



Topics

- Regulations
- Protecting your Spouts
- Optimizing Flow
- Best Practices
- Documentation and Reporting



1. Regulations





JOINT COMMISSION STANDARD

EC.02.05.02 & PE.04.01.05

Water System Mapping & Risk Planning: An evaluation of patient populations identified patients who are immunocompromised.

Water Safety Plan-2025

EXAMPLE : 2.2 Evaluation of Patient Population

This plan was developed under the assumption that any and all individuals who may be exposed to the water systems at this facility may have a susceptible immune system and be more prone to illness than the general population. In healthcare environments, various types of care are often associated with patients who may be at greater risk than others for infection. Based on direction from hospital management and Infection Prevention, the following high-risk patient populations are known to receive care at buildings included in this Program:

- Adult Medicine
- Anti-coagulation Services
- Birthing Center
- Cancer Care
- Cardiology
- Emergency Services
- Gastroenterology





JOINT COMMISSION STANDARD

EC.02.05.02 & PE.04.01.05

Water System Mapping & Risk Planning:

- Adult Medicine
- Anti-coagulation Services
- Birthing Center
- Cancer Care
- Cardiology
- Emergency Services
- Gastroenterology





Aerators Create
Fine Droplets



Aerated vs. Laminar Flow

What are the Differences?

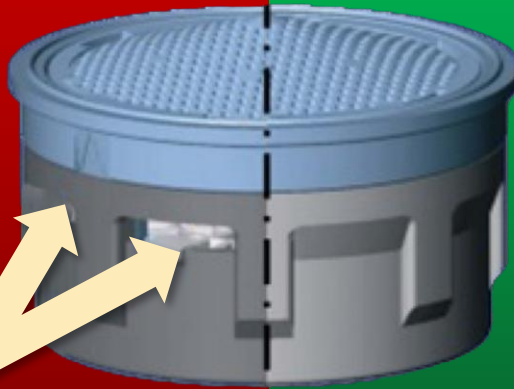
Aerated



Residential,
Institutional, and
Commercial

Air Inlets

Dark
Gray



Light
Gray

Laminar



Healthcare

HCAI Compliance

210.0

- H -

Handwashing Fixture [OSHPD 1, 2, 3 & 4]. Handwash fixtures consist of faucet, trim and sink as described:

(1). Faucets and Trim

Faucets shall not be equipped with an aerator but may be equipped with non-aerating laminar flow device.

- b. Sensor operated fixtures shall be capable of functioning during loss of normal power.

Sinks in hand-washing fixtures shall be designed and installed to prevent splashing outside of the sink.

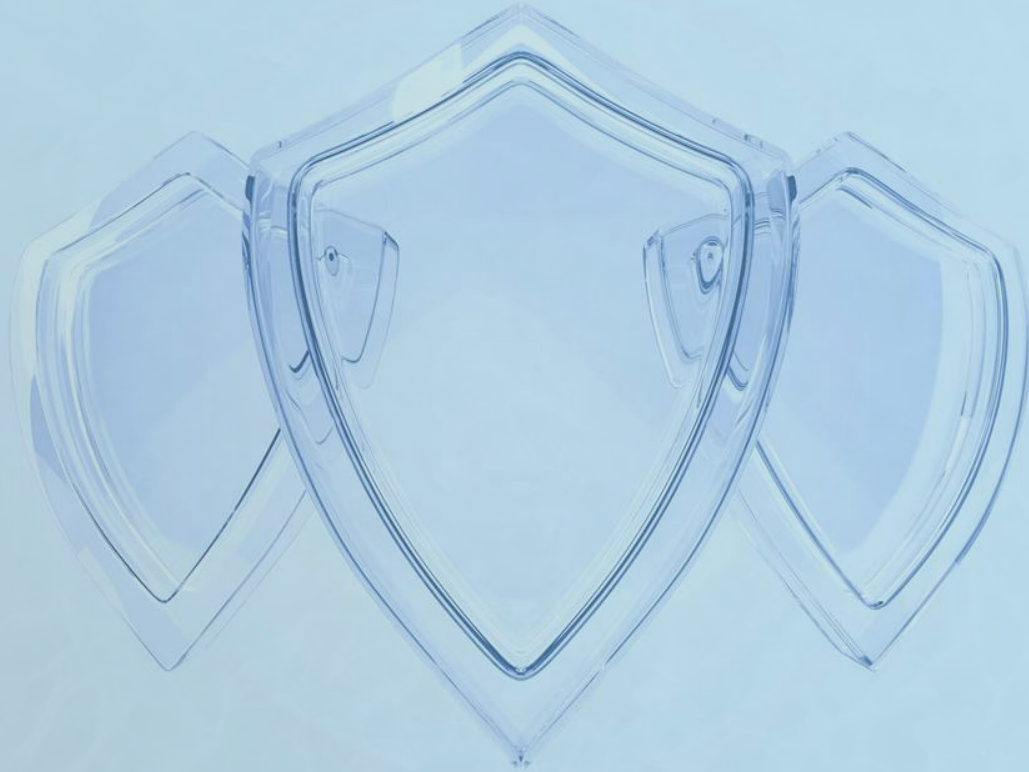
so the discharge point of the spout return is at least 5 inches (127 mm) above the fixture rim.

(2) Sinks

- a. ***Sinks in hand-washing fixtures shall be designed and installed to prevent splashing outside of the sink.***
- b. Sinks shall have well-fitted and sealed basins to prevent water leaks onto or into the cabinetry or wall spaces.



2. Protecting Spouts





flow, stop and go®

Part of the FixtureCare Program



FIXTURECARE

Care that reduces biofilm®

Visit [FixtureCare.com](https://www.FixtureCare.com)



About Your Spout

When water on the inside surface and exterior of the spout dries, it builds up a layer of scale that feeds the growth of biofilm.

Contamination can also come from back splashes from liquids poured into the lavatory.





Unprotected Spouts
develop scale that encourages biofilm





**Better spouts
are needed!**



Unrestricted Flow

What does unrestricted flow give you?

- Pooling sink basins/
improper drainage
- Cross contamination
by splashing
- Slip and falls



Benefits of a Protected Spout (With Laminar Flow Control)

The stream is quiet
and adequate for proper
hand washing

No air added to the
water stream

Prevents scaling inside
the spout







3. Optimizing Flow



Our Recommendation

“The EPA Max”

1.2 (CA) – 1.5 GPM, and 2.2 GPM
where dialysis is performed or
more flow is needed



4. Best Practices





**Reactive
Measures**



Proactive Measures = Proper Maintenance

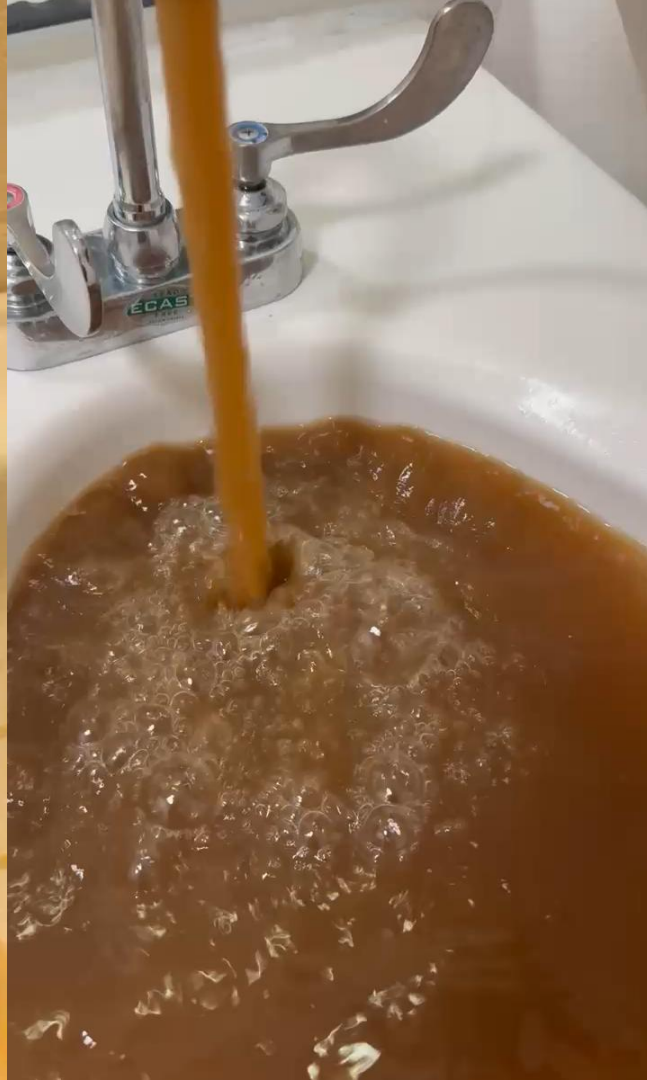
- Remove scale / sediment
- Remove any aerators
- Cycle angle stops
- Properly flush with flow control removed
- Weekly flushing of eyewash stations and emergency showers
- Clear sediment and brackish water
- Document all water control points





Super
Flush





Super
Flush



A blue-tinted photograph of a shower stall. The walls and floor are covered in square tiles. A handheld showerhead with a flexible hose is lying on the floor. The text "Best Management Practices for Showers" is overlaid in a bright green color.

Best Management Practices for Showers



Medi-Shower™

Part of the FixtureCare Program



FIXTURECARE

Care that reduces biofilm®

Visit [FixtureCare.com](https://www.fixturecare.com)

Poor Showerhead Practice





Good Showerhead Practice



The Medi-Shower Solution

Medi-Shower™ is a patented system designed for healthcare facilities. Both the Handheld and Globe wall mounted models include an antimicrobial additive to protect the product.

Medi-Shower™ System Includes:

- Shower Handle
- Hose
- Shower Head Insert
- Maintenance keys to change Shower Head Inserts



5. Documentation & Reporting



ASHRAE Standard 188-2021 – Legionellosis: Risk Management for Building Water Systems

7.1.2 System Maintenance. The Program documents shall call for

- a. inspection of, and inspection schedule for, water-containing vessels and system components
- b. flushing or mixing of stagnant or low-flow areas;
- c. maintenance and monitoring procedures based on equipment manufacturers' instructions for cleaning, disinfection, replacement of system, components, and other treatments the Program Team decides are necessary for the following:
 - 6. Shower heads and hoses
 - 7. Electronic faucets
 - 8. Aerators
 - 9. Faucet flow restrictors



ASHRAE Standard 188-2021 – Legionellosis: Risk Management for Building Water Systems

7.1.2 System Maintenance. The Program documents shall call for

- a. inspection of, and inspection schedule for, water-containing vessels and system components
- b. **flushing or mixing** of stagnant or low-flow areas;
- c. **maintenance and monitoring** procedures based on equipment manufacturers' instructions for cleaning, disinfection, replacement of system, components, and other treatments the Program Team decides are necessary for the following:
 - 6. **Shower heads and hoses**
 - 7. **Electronic faucets**
 - 8. **Aerators**
 - 9. **Faucet flow restrictors**



Documenting Your Maintenance



FixtureCare Maintenance Report

5. Infection Prevention

Hospital		Total Count 270
Aerators Removed		High buildup addressed
3		367
MOB 3		Total Count 45
Aerators Removed		High buildup addressed
0		45



Annual Service Keeps Fixtures Operating Properly

Buildup
Removed

Aerator
Replaced

2022

393

0

2023

348

0

2024

312

3

Site A

Buildup
Removed

Aerator
Replaced

2022

169

0

2023

Deferred

Deferred

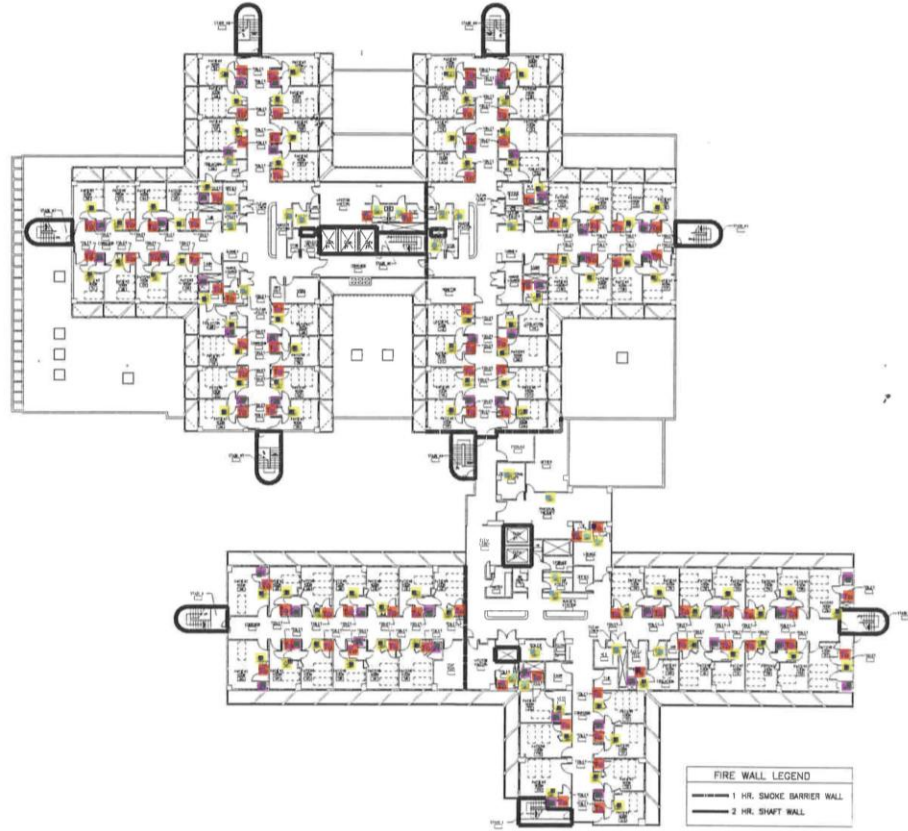
2024

351

6

Site B





THIRD FLOOR PLAN

DATE
PROJECT NO.
DRAWN
CHECKED
DATE
REVISIONS

OVERVIEW AND USE OF PLANS
THIS SET OF PLANS IS TO BE USED FOR THE
DESIGN AND CONSTRUCTION OF THE
ORANGE COAST MEMORIAL MEDICAL CENTER
AND IS NOT TO BE USED FOR ANY OTHER
PURPOSE. THE PLANS ARE THE PROPERTY
OF ALEXANDER & BURNS, INC. AND ARE
NOT TO BE REPRODUCED OR COPIED
WITHOUT THE WRITTEN PERMISSION OF
ALEXANDER & BURNS, INC.

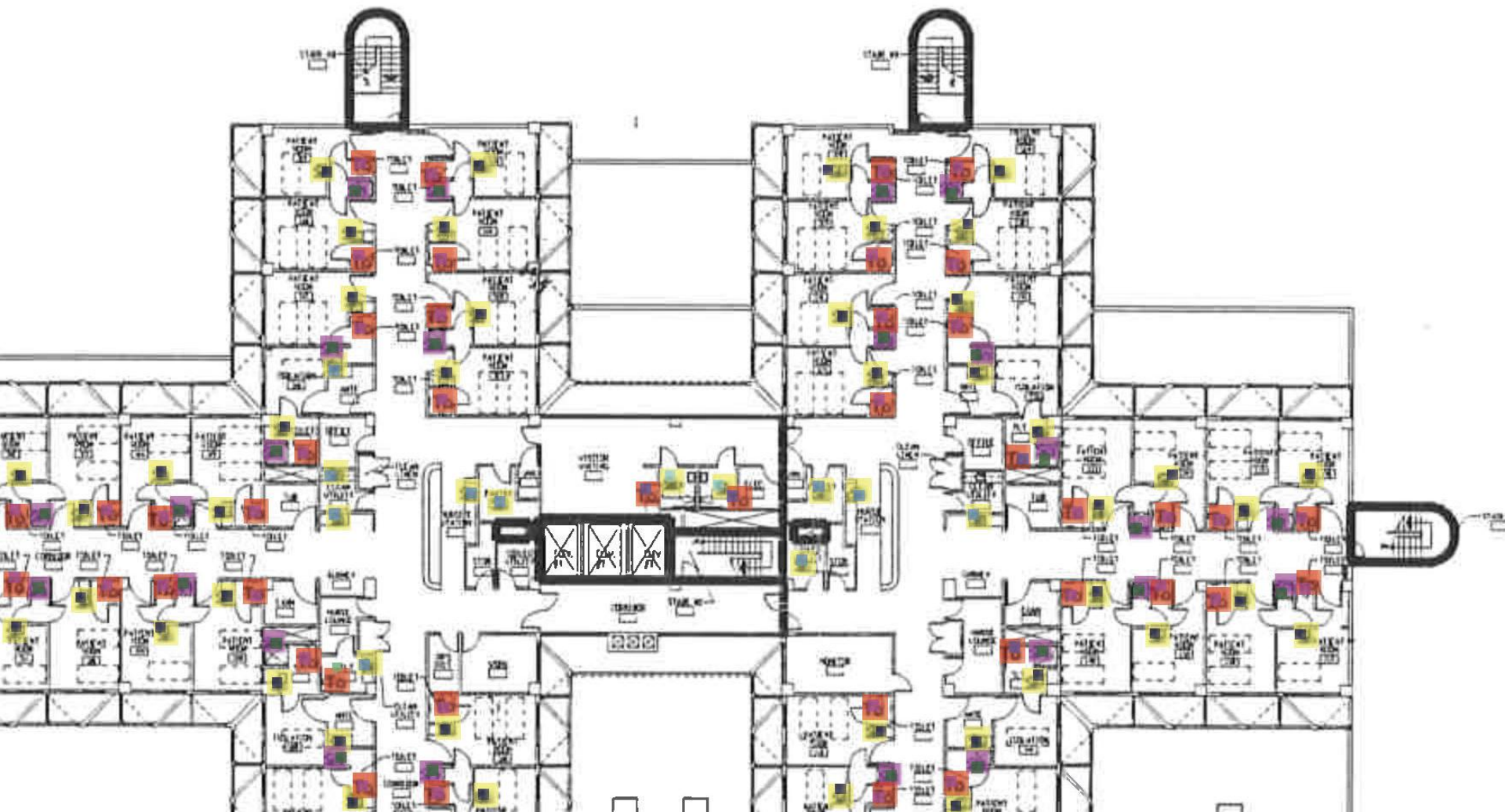


ORANGE COAST
MEMORIAL
MEDICAL CENTER

9920 Talbert Avenue, Fountain Valley, CA 92708



Alexander & Burns, Inc.
Architecture and Planning
1000 S. Orange Ave. # 200
Fountain Valley, CA 92708
(714) 941-1000







Frequently Asked Questions



Faucet & Shower Flow Control

By Chuck Bragdon, Water Saver Solutions, Inc.

What is the difference between an aerator and laminar?

They look the same but have differences in their water stream. An aerator pulls air into the stream, making a swishing sound, filling the water stream with air and potentially bacteria from the surrounding environment. A laminar is a non-aerated clear stream, safer for the healthcare environment.

Why does a spout need a laminar?

A spout with no laminar causes unneeded splashing and poor draining of the sink basin. Laminars provide an optimal flow rate and protect the spout end from calcium growing inside when the water is turned off and air dries the residual water. With a laminar, the spout remains full of water when off, therefore providing wall disinfection all the time.



Faucet & Shower Flow Control

By Chuck Bragdon, Water Saver Solutions, Inc.

Why are spouts without threads not preferred?

Without threads a laminar cannot be installed to protect the spout end. Also, a Point-of-Use (POU) filter cannot be installed should the need arise for bacteria risk reduction.

Why are faucets with flow control devices in the spout base not preferred?

If sediment collects in the base flow control device, it will require removing the spout to clean.

What is the best practice for proper flushing?

Proper flushing can only be done with the flow control device, such as the laminar, removed. This will allow a high enough flow rate to clear the pipes of any sediment and discolored water. Hot and cold lines should be fully opened for at least 30 seconds or until discoloration is cleared



Faucet & Shower Flow Control

By Chuck Bragdon, Water Saver Solutions, Inc.

My hot water delivery at faucets takes too long, what can I do?

Interesting fact, there is not a published time for hot water to reach temperature. The requirement states it must reach temperature within an acceptable time. Test your hot water delivery time first thing in the morning without a flow control device and record it. Next morning retest with flow control and record the time. The lack of temperature within an acceptable time may not be due to flow control but an issue with your hot water loop. If found the delivery time with flow control is not acceptable, you can always upsize the GPM of the device. There must be an acceptable balance.

Do flow control devices effect pressure?

No, pressure remains constant within a pipe. You may see very little pressure drop due to friction of water flowing through the flow control device.

Do flow control devices need cleaning?

Yes, regular cleaning of faucet laminars and shower heads as per manufacturers' recommendations should be part of your Legionella Water Management Plan. Cleaning and removal of sediment, calcium and lime should be done.



Faucet & Shower Flow Control

By Chuck Bragdon, Water Saver Solutions, Inc.

What are the best management practices for handheld shower head storage?

Let the shower heads hang without stowing on a holder at least 6" from the shower basin. This will allow draining of all water, and it will not stagnate in the shower hose loop.

Why are massage or adjustable type shower heads not recommended?

They have pockets not being used until selected where water can potentially stagnate. Non-adjustable heads are recommended.

What does ASHRAE 188 state for Preventive Maintenance (PM) on fixtures?

Paragraph 7.1.2 System Maintenance. The program documents shall include procedures for the flushing of low flow areas; the maintenance and monitoring procedures based on equipment manufacturers' recommendations for the flushing, cleaning, and disinfection of faucets and shower heads.

