

A background image showing a microscopic view of plant cells, likely from a leaf, with a blue color cast. The cells are arranged in a grid-like pattern, with some cells being more prominent than others. The overall tone is a light, airy blue.

Plumbing Code Changes and Healthcare

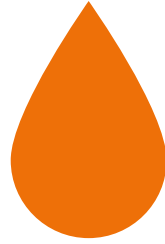
Presenters:

Bruce Meiners

Tony Ramos



Plumbing Code changes to Healthcare



Water management plan gaps and findings



Re-evaluation of existing Infrastructure

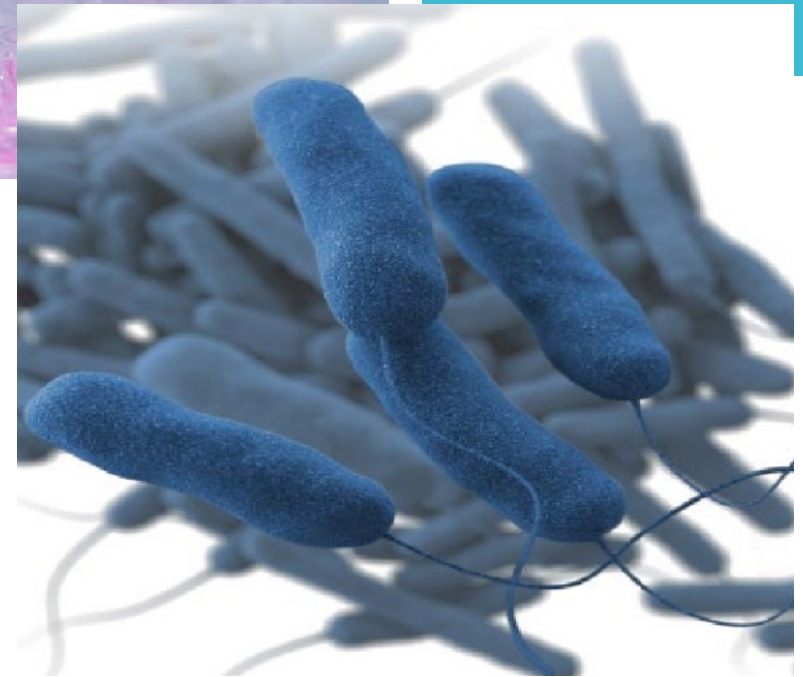
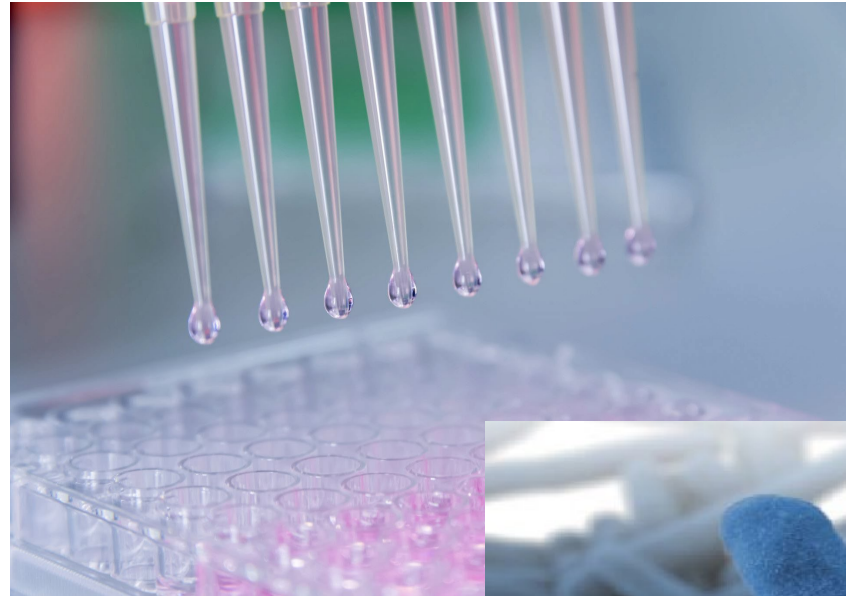
OBJECTIVES

Bruce Meiners

Legionella Industrial Hygienist

Bureau of Communicable Diseases

Division of Public Health, Wisconsin
Department of Health Services



Tony Ramos

Master Plumber and Commercial
Plumbing Inspector

Day school Instructor with Plumbers
Local 75

Certified Cross Connection Control
Instructor



Many of the changes in our *Plumbing Code* were based on *Water Quality* and *Management Plans* not only for new facilities but also for existing infrastructure.

Fixture types and Equipment

Pipe Sizing for Distribution and Flushing

System Designs and Installation

Temperature and Disinfection Methods

Water Management and Preventive Maintenance

Wisconsin
Plumbing
Code
Oct. 1st 2023

SPS382.50(2)(b)1.b. Spouts shall have laminar flow in facilities listed in par. [\(3\) \(b\)](#).



SPS 382.50(2)(b)2.

b. Single lever faucet handles may be used in lieu of wrist blades.

c. In lavatories with **self-closing faucets** accessible to patients, **the flow of the hot water shall be calculated to evacuate the water distribution piping** from the faucet to the recirculated hot water supply.

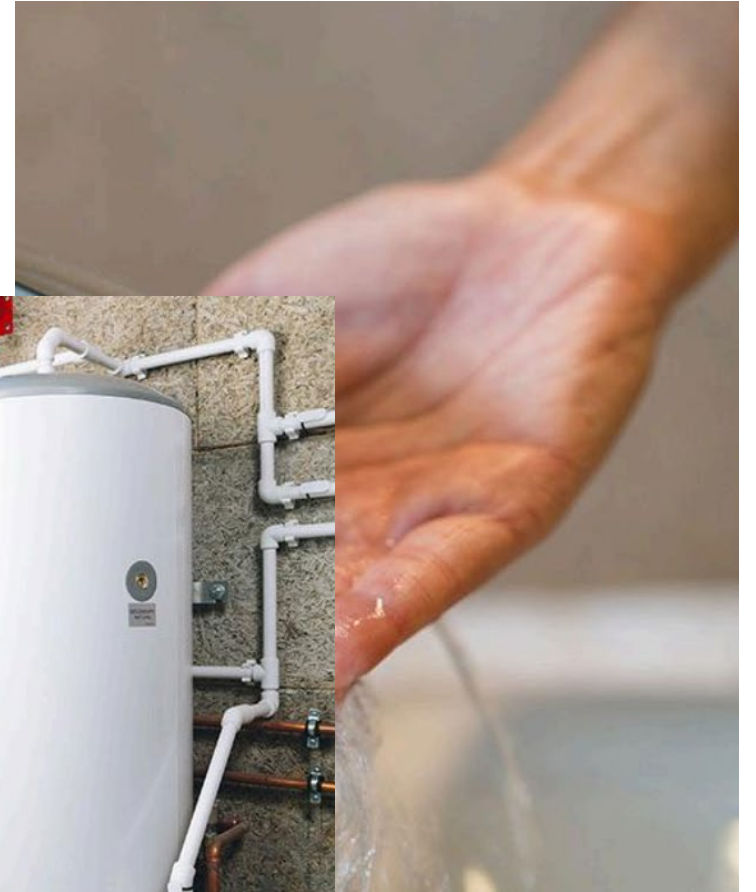


Laminar flow delivers a clear and non-splashing stream without adding air to the water stream.



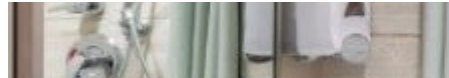
SPS 382.50(3)(ag) Health care facilities. Hot and cold water shall be provided to all sinks accessible to patients and comply with all of the following:
Hot water shall be initiated and stored at a minimum of 140°F.

The maximum temperature to fixture fitting outlets accessible to patients may not exceed 115°F.

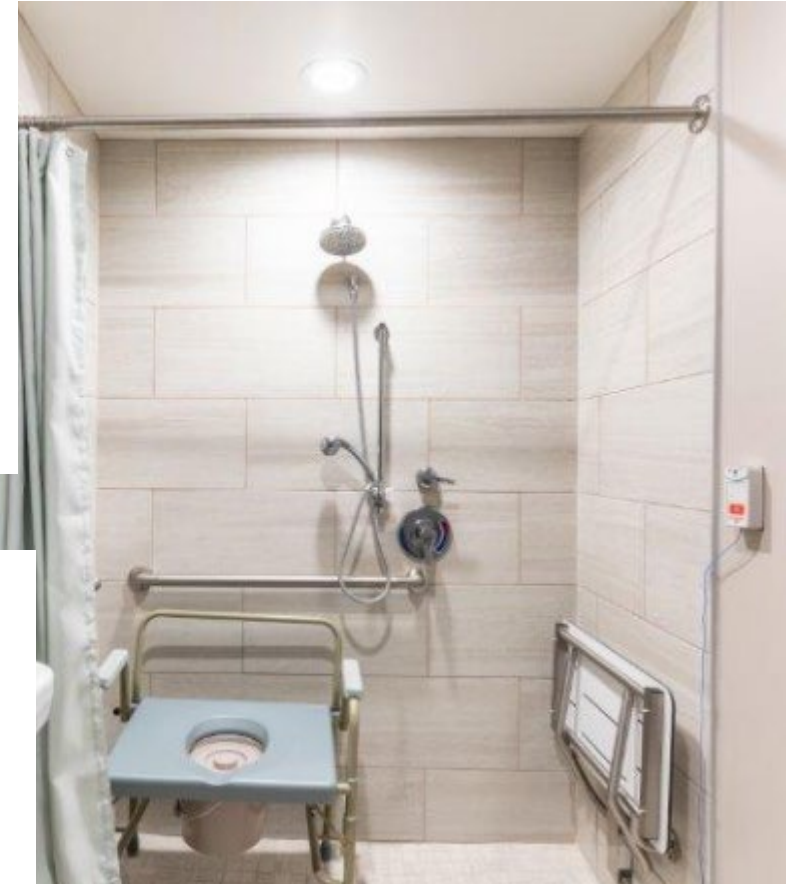


SPS 382.50(3)(b) *Hospital, community-based residential facility, inpatient hospice and nursing home water supply systems.*

4. A hot water distribution system shall be under constant recirculation to provide continuous hot water at each hot water outlet, **except that when using thermal disinfection, under subd. 6. a. uncirculated hot water distribution piping may not exceed 3 feet in developed length.**



SPS 382.50(3)(b)7m. **The use of limit stops in faucets or shower or tub mixing valves to achieve a maximum temperature of 115°F is prohibited.**



SPS 382.50(3)(b)5. Water provided to patient showers, therapeutic equipment and all types of baths shall be installed with **pressure balanced** and **thermostatically controlled** control valves...



With limiting stops becoming prohibited to achieve the max allowed temperature, the use of the ASSE 1016, 1017, and 1070 will increase.

6. Hot water distribution systems may not include a heat recovery system, and shall be installed and maintained to provide disinfection by one of the following methods:

a. Water stored and circulation initiated at a minimum of 140°F and with a return of a minimum of 124°F.



A dynamic image of water splashing and bubbling, with a teal vertical bar on the left side of the slide.

be. **.5 mg/L residual chlorine.**

bm. **Chloramine.**

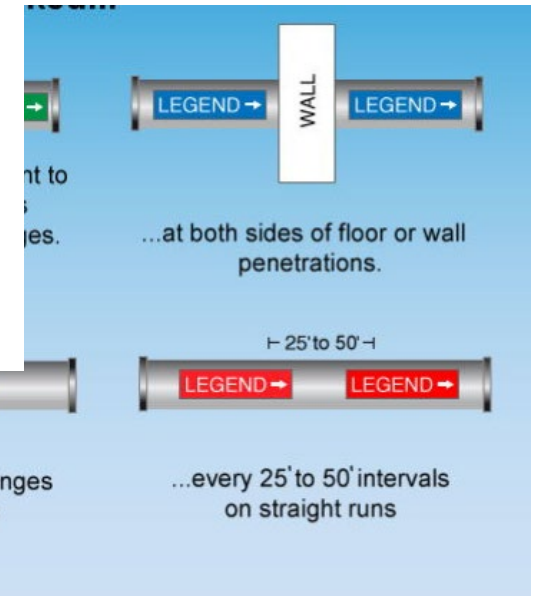
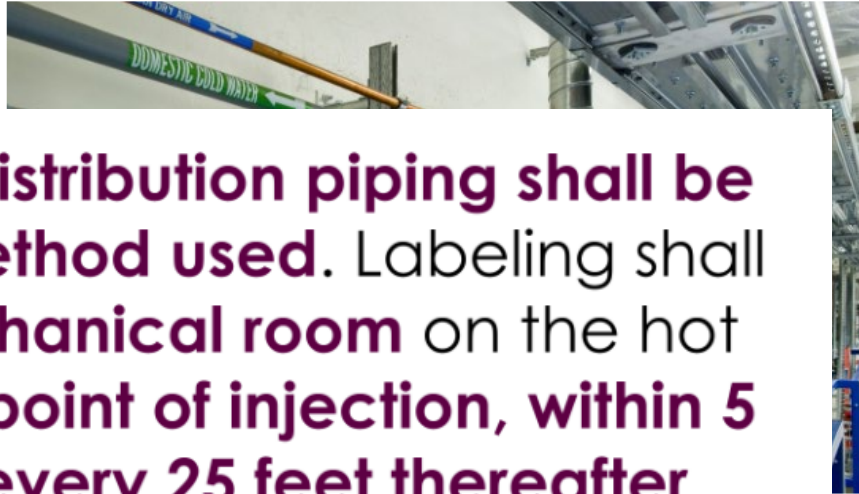
bs. **Chlorine dioxide.**

c. Another disinfection method approved by the department or **using disinfectant provided by the municipality with an approved minimum residual disinfectant concentration at all points and individual site approval by the department.**

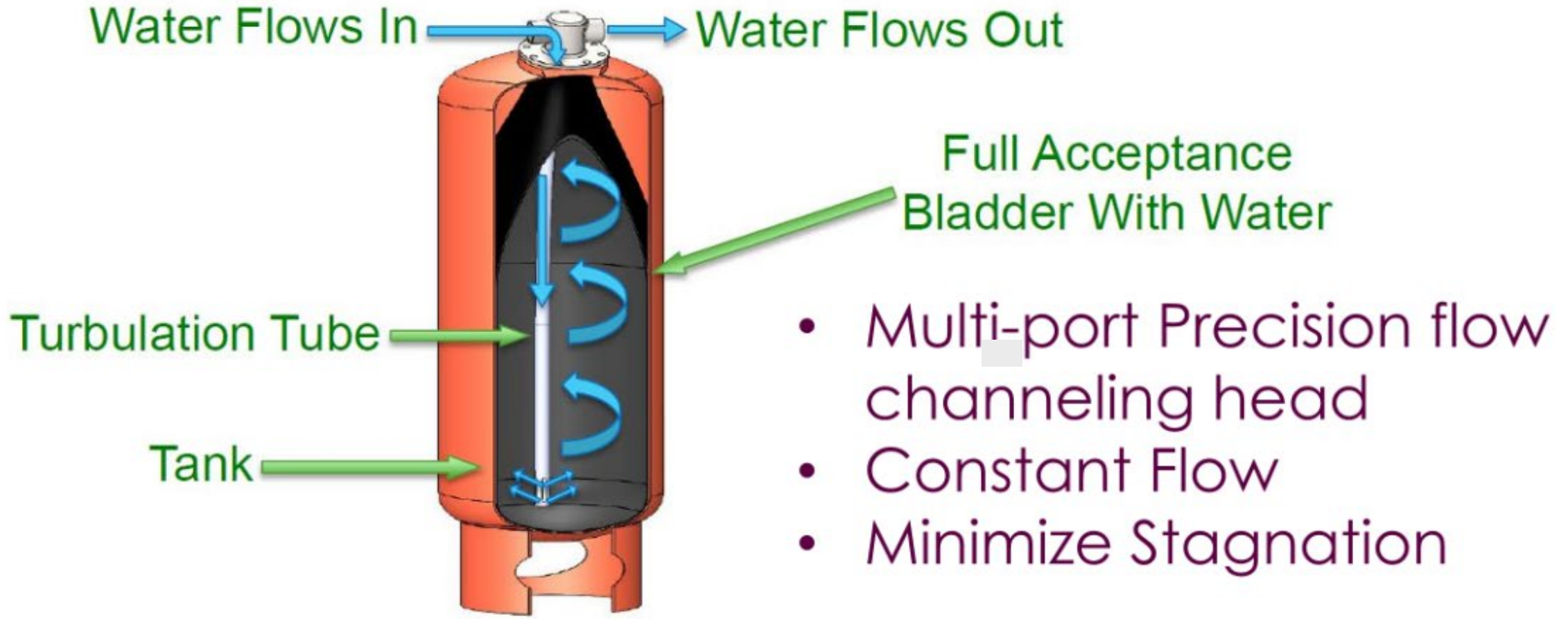
Updated Wisconsin Plumbing Code

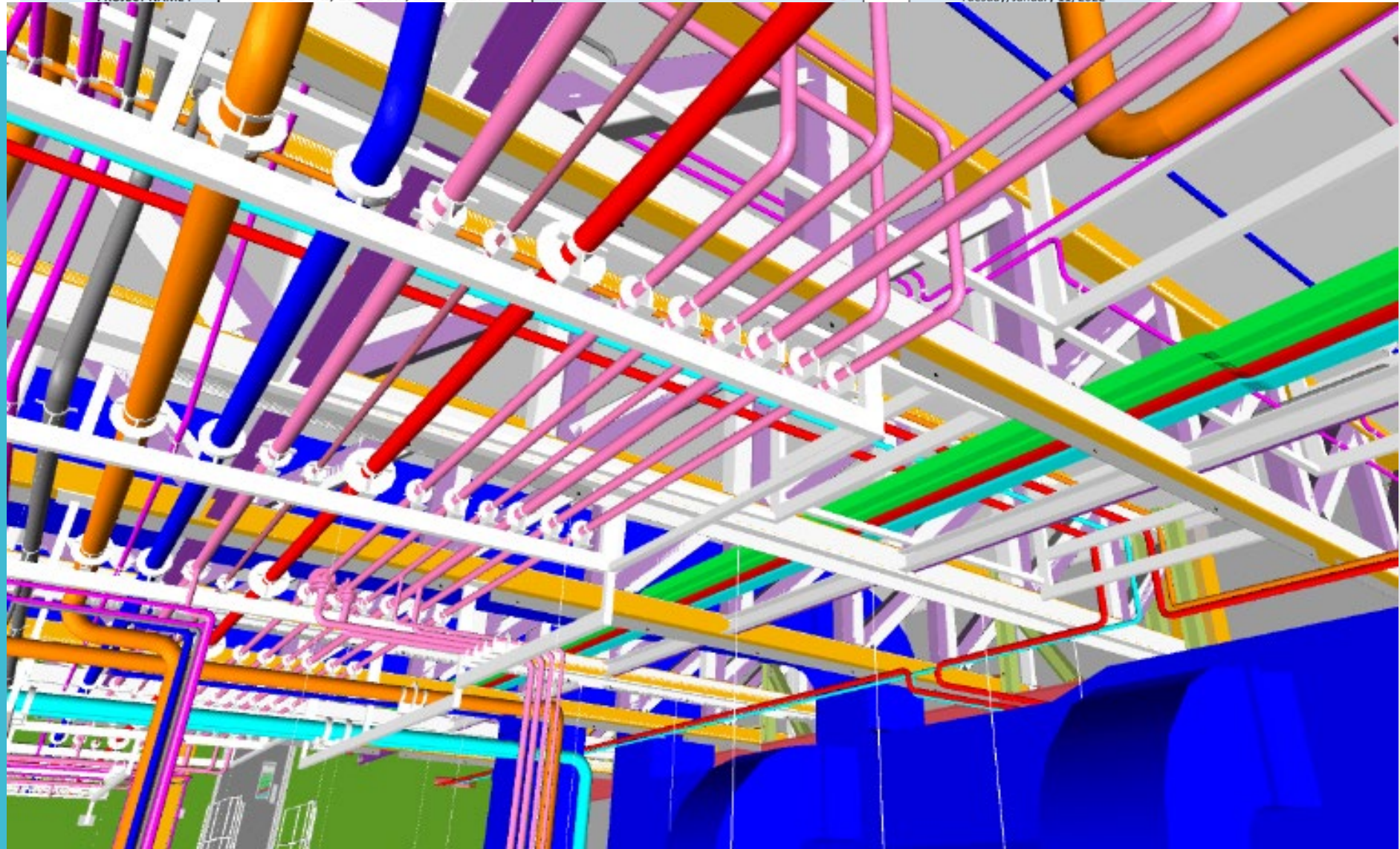
SPS 382.50(3)(b) 10. Any portion of the **water distribution system terminating** by means of a plug, cap, or closed fitting and dry downstream with no outlet within the water distribution system **may not exceed 6 pipe diameters.**

SPS 382.50(3)(b) 12. Hot water distribution piping shall be labeled with the disinfection method used. Labeling shall be **within the water heater mechanical room** on the hot water distribution piping **at the point of injection, within 5 feet of the injection point**, and **every 25 feet thereafter** within the mechanical room. The **interior of all doors serving the mechanical room shall be labeled with the disinfection method.** All label lettering shall be at least 1/2 inch height in clearly readable letters.



How Does It Work ?





Pipe sizing For Distribution and Flushing



Water Management Plans

SPS 382.50(3)(b) 13. Facilities with a population exceeding 250 occupants shall have a water management plan.



SPS 382.50(3)(b) 13

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This should be for all health care regardless of building population.

This should be part of the commissioning process of all buildings.

Legionella

Legionella can become a public health problem in man-made water systems!





About *Legionella*
and Associated
Diseases

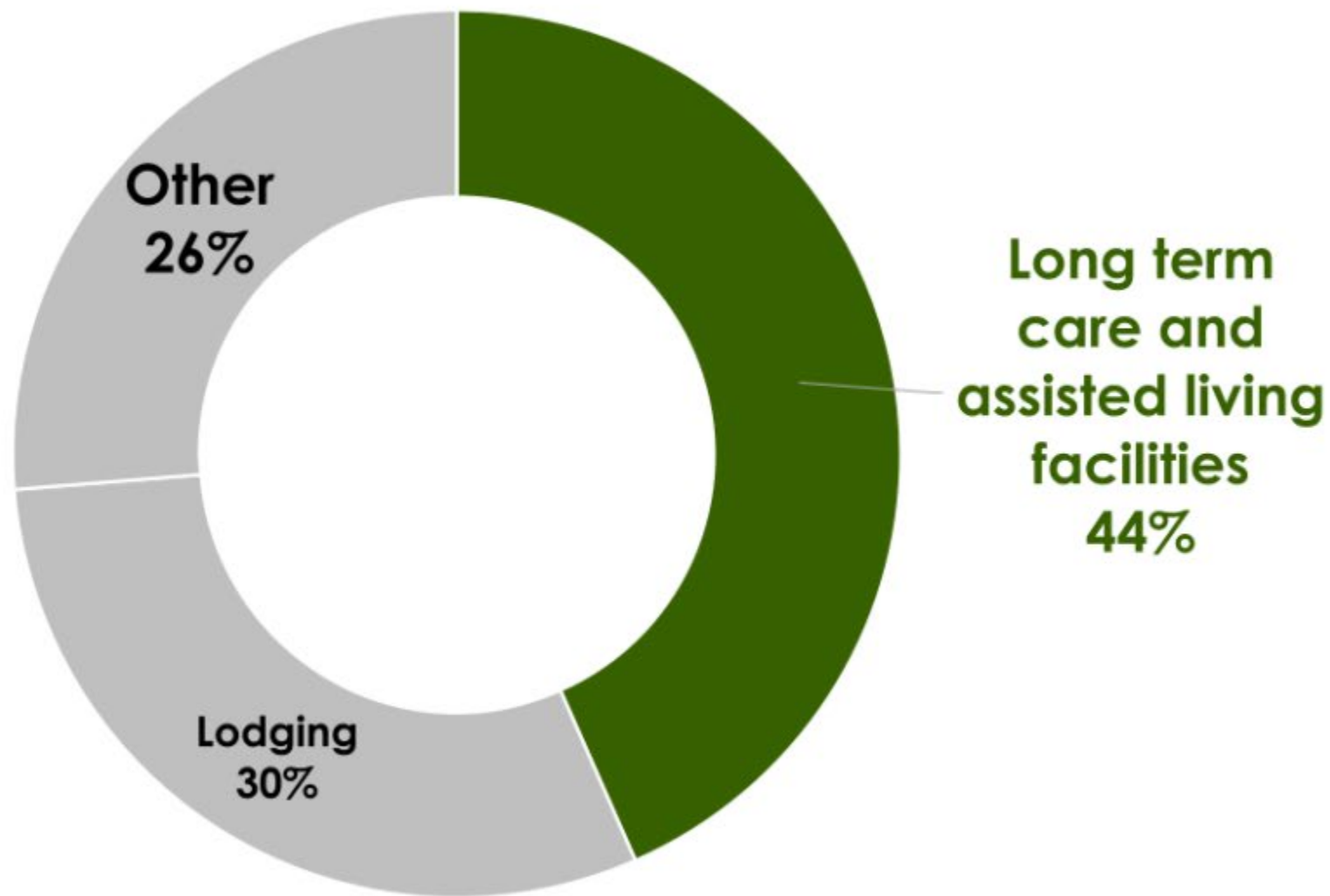


**Factors that Lead to
Legionella Growth
and Spread**



Preventing
Legionella Growth
and Spread

Nearly half of *Legionella* outbreak investigations are at **long-term care facilities.**



Data from 2016 to 2022



About *Legionella*
and Associated
Diseases



**Factors that Lead to
Legionella Growth
and Spread**



Preventing
Legionella Growth
and Spread

How it Spreads

Legionnaires' Disease

10% of cases will die from the illness but increases to greater than **25%** in health care-associated infections.



“Biofilm control minimizes microbiologically influenced corrosion and the potential for *Legionella* to be present, and generally improves water quality within buildings.”

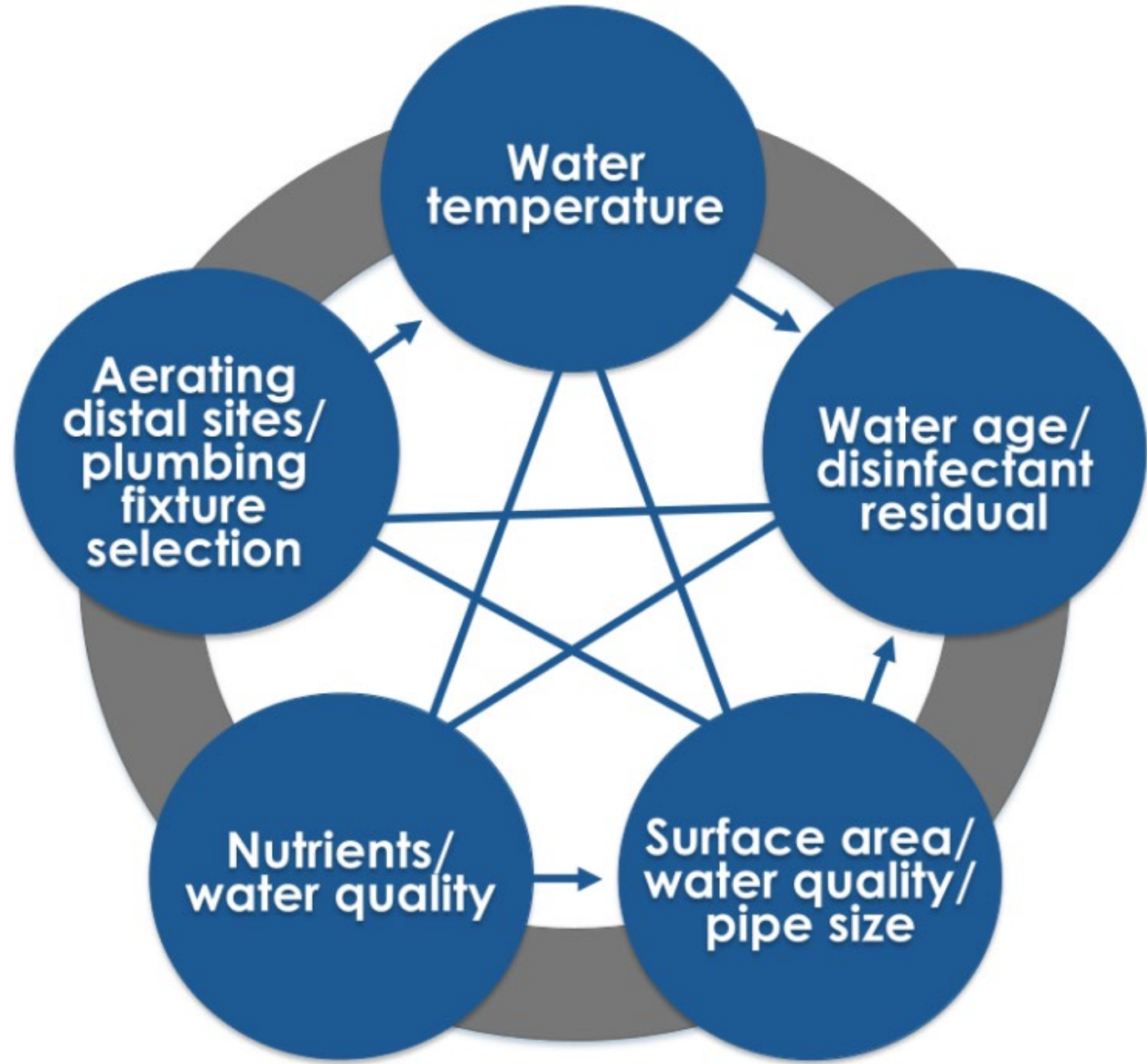
–Andrew D. Jacque, Ph.D., P.E.
Chief Scientist, Founder
Water Quality Investigations

“Water Quality Investigations generally finds that a system with a *Legionella* positive test has a biofilm issue that is not properly managed.”

–Andrew D. Jacque, Ph.D., P.E.
Chief Scientist, Founder
Water Quality Investigations

When you obtain a *Legionella* positive test, it is usually a symptom of a larger problem.

Contributing Factors for *Legionella* Cases





About *Legionella*
and Associated
Diseases

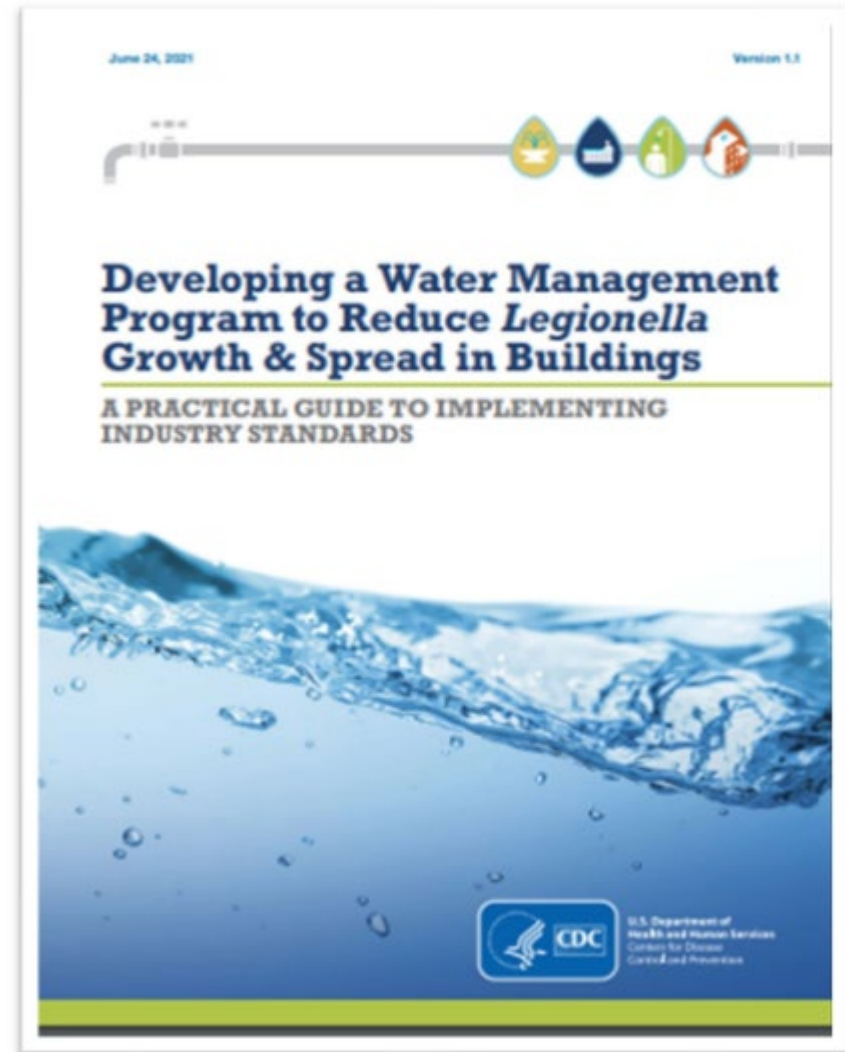
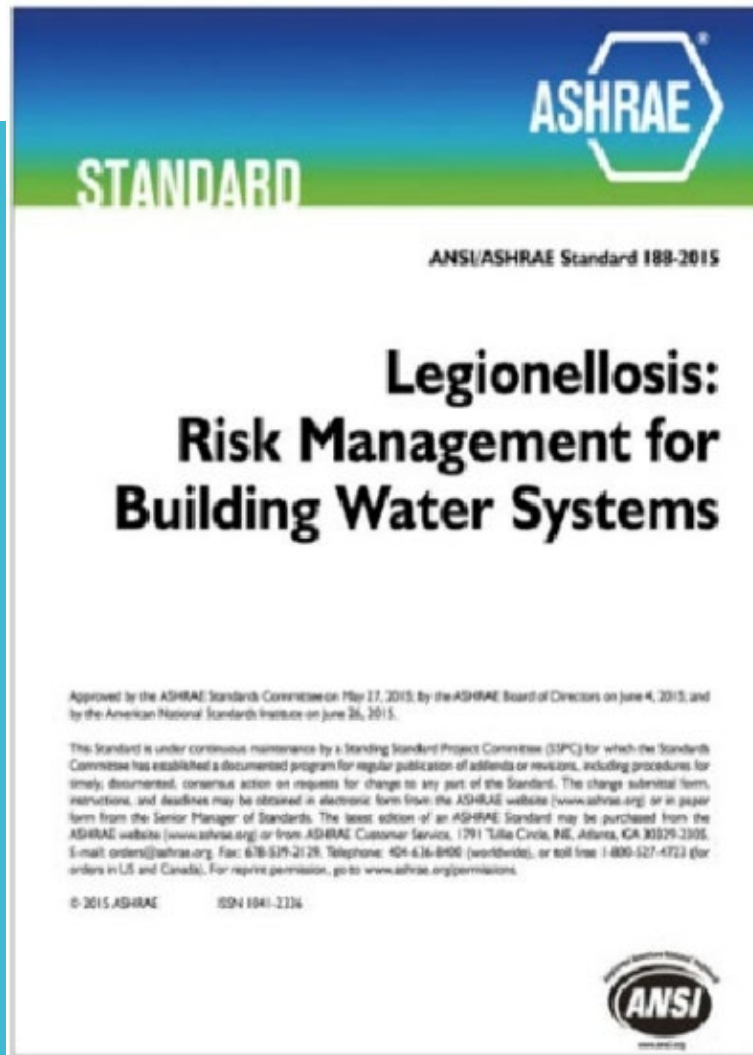


**Factors that Lead to
Legionella Growth
and Spread**



Preventing
Legionella Growth
and Spread

National Standards- ASHRAE Standard 188



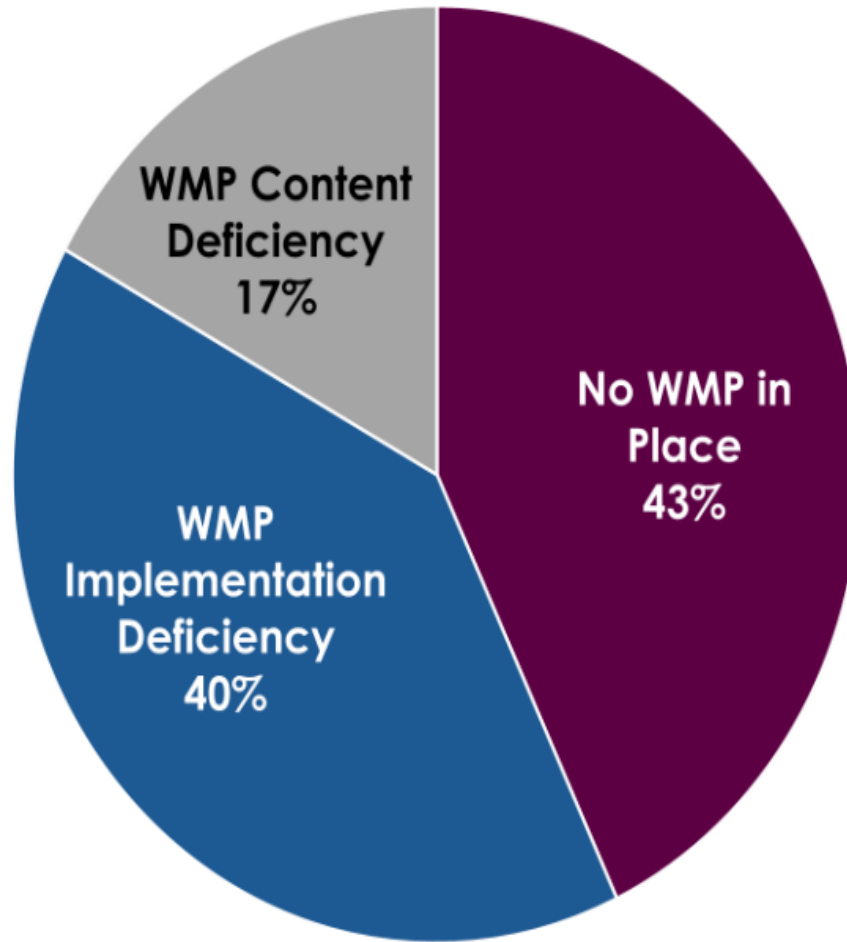
What is a Water Management Program?

Water
Management
Plan (WMP)
Gaps



A risk management plan for the **prevention and control of legionellosis** associated with building water systems.

Water Management Plan (WMP) Gaps



In CDC investigated outbreaks during **2015-2019**, most water management plan deficiencies were due to **missing** or **improperly implemented** water management plans.

General Rules for *Legionella* Prevention



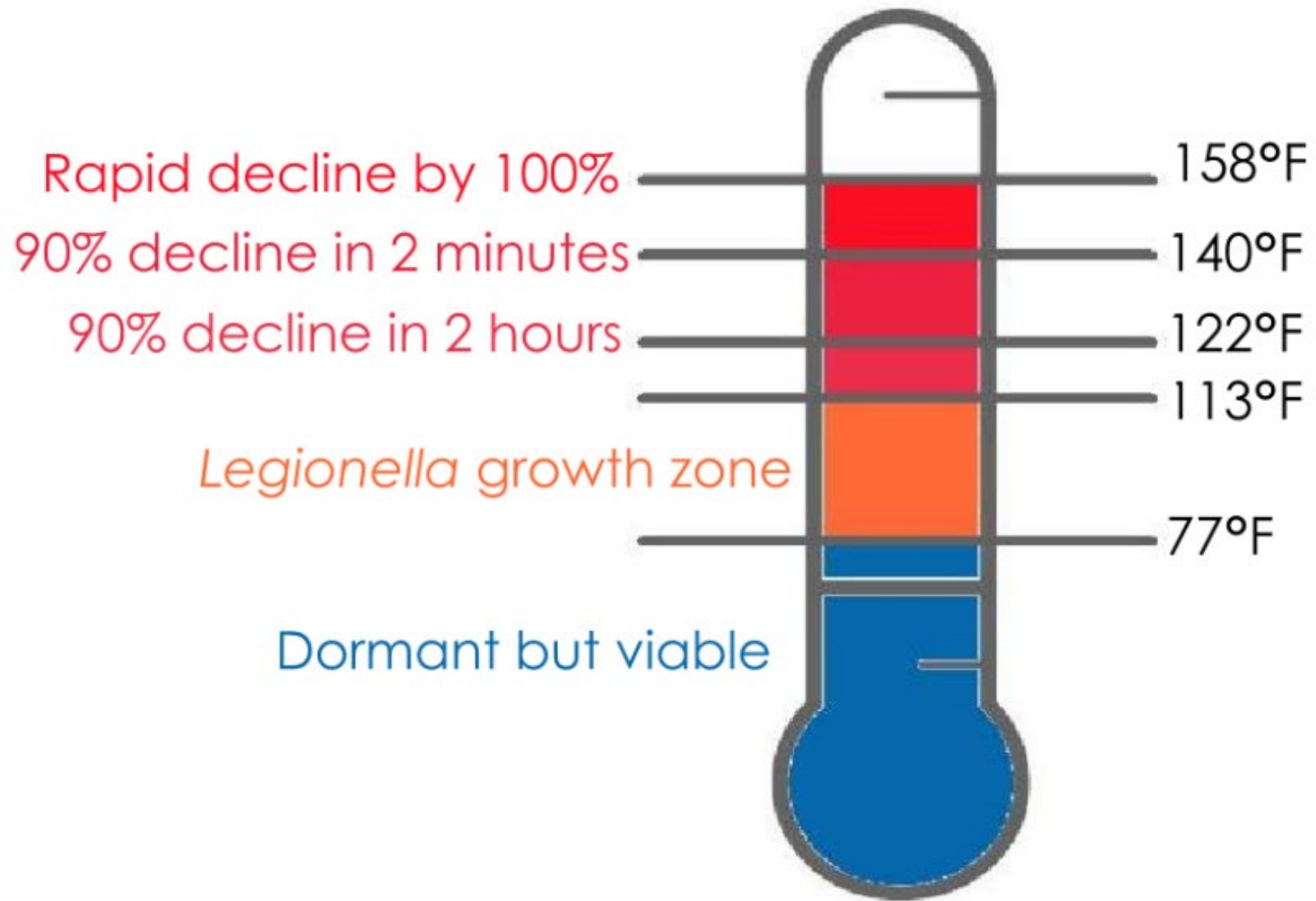
Keep **hot** water **hot**.



Keep **cold** water **cold**.



Keep water **moving**.



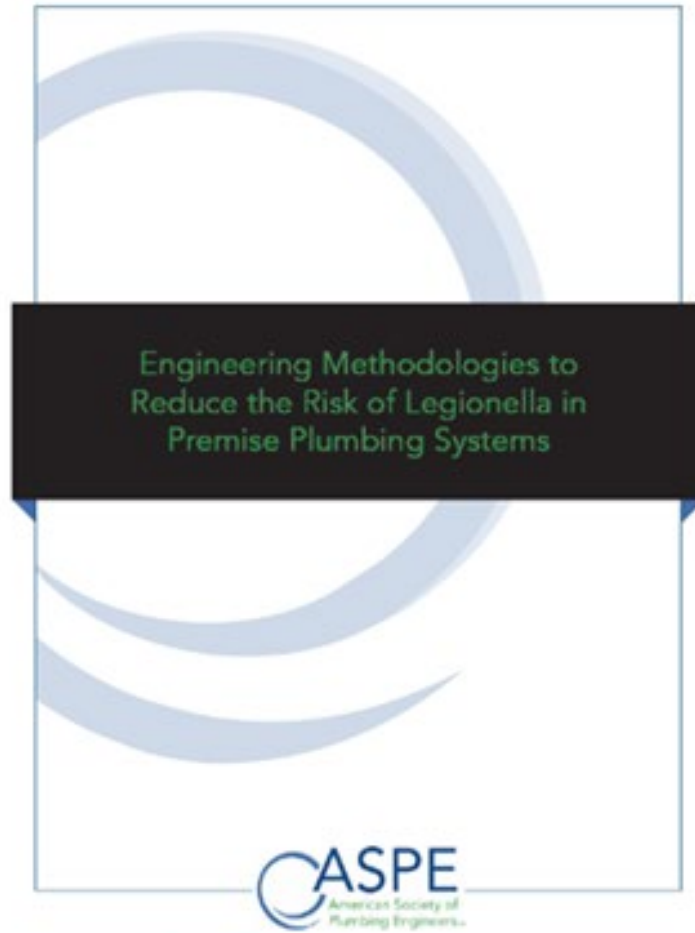
Anti-scald regulations

Prevent *Legionella*



Hot Water Dilemma...

Resources for *Legionella* Elimination



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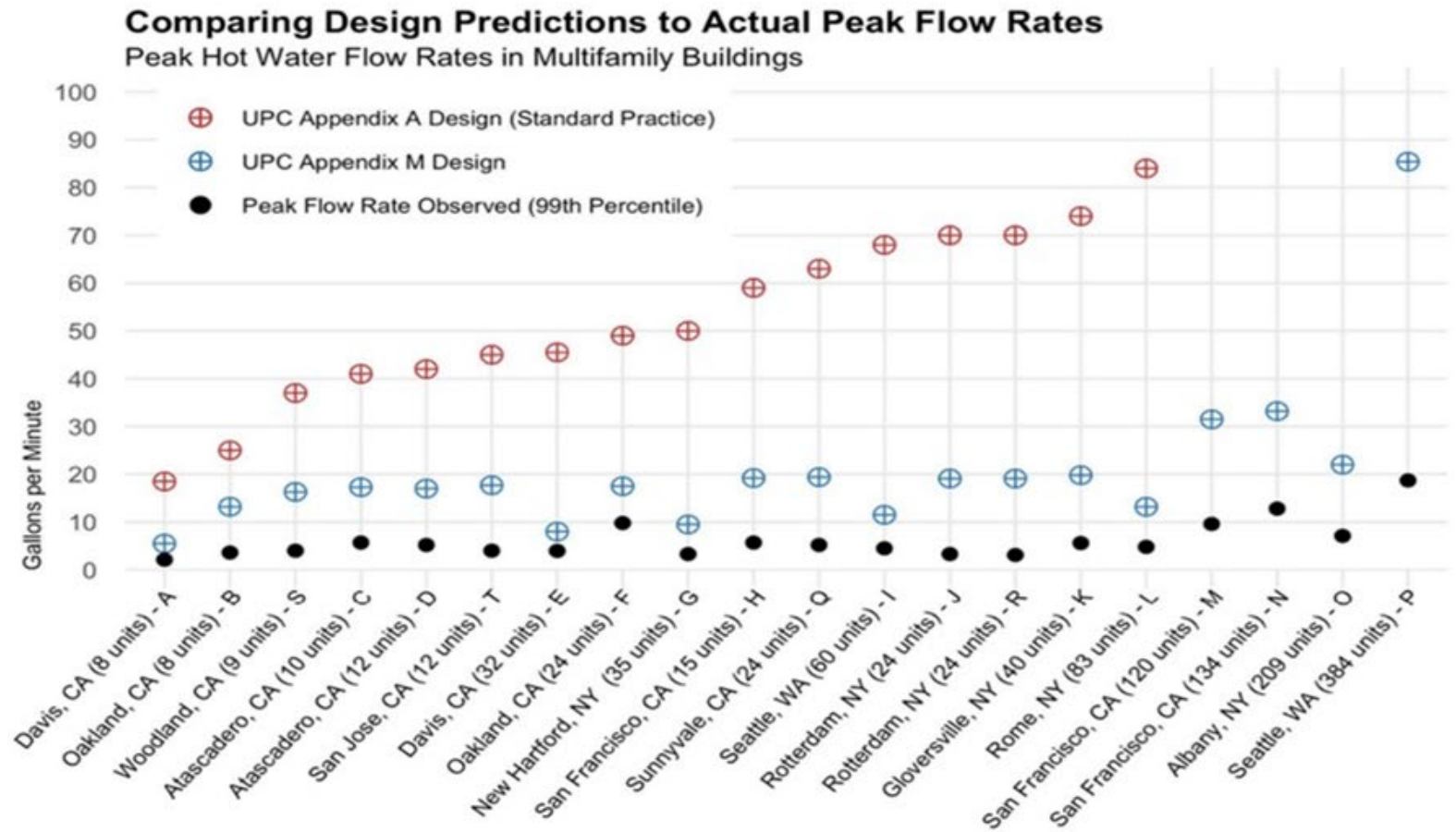
Source: ASPE



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Right Size the Plumbing

Water Demand Calculator



Many thanks to the Association for Energy Affordability, Ecotope, Frontier Energy, Peter Skinner, and the UC Davis Western Cooling Efficiency Center for providing data.

Source: ASPE

Questions?

