Is Your Water Management Program in Alignment

April 23, 2026

Introduction

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Learning Objectives

- Evaluate Program Alignment With Current Standards
- Define & Implement Effective Program Controls
- Apply Data Driven Decision Making to Maintain Compliance

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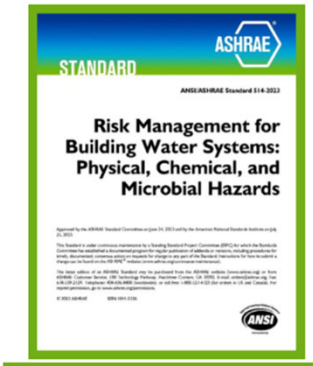
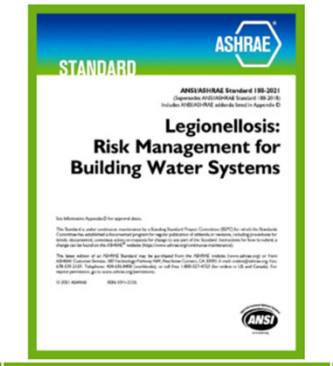
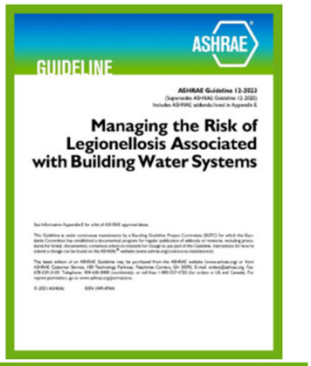
Business & Regulatory Drivers



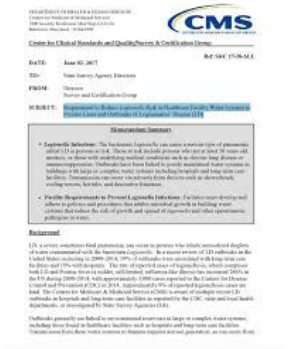
ASHRAE STANDARD 514

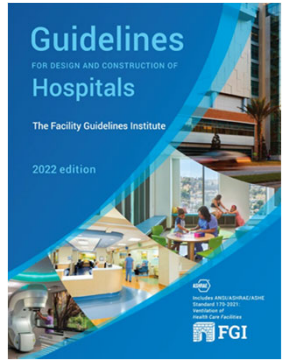


ASHRAE STANDARD 188



ASHRAE GUIDELINE 12





7 Steps of a Water Management Program

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Water Management Team

- Executive Leadership (authority and resources)
- Facilities / Engineering (design and maintenance)
- Clinical Staff (observation and detection)

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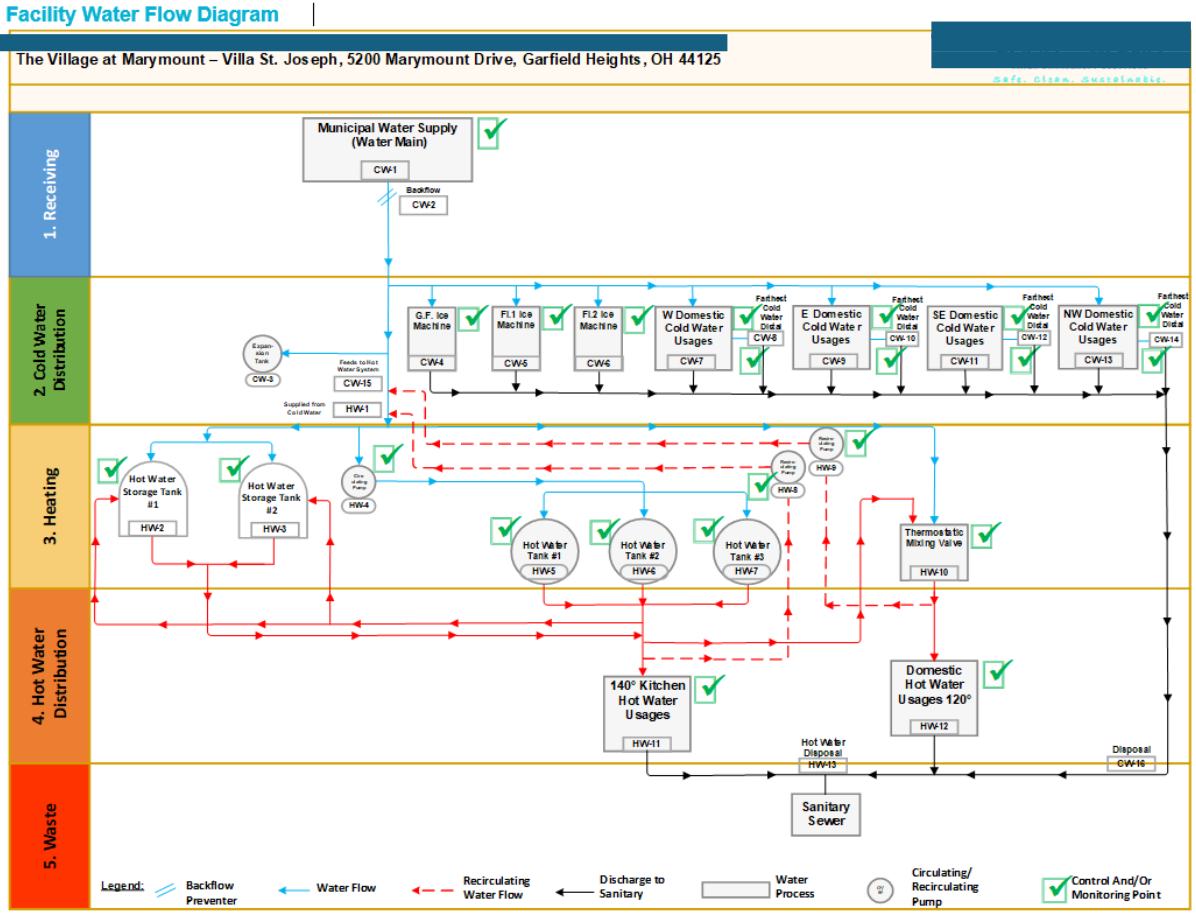
Water Systems Description and Flow Diagram

6.6. Facility Water Flow Diagram



Control Locations, Limits, Corrective Actions

PROCESS POINT	COMPONENT NAME	CONTROL LOCATION	MONITORING LOCATION	LOG SHEET REFERENCE	HAZARD
HW-10	Thermostatic Mixing Valve	Yes	Yes	Page 3	*Legionella* can proliferate in hot water systems if sufficient temperatures are not maintained. Thermostatic mixing valves (TMV) are designed to temper the hot water supply to reduce temperatures for scald prevention. Tempered water has ideal temperatures for *Legionella* growth. *Legionella* growth in hot water systems has been widely documented.
HW-11 HW-12	Hot Water Usages (Distal)	No	Yes	Page 3	*Legionella* can grow and spread in sink, tub, and shower fixtures and aerators. Supply lines can also be compromised due to low flow areas in the system and temperature decreases. *Legionella* transmissions can occur via aerosolization or aspiration. The risk potential for *legionella* is high due to low or no disinfectant and water tempering.
HW-4 HW-8 HW-9	Circulating Pump/ Recirculation Pumps	Yes	Yes	Page 3	Circulation pumps increase pressure throughout the water system to continuously provide near supply temperature water to all endpoints (fixtures). Water quality will deteriorate if these pumps fail or are turned off due to reduced disinfectant residual and the inability of water to return to the hot water supply.
HW-13	Sanitary Sewer	No	No	N/A	Transmission from drains is not likely because the water is not consumed. Aerosolization may occur when water from a fixture contacts the drain and/or cover, but the aerosol will be minimal and the exposure risk will be less than from the fixture itself. *Legionella* can also grow in drain lines, but again the risk of exposure is low.

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Examples of Program Controls

- Flushing Protocols / EVS
- Temperature Monitoring
- Filter Changes / Ice Machine PM
- Construction

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Verification

- The initial and ongoing confirmation that your water management program is being implemented as you designed it.
- Quarterly reviews of program controls with documentation that they have been completed.

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Validation & Defensibility

- Any and all *Legionella* = potential risk
- Any *Legionella* detection should trigger action
- Testing is a tool to validate program effectiveness
- Use testing data to make changes to program controls and to drive team decisions
- **Defensibility comes from response + documentation**

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Where Risk Exists in Buildings

Highest-risk areas:

- Hot water tanks and recirculation loops
- Low-use fixtures and dead legs
- Showers and aerators
- Storage tanks and decorative water features
- Ice Machines
- Hot Tubs / Jetted Tubs
- Cooling Towers

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Common Gaps in Water Management Programs

- No clear ownership of tasks
- Incomplete or outdated system analysis
- Risk matrix not tied to real-world risk (ICRA)
- Poor documentation
- No validation of effectiveness
- No tracking or trending of data
- Inaccurate or no program controls

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Goals of Managing Water in Sterile Processing – AAMI ST108

- **Minimize risk** of adverse patient outcomes arising from contaminated medical instrumentation
- **Prolong the life** of processing equipment and medical instrumentation
- **Operate efficiently** reducing rejection rates, OR downtime, and unnecessary equipment purchases
- ST108 outlines creating a water management program for sterile processing specifically, with testing to validate program effectiveness and identify water quality issues that need addressed.

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Resources

- ODH/OEPA Recommendations for Unoccupied to Partially Occupied Buildings for Flushing and Disinfection to Reduce Legionella Growth https://odh.ohio.gov/wps/portal/gov/odh/know-our-programs/legionella-environmental/media/unoccupied-building-recommendations
- ANSI/ASHRAE 188-2021 Legionellosis: Risk Management for Building Water Systems
- ASHRAE 12-2020 Managing the Risk of Legionellosis Associated with Building Water Systems
- ASHRAE 514-2023 Risk Management for Building Water Systems: Physical, Chemical, and Microbial Hazards
- CMS Ref: S&C QSO 17-30-Hospitals/CAHs/NHs revised 2018: “Requirement to Reduce Legionella Risk in Healthcare Facility Water Systems to Prevent Cases and Outbreaks of Legionnaire’s Disease” revised 2018
- The Joint Commission EC.02.05.02 EP 1-4 revised 1-2022
- ACHC Accreditation Requirements for Acute Care Hospitals 2023
- CDC Tool Kit: Developing a Water Management Program to Reduce Legionella Growth and Spread in Buildings https://www.cdc.gov/legionella/wmp/toolkit/index.html

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