

# ANSI/ASHRAE Standard 188-2015

## Legionellosis: Risk Management for Building Water Systems

### PURPOSE

ASHRAE Standard 188 is essential for anyone involved in design, construction, installation, commissioning, operation, maintenance, and service of centralized building water systems and components. Its purpose is to establish minimum *Legionellosis* risk management requirements for building water systems.

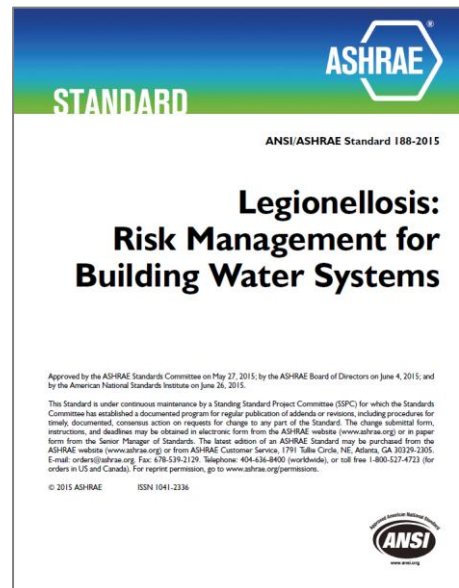
ASHRAE Standard 188 applies to almost every type of building (excluding single-family residential buildings) and requires building owners and managers to establish a Water Management Program (“*Program*”). In addition, the *Program* is a continuous process that requires review at minimum once a year.

### PROGRAM REQUIREMENTS

**ASHRAE Standard 188 does not provide (or place restrictions on) what specific strategies are to be used or applied to comply with the requirements of the standard.** Recommendations and guidance on the design, maintenance, and operation of building water systems are provided in ASHRAE Guideline 12, *minimizing the Risk of Legionellosis Associated with Building Water Systems*. Guideline 12 describes specific management and control strategies such as recommended water treatment and temperature, system operation and maintenance and other strategies that can be implemented to reduce risk.

Elements of a *Program* are described and must include:

1. **Program Team** - Establishment of a program team who shall be responsible for developing and implementing the *Program*.
2. **Describe Water Systems & Flow Diagrams** - Describe the potable and non-potable water systems and develop simple water system schematic (not engineered drawings).
3. **Analysis of Building Water Systems** – Evaluate where hazardous conditions may occur and determine where control measures can be applied.
4. **Control Measures & Limits** – Determine locations where control measures with defined limits must be applied and maintained.
5. **Monitoring & Corrective Action** - Establish procedures for monitoring whether control measures are operating within established limits and, if not, take corrective action
6. **Confirmation** - Establish procedures to confirm that (1) the *Program* is being implemented as designed (verification), and (2) the *Program* effectively controls the hazardous conditions throughout the building water systems (validation).
7. **Documentation** - Establish documentation and communication procedures for all activities of the program.



**Published June 2015.** The standard can be purchased from [ASHRAE](#) (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).

**Note:** The Program Team shall include consideration of the following as part of the determination of whether to test for *Legionella*:

- Program control limits are not maintained in building water systems, including in water systems with supplemental disinfection.
- A health care facility provides in-patient services to at-risk or immunocompromised populations.
- A prior history of legionellosis is associated with the building water system.

The following summarizes the requirements for building water systems.

### Potable Water Systems

Procedures must be documented in the *Program* for system start-up and shutdown, system maintenance, water treatment, and the contingency response plan. System maintenance documents shall include procedures, corrective actions, and manuals for the following:

- Water storage tank/vessel inspection
- Flushing stagnant or low-flow areas
- Maintenance and monitoring procedures for cleaning, disinfection and replacement of hot and cold water storage tanks, ice machines, water-hammer arresters, expansion tanks, water filters, shower heads and hoses, electronic faucets, aerators, faucet flow restrictors, non-steam aerosol generating humidifiers, water heaters, infrequently used equipment such as emergency showers and eyewash stations

### Cooling Towers and Evaporative Condensers

Requirements include analysis of system siting and procedures for start-up of new systems. The *Program* shall describe the requirements for system maintenance such as cleaning schedule, water treatment for microbiological activity, shutdown and startup, remedial disinfection and other contingency response plans, procedures and criteria for *Legionella* testing, if performed.

### Whirlpool Spas

*Program* documents shall include the bather-related requirements, filter operation and maintenance procedures, and procedures for maintaining water quality, disinfection, and monitoring. Microbiological standards are described, and the *Program* documents shall include procedures to be followed if contamination is discovered, contingency response plans, and all spa-associated operating manuals.

### Ornamental Fountains and Other Water Features

Equipment siting must be evaluated, and *Program* documents shall include procedures for operation, maintenance, water treatment and contingency response plans.

### Aerosol-Generating Mistifiers, Atomizers, Air Washers and Humidifiers

Equipment siting must be evaluated and the *Program* documents shall include procedures for new system start-up, system maintenance, water treatment, system shutdown start-up, disinfection, and contingency response plans.

## ANNEXES

### Normative Annex A

Annex A describes specific requirements for **healthcare facilities**.

- Designated team must include senior organizational leadership, facilities management, and infection control
- Additional requirements for a more detailed water system process flow diagrams
- Surveillance and response plans for clinical cases, including if/when to test for *Legionella* in the environment

### Informative Annex C

Annex C provides guidance if *Legionella* Testing is Utilized. When testing of environmental water samples is utilized, it should be by a laboratory with demonstrated proficiency in the subject method, such as may be evidenced by certification by a national, regional or local government agency or by an accredited non-governmental organization (NGO).

Laboratories also should have demonstrated proficiency in detection of *Legionella* culture in accordance with either:

- U.S. Centers for Disease Control and Prevention (CDC) Environmental *Legionella* Isolation Techniques Evaluation (ELITE) Program,
- European external quality assessment and proficiency testing program for *Legionella* isolation through Public Health England,
- or an equivalent, Nationally accredited Proficiency test provider.

Please contact me direct if you need any additional information on ASHRE standard or any other environmental concern

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