



ADDENDA

**ANSI/ASHRAE Addendum b to
ANSI/ASHRAE Standard 188-2015**

Legionellosis: Risk Management for Building Water Systems

Approved by the ASHRAE Standards Committee on June 23, 2017; by the ASHRAE Tech Council on June 28, 2017; and by the American National Standards Institute on June 29, 2017.

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Modify Section 7.1.2 as shown (I-P and SI).

7.1.2 System Maintenance. The *Program* documents shall include procedures 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' ~~recommendations~~ instructions for cleaning, *disinfection*, replacement of system components, and other treatments that the *Program Team* decides are necessary for the following:
 1. Hot-water and cold-water storage tanks
 2. Ice machines
 3. Water-hammer arrestors
 4. Expansion tanks
 5. Water filters
 6. Shower heads and hoses
 7. Electronic faucets
 8. Aerators
 9. Faucet flow restrictors
 10. Nonsteam aerosol-generating humidifiers
 11. Water heaters
 12. Infrequently used equipment, including eyewash stations and showers

[. . .]

Modify Section 7.1.4 as shown (I-P and SI).

7.1.4 Contingency Response Plan. For both hot water and cold water systems, the *Program* documents shall include

- a. procedures to be followed if there are known or suspected cases of *legionellosis* associated with the use of *potable* water from the *building water systems*;
- b. directives issued by national, regional, and local health department authorities;
- c. if the *Program Team* determines testing for *Legionella* shall be performed, the procedures shall include criteria for when and where the tests shall be performed;
- d. procedures for emergency *disinfection*; and
- e. procedures for other actions ~~identified as necessary as determined~~ by the *Program Team* to prevent exposure to contaminated water.

Modify Section 7.2 as shown (I-P and SI).

7.2 Cooling Towers and Evaporative Condensers. This section describes the preventive measures required for cooling towers and evaporative condensers that provide cooling, ~~and/or refrigeration, or both cooling and refrigeration~~ for the *HVAC&R* system or for other devices or systems in the building. The *Program* documents shall include identification of the responsible persons for every step of each *Program* requirement.

Modify Section 7.3.5.1 as shown (I-P and SI).

7.3.5.1 Microbiological Testing. The *Program* documents shall include procedures for

- a. a minimum of monthly ~~or more frequent~~ *testing* of spa water for indicator organisms and pathogens identified by the *Program* microbiological standards;
- b. maintaining the total heterotrophic aerobic bacteria colony count at or below the maximum level specified by local, regional, and national codes and regulations or ≤ 200 CFU/mL if ~~no~~ codes or regulations do not apply;
- c. maintaining the levels of indicator organisms at or below the standard threshold;
- d. when and where tests shall be performed, proper sampling procedures, and the interpretation of test results ~~should~~ when the *Program Team* determines that *testing* for *Legionella* or other pathogens is required;
- e. responding to ~~unsatisfactory~~ test results including *disinfection* record review and repetition of microbiological tests.

Modify Section 7.5.1 as shown (I-P and SI).

7.5.1 Equipment Siting. Prior to beginning construction for installation of new or replacement aerosol-generating misters, atomizers, air washers, or humidifiers, drawings shall be reviewed and the following items addressed:

- a. Potential contamination from sources that can be drawn into the system
- b. ~~Inadequate~~ Access to pumps, filters, and treatment equipment for maintenance and inspection
- c. External heat sources and ~~inadequate~~ restricted airflow that increases the temperature and thereby the *risk* of amplification ~~of exposure to~~ of *Legionella*.

Modify Section 8.1 as shown (I-P and SI).

8.1 General. When designing for new construction, renovations, refurbishment, replacement, or repurposing of a facility, the following shall be documented:

- a. A system overview and intended mode of system operation
- b. ~~Documentation and~~ Design compliance to ~~that addresses~~ *hazardous conditions* for each of the following:
 1. Schematic diagrams of water systems
 2. *Monitoring* and control diagrams of water systems
 3. Local, regional, and national code compliance
 4. Locations of the following points: makeup, flush, sampling, temperature monitoring, and drain
 5. Locations of outdoor air intakes
 6. Building water equipment
 7. Commissioning
 8. Operating instructions and procedures
 9. Maintenance schedules, frequencies, and procedures
 10. No-flow and low-flow portions of the piping and *building water systems*
 11. Impact of heat loss from hot water or heat gain by cold water in piping and water system components
 12. ~~Possible~~ Cross connections between potable and *nonpotable* water

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