



# ADDENDA

**ANSI/ASHRAE Addendum c 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.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE website ([www.ashrae.org](http://www.ashrae.org)) or in paper form from the Senior Manager of Standards.

The latest edition of an ASHRAE Standard may be purchased on the ASHRAE website ([www.ashrae.org](http://www.ashrae.org)) or from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: [orders@ashrae.org](mailto:orders@ashrae.org). Fax: 678-539-2129. Telephone: 404-636-8400 (worldwide), or toll free 1-800-527-4723 (for orders in US and Canada). For reprint permission, go to [www.ashrae.org/permissions](http://www.ashrae.org/permissions).

© 2017 ASHRAE

ISSN 1041-2336



**ASHRAE Standing Standard Project Committee 188**  
**Cognizant TC: Environmental Health Committee**  
**Co-cognizant TCs: 3.6, Water Treatment; and 6.6, Service Water Heating Systems**  
**SPLS Liaison: Walter T. Grondzik**  
**ASHRAE Staff Liaison: Ryan Shanley**

Paul A. Lindahl, Jr.*, <i>Chair</i>	Billy Smith*	Ronald George
Michael P. Patton*, <i>Vice-Chair</i>	Erica Stewart*	Patricia Graef
Helen R. Cerra*, <i>Secretary</i>	Janet E. Stout*	Joshua J. Ince
Robert J. Cunningham, III*	Alain Trahan*	Thomas W. Johnson
Peter V. DeMarco*	Walter N. Vernon*	Tim Keaney
Linda L. Dickey*	Kristy L. Vogt*	Scott E. Mayes
Katherine K. Flamm*	Ronald E. Wood*	Frank T. Morrison
Charles E. Gulledege, III*	Stu Asay	Ken Mortensen
Claressa Lucas*	Henry A. Becker	Eric R. Myers
William F. McCoy*	Clive R. Broadbent	William E. Pearson II
Clifton McLellan*	Jon J. Cohen	Heather L. Platt
R. Lee Millies, Jr.*	Laura Avary Cooley	Leon Shapiro
Frank Myers*	Steven Cutter	Matt Sigler
Patrick Racine*	Charles E. Dorgan	Paul F. Supan
Aaron A. Rosenblatt*	Jessica Evans	Thomas E. Watson
Kevin A. Scarlett*	Sarah Ferrari	

\* Denotes members of voting status when the document was approved for publication

**ASHRAE STANDARDS COMMITTEE 2016–2017**

Rita M. Harrold, <i>Chair</i>	Michael W. Gallagher	Cyrus H. Nasser
Steven J. Emmerich, <i>Vice-Chair</i>	Walter T. Grondzik	David Robin
James D. Aswegan	Vinod P. Gupta	Peter Simmonds
Niels Bidstrup	Susanna S. Hanson	Dennis A. Stanke
Donald M. Brundage	Roger L. Hedrick	Wayne H. Stoppelmoor, Jr.
Drury B. Crawley	Rick M. Heiden	Jack H. Zarour
John F. Dunlap	Srinivas Katipamula	William F. Walter, <i>BOD ExO</i>
James W. Earley, Jr.	Cesar L. Lim	Patricia Graef, <i>CO</i>
Keith I. Emerson	Arsen K. Melikov	
Julie M. Ferguson	R. Lee Millies, Jr.	

Stephanie C. Reiniche, *Senior Manager of Standards*

**SPECIAL NOTE**

This American National Standard (ANS) is a national voluntary consensus Standard developed under the auspices of ASHRAE. *Consensus* is defined by the American National Standards Institute (ANSI), of which ASHRAE is a member and which has approved this Standard as an ANS, as "substantial agreement reached by directly and materially affected interest categories. This signifies the concurrence of more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that an effort be made toward their resolution." Compliance with this Standard is voluntary until and unless a legal jurisdiction makes compliance mandatory through legislation.

ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

ASHRAE Standards are prepared by a Project Committee appointed specifically for the purpose of writing the Standard. The Project Committee Chair and Vice-Chair must be members of ASHRAE; while other committee members may or may not be ASHRAE members, all must be technically qualified in the subject area of the Standard. Every effort is made to balance the concerned interests on all Project Committees.

The Senior Manager of Standards of ASHRAE should be contacted for

- a. interpretation of the contents of this Standard,
- b. participation in the next review of the Standard,
- c. offering constructive criticism for improving the Standard, or
- d. permission to reprint portions of the Standard.

**DISCLAIMER**

ASHRAE uses its best efforts to promulgate Standards and Guidelines for the benefit of the public in light of available information and accepted industry practices. However, ASHRAE does not guarantee, certify, or assure the safety or performance of any products, components, or systems tested, installed, or operated in accordance with ASHRAE's Standards or Guidelines or that any tests conducted under its Standards or Guidelines will be nonhazardous or free from risk.

**ASHRAE INDUSTRIAL ADVERTISING POLICY ON STANDARDS**

ASHRAE Standards and Guidelines are established to assist industry and the public by offering a uniform method of testing for rating purposes, by suggesting safe practices in designing and installing equipment, by providing proper definitions of this equipment, and by providing other information that may serve to guide the industry. The creation of ASHRAE Standards and Guidelines is determined by the need for them, and conformance to them is completely voluntary.

In referring to this Standard or Guideline and in marking of equipment and in advertising, no claim shall be made, either stated or implied, that the product has been approved by ASHRAE.

**(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objections on informative material are not offered the right to appeal at ASHRAE or ANSI.)**

## FOREWORD

*Addendum c revises portions of Appendix A that apply to health care facilities. The intent of these revisions is to replace permissive language with mandatory, code-enforceable language. Section A5.1 was changed to clarify as to when the designated team needs to reevaluate the legionellosis risk management plan.*

**Note:** In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~striking through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

### Addendum c to Standard 188-2015

*Modify the standard as follows (I-P and SI.)*

## NORMATIVE APPENDIX A HEALTH CARE FACILITIES

These requirements are only applicable to health care facilities meeting the qualifications of Section 4.3.2

[ . . . ]

### A4. RISK MANAGEMENT PLAN

**A4.1** The *legionellosis risk management plan* must be contained within one or more documents. These documents are allowed to contain information that is not part of the *legionellosis risk management plan*, and a master document providing the location of all plan documents shall be maintained. The *legionellosis risk management plan* at a minimum shall include, ~~without being limited to~~

- a. the name, title, and contact information for the *Designated Team* leader and the role and contact information for other *Designated Team* members;
- b. the *water system flow diagrams*;
- c. the systematic evaluation of physical and chemical conditions associated with each step in the *water system flow diagrams* to determine where *hazardous conditions can have the potential for occurring* ~~occur~~ in the *building water systems* and where *control measures may shall* be applied;
- d. identification of areas with higher probability of infection throughout the facility based on the intended use of water-based processes and the relative vulnerability of patients to *legionellosis* in areas designated for specialized care;
- e. an evaluation of the results of Sections A4.1(c) and A4.1(d) to estimate the likelihood of *legionellosis*;

- f. the procedures required for prevention and *control* of *legionellosis* associated with the health care facility's *building water systems*, including
  1. identification of the *control locations*,
  2. determination of the *control limits*,
  3. development of *monitoring* procedures, and
  4. determination of *corrective actions*;
- g. assignment of responsibility for each action required by the *legionellosis risk management plan*;
- h. documentation of all aspects of the *legionellosis risk management plan*, including development, implementation, verification, and validation;

[ . . . ]

### A5. EXISTING BUILDINGS, NEW CONSTRUCTION, AND RENOVATIONS

**A5.1 Existing Buildings.** The *Designated Team* shall conduct an evaluation and estimate of the likelihood of *legionellosis* as specified in Section A4.1(e) ~~at least once per year~~ for each existing building at least once per year. Based on the results of this evaluation and estimate, the *Designated Team* shall modify the *legionellosis risk management plan* and as necessary, establish what building water system changes or events shall require a reevaluation of the legionellosis risk management plan. These changes or events shall include building renovations affecting water systems, water systems component upgrades or replacements, and water service interruption events. ~~This process shall be repeated for all affected areas~~

- a. ~~whenever a building or portion of a building is changed such that one or more water system is affected;~~
- b. ~~whenever major maintenance to a building water system is performed, including replacing tanks, pumps, heat exchangers, and distribution piping; and~~
- e. ~~whenever there is a water service disruption from the supplier to the building.~~

[ . . . ]

### A6. BUILDING WATER SYSTEM PROCEDURES

**A6.1** The *legionellosis risk management plan* shall include procedures for the following *building water systems* or shall include a determination and rationale by the *Designated Team* for any procedures that are not required:

[ . . . ]

- d. **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* systems or for other devices or systems in the building. The *legionellosis risk management plan* documents shall include identification of the responsible persons for every step of each *legionellosis risk management plan* requirement.



## **POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES**

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

### **About ASHRAE**

ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. The Society and its members focus on building systems, energy efficiency, indoor air quality, refrigeration, and sustainability. Through research, Standards writing, publishing, certification and continuing education, ASHRAE shapes tomorrow's built environment today.

For more information or to become a member of ASHRAE, visit [www.ashrae.org](http://www.ashrae.org).

To stay current with this and other ASHRAE Standards and Guidelines, visit [www.ashrae.org/standards](http://www.ashrae.org/standards).

### **Visit the ASHRAE Bookstore**

ASHRAE offers its Standards and Guidelines in print, as immediately downloadable PDFs, on CD-ROM, and via ASHRAE Digital Collections, which provides online access with automatic updates as well as historical versions of publications. Selected Standards and Guidelines are also offered in redline versions that indicate the changes made between the active Standard or Guideline and its previous version. For more information, visit the Standards and Guidelines section of the ASHRAE Bookstore at [www.ashrae.org/bookstore](http://www.ashrae.org/bookstore).

### **IMPORTANT NOTICES ABOUT THIS STANDARD**

**To ensure that you have all of the approved addenda, errata, and interpretations for this Standard, visit [www.ashrae.org/standards](http://www.ashrae.org/standards) to download them free of charge.**

**Addenda, errata, and interpretations for ASHRAE Standards and Guidelines are no longer distributed with copies of the Standards and Guidelines. ASHRAE provides these addenda, errata, and interpretations only in electronic form to promote more sustainable use of resources.**