

ANSI/ASHRAE/ICC/USGBC/IES Addendum p to ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2017

Standard for the Design of High-Performance Green Buildings

Except Low-Rise Residential Buildings

The Complete Technical Content of the International Green Construction Code[®]

Approved by the ASHRAE Standards Committee and the ASHRAE Board of Directors on February 5, 2020; by the International Code Council on January 7, 2020; by the U.S. Green Building Council on January 9, 2020; by the Illuminating Engineering Society on January 24, 2020; and by the American National Standards Institute on March 31, 2020.

These addenda were 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. Instructions for how to submit a change can be found on the ASHRAE[®] website (www.ashrae.org/continuous-maintenance).

The latest edition of an ASHRAE Standard may be purchased on the ASHRAE website (www.ashrae.org) or from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305, telephone: 404-636-8400 (worldwide), or toll free 1-800-527-4723 (for orders in the United States and Canada), or e-mail: orders@ashrae.org. For reprint permission, go to www.ashrae.org/permissions.

© 2020 ASHRAE

ISSN 1041-2336



ASHRAE Standard Project Committee 189.1
Cognizant TC: 2.8 Building Environmental Impacts and Sustainability
SPLS Liaison: Walter T Grondzik
ASHRAE Staff Liaisons: Emily Toto
ICC Liaison: Mike Pfeiffer
IES Liaison: Mark Lien
USGBC Liaison: Wes Sullens

Roger Hedrick*, <i>Chair</i>	John Cross*	Greg Johnson	Thomas Pape*
Charles Eley*, <i>Co-Vice-Chair</i>	Michael Cudahy*	Stephen Kanipe	Kathleen Petrie
Josh Jacobs*, <i>Co-Vice-Chair</i>	Thomas Culp*	James Kendzel	Teresa Rainey
Michael Jouaneh*, <i>Co-Vice-Chair</i>	David Delaquila	Andrew Klein	Steven Rosenstock*
Lawrence Schoen*, <i>Co-Vice-Chair</i>	Jim Edelson*	Gary Klein	Loren Ross
Anand Achari	Anthony Floyd*	Thomas Lawrence	Michael Schmeida
Vinay Ananthachar	Mark Frankel	Neil Leslie*	Kent Sovocool*
Constantinos Balaras*	Patricia Fritz	Christine Locklear	Dennis Stanke
James Bogdan	Susan Gitlin*	Richard Lord	Wayne Stoppelmoor
Jeff Bradley*	Gregg Gress*	David Madsen	Christine Subasic*
Susan Bronson	Maureen Guttman	C. Webster Marsh	Michael Temple
Scott Buckley	Katherine Hammack	Joel Martell	Martha VanGeem*
Julie Chandler	Thomas Hogarth*	Jonathan McHugh*	Scott West*
Ernest Conrad*	Donald Horn*	Adam McMillen*	Daniel Whittet
Dru Crawley	Jonathan Humble	Erik Miller-Klein	Joe Winters*
John Cribbs	Ksenija Janjic	Gwelen Paliaga	Jian Zhang*

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

ASHRAE STANDARDS COMMITTEE 2019–2020

Wayne H. Stoppelmoor, Jr., <i>Chair</i>	Michael W. Gallagher	Larry Kouma	Russell C. Tharp
Drury B. Crawley, <i>Vice-Chair</i>	Walter T. Grondzik	Cesar L. Lim	Adrienne G. Thomle
Els Baert	Susanna S. Hanson	Karl L. Peterman	Michael W. Woodford
Charles S. Barnaby	Rick M. Heiden	Erick A. Phelps	Craig P. Wray
Niels Bidstrup	Jonathan Humble	Lawrence J. Schoen	Jaap Hogeling, <i>BOD ExO</i>
Robert B. Burkhead	Srinivas Katipamula	Steven C. Sill	Malcolm D. Knight, <i>CO</i>
Thomas E. Cappellin	Essam E. Khalil	Richard T. Swierczyna	
Douglas D. Fick	Kwang Woo Kim	Christian R. Taber	

Steven C. Ferguson, *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 objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

This addendum identifies the requirements in Standard 189.1, Section 7, that jurisdictions have the option of excluding from their adopted ordinances. Requirements identified as jurisdictional options [JO] have been listed in a new Table 4.2, which is modeled after Table 302.1 of the 2015 IgCC. The table is intended to be used as a checklist to simplify the code adoption process for jurisdictions using the 2021 IgCC. Compliance with all requirements, including those listed in Table 4.2, is required for compliance with Standard 189.1.

Reasons for placing sections in the table:

- **7.4.2.1 Building Envelope Requirements.** *The user is required to use ASHRAE/IES Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1.*
- **7.4.2.2 Single-Rafter Roof Insulation.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1. Also, Standard 90.1 provides requirements based on rafter depth.*
- **7.4.2.3 High-Speed Doors.** *This is an exception to Standard 90.1 allowing higher U-factors for high-speed doors due to their speed in opening and closing.*
- **7.4.2.6 Permanent Projections.** *Studies show this section saves energy. However, it can add significant costs to the construction of the building.*
- **7.4.2.9 Orientation.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1, which has requirements on orientation.*
- **7.4.3.2 Ventilation Controls for Densely Occupied Spaces.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1.*
- **7.4.3.4 Economizers.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1.*
- **7.4.3.5 Zone Controls.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1.*
- **7.4.3.7 Exhaust Air Energy Recovery.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1.*
- **7.4.3.8 Kitchen Exhaust Systems.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1.*
- **7.4.4.2 Insulation for Spa Pools.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1.*
- **7.4.6.2 Occupancy Sensor Controls with Multilevel Switching or Dimming and 7.4.6.3 Automatic Controls for Egress and Security Lighting.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements for lighting controls are beyond those in Standard 90.1.*
- **7.4.7.2 Supermarket Heat Recovery, 7.4.7.4 Programmable Thermostats, and 7.4.7.5 Refrigerated Display Cases.** *The user is required to use Standard 90.1-2016, which saves more energy than the current requirements of many jurisdictions. These requirements are beyond those in Standard 90.1.*

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

Addendum p to Standard 189.1-2017

Add a new Informative Section 4.2, including a new informative Table 4.2, and move Sections 4.1.1 through 4.1.4 to a new Section 4.3.

4. ADMINISTRATION AND ENFORCEMENT

4.1 General. *Building projects* shall comply with Sections 4 through 11. Within each of those sections, *building projects* shall comply with all mandatory provisions (x.3) and, where offered, either the

- a. Prescriptive Option (x.4) or
- b. Performance Option (x.5).

4.2 (Informative to Standard 189.1) Requirements Determined by the Jurisdiction. The jurisdiction shall indicate the following information in Informative Table 4.2 for inclusion in its code adopting ordinance:

- a. Where “No” boxes are provided, the jurisdiction shall check the box to indicate where that section is not to be enforced as a requirement in the jurisdiction. Where the “No” box is not checked, that section is to be enforced.
- b. Where a numerical value is required to specify the level of performance required, the jurisdiction shall indicate the required value. Where a numerical value is not indicated, the value in the text is to be enforced

Informative Notes:

1. Section 4.2, including Table 4.2, is informative to Standard 189.1. It will become normative as part of the IgCC.
2. The jurisdictional requirements listed in Informative Table 4.2 are formatted to afford jurisdictions the flexibility to adapt the code in a manner that is best suited to meet their unique environmental and regional goals and needs. Enforcement of these jurisdictional requirements will result in higher-performing buildings but may go beyond the needs of specific jurisdictions. Jurisdictional option provisions are indicated in the body of the standard with the symbol “[JO]” after the section number.

4.3 References and Appendices

4.3.1 Referenced Standards. The standards referenced in this standard and listed in Section 11 shall be considered part of the requirements of this standard to the prescribed extent of such reference. Where differences exist between provisions of this standard and a referenced standard, the provisions of this standard shall apply. Informative references in Informative Appendix G are cited to acknowledge sources and are not part of this standard.

4.3.2 Normative Appendices. The normative appendices to this standard are considered to be integral parts of the mandatory requirements of this standard, which for reasons of convenience are placed apart from all other normative elements.

4.3.3 Informative Appendices. The informative appendices to this standard, and informative notes located within this standard, contain additional information and are not mandatory or part of this standard.

4.3.4 Reference Standard Reproduction Annexes. The reference standard reproduction annexes contain material that is cited in this standard but that is contained in another standard. The reference standard reproduction annexes are not part of this standard but are included in its publication to facilitate its use.

Add “[JO]” following the section number to indicate jurisdictional options in sections listed in Table 4.2.

- 7.4.2.1 **[JO] Building Envelope Requirements.** [. . .]
- 7.4.2.2 **[JO] Single-Rafter Roof Insulation.** [. . .]
- 7.4.2.3 **[JO] High-Speed Doors.** [. . .]
- 7.4.2.6 **[JO] Permanent Projections.** [. . .]

Informative Table 4.2 Requirements Determined by the Jurisdiction

Section	Section Title or Description and Directives	Jurisdictional Requirement
<u>7.4.2.1</u>	<u>Building Envelope Requirements</u>	No
<u>7.4.2.2</u>	<u>Single-Rafter Roof Insulation</u>	No
<u>7.4.2.3</u>	<u>High Speed Doors</u>	No
<u>7.4.2.6</u>	<u>Permanent Projections</u>	No
<u>7.4.2.9</u>	<u>Orientation</u>	No
<u>7.4.3.2</u>	<u>Ventilation Controls for Densely Occupied Spaces</u>	No
<u>7.4.3.4</u>	<u>Economizers</u>	No
<u>7.4.3.5</u>	<u>Zone Controls</u>	No
<u>7.4.3.7</u>	<u>Exhaust Air Energy Recovery</u>	No
<u>7.4.3.8</u>	<u>Kitchen Exhaust Systems</u>	No
<u>7.4.4.2</u>	<u>Insulation for Spa Pools</u>	No
<u>7.4.6.2</u>	<u>Occupancy Sensor Controls with Multilevel Switching or Dimming.</u>	No
<u>7.4.6.3</u>	<u>Automatic Controls for Egress and Security Lighting</u>	No
<u>7.4.7.2</u>	<u>Supermarket Heat Recovery</u>	No
<u>7.4.7.4</u>	<u>Programmable Thermostats</u>	No
<u>7.4.7.5</u>	<u>Refrigerated Display Cases</u>	No

7.4.2.9 [JO] Orientation. [. . .]

7.4.3.2 [JO] Ventilation Controls for Densely Occupied Spaces. [. . .]

7.4.3.4 [JO] Economizers. [. . .]

7.4.3.5 [JO] Zone Controls. [. . .]

7.4.3.7 [JO] Exhaust Air Energy Recovery. [. . .]

7.4.3.8 [JO] Kitchen Exhaust Systems. [. . .]

7.4.4.2 [JO] Insulation for Spa Pools. [. . .]

7.4.6.2 [JO] Occupancy Sensor Controls with Multilevel Switching or Dimming. [. . .]

7.4.6.3 [JO] Automatic Controls for Egress and Security Lighting. [. . .]

7.4.7.2 [JO] Supermarket Heat Recovery. [. . .]

7.4.7.4 [JO] Programmable Thermostats. [. . .]

7.4.7.5 [JO] Refrigerated Display Cases. [. . .]

**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.

Standard 189.1 and the International Green Construction Code

Standard 189.1 serves as the complete technical content of the International Green Construction Code® (IgCC). The IgCC creates a regulatory framework for new and existing buildings, establishing minimum green requirements for buildings and complementing voluntary rating systems. For more information, visit www.iccsafe.org.

About ASHRAE

Founded in 1894, ASHRAE is a global professional society committed to serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration, and their allied fields.

As an industry leader in research, standards writing, publishing, certification, and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

To stay current with this and other ASHRAE Standards and Guidelines, visit www.ashrae.org/standards, and connect on LinkedIn, Facebook, Twitter, and YouTube.

Visit the ASHRAE Bookstore

ASHRAE offers its Standards and Guidelines in print, as immediately downloadable PDFs, 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 edition. For more information, visit the Standards and Guidelines section of the ASHRAE Bookstore at 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 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.