

**ANSI/ASHRAE/ICC/USGBC/IES Addendum f to  
ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2020**

# **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 on June 25, 2022; by the ASHRAE Board of Directors on June 29, 2022; by the International Code Council and U.S. Green Building Council on June 15, 2022; by the Illuminating Engineering Society on June 30, 2022; and by the American National Standards Institute on July 29, 2022.

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. Instructions for how to submit a change can be found on the ASHRAE® website (<https://www.ashrae.org/continuous-maintenance>).

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, 180 Technology Parkway, Peachtree Corners, GA 30092. 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).



**Cognizant TC: 2.8 Building Environmental Impacts and Sustainability**

**SPLS Liaison: Jay Kohler · ASHRAE Staff Liaisons: Emily Toto**

**ICC Liaison: Mike Pfeiffer · IES Liaison: Mark Lien · USGBC Liaison: Wes Sullens**

Katherine Hammack*, <i>Chair</i>	David Delaquila	Andrew Klein	Steven Rosenstock*
Charles Eley*, <i>Co-Vice Chair</i>	Greg Eades*	Vladimir Kochkin	Michael Schmeida
Josh Jacobs*, <i>Co-Vice Chair</i>	Jim Edelson*	Thomas Lawrence	Benjamin Seeley
Michael Jouaneh*, <i>Co-Vice Chair</i>	Anthony Floyd*	Neil Leslie*	Terry Sharp
Lawrence Schoen*, <i>Co-Vice Chair</i>	Ellen Franconi	Christine Locklear	Larry Smith
Costas Balaras	Patricia Fritz	Richard Lord	Kent Sovocool*
Jeff Bradley*	Susan Gitlin*	Joel Martell	Dennis Stanke
Scott Buckley	Robert Goo	Jonathan McHugh*	Wayne Stoppelmoor
Julie Chandler	Paul Grahovac	Adam McMillen*	Christine Subasic*
Kim Cheslak	Gregg Gress*	Erik Miller-Klein	Martha VanGeem*
Glen Clapper	Thomas Hogarth*	Gwelen Paliaga	Scott West*
Ernest Conrad*	Donald Horn*	Thomas Pape*	Theresa Weston
Dru Crawley	Jonathan Humble	Tien Peng	Daniel Whittet
John Cribbs	Greg Johnson	Andrew Persily	Joe Winters*
John Cross*	Thomas Culp*	Jason Radice	Jian Zhang*
Michael Cudahy*	Stephen Kanipe	Teresa Rainey	

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

---

**ASHRAE STANDARDS COMMITTEE 2021–2022**

Rick M. Heiden, <i>Chair</i>	Srinivas Katipamula	Julie Majurin	Christian R. Taber
Susanna S. Hanson, <i>Vice-Chair</i>	Gerald J. Kettler	Lawrence C. Markel	Russell C. Tharp
Charles S. Barnaby	Essam E. Khalil	Margret M. Mathison	William F. Walter
Robert B. Burkhead	Malcolm D. Knight	Gwelen Paliaga	Craig P. Wray
Thomas E. Cappellin	Jay A. Kohler	Justin M. Prosser	Jaap Hogeling, BOD ExO
Douglas D. Fick	Cesar L. Lim	David Robin	Tim J. McGinn, CO
Michael W. Gallagher	Paul A. Lindahl, Jr.	Lawrence J. Schoen	
Patricia Graef	James D. Lutz	Steven C. Sill	

Connor Barbaree, *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

- interpretation of the contents of this Standard,
- participation in the next review of the Standard,
- offering constructive criticism for improving the Standard, or
- 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

*Invasive species are a leading contributor to the decline of biodiversity and the ecosystems upon which human life depends. Builders have an important role in reducing the spread of invasive species by avoiding their use as ornamental plants on properties selected for construction. The language presently in Standard 189.1 regarding invasive plants is too stringent to be implemented and enforced. This proposal improves the practicality of the language. It also provides informative references to assist authorities having jurisdiction in identifying regional invasive plant lists or to develop one of their own. The requirements in this addendum do not increase project costs compared to the current provisions and may reduce costs due to the reduced requirements for removing all invasive plants on the site.*

*In recognition of invasive plants' harm to the environment, the risks that they cause to human health, and the expenditures of efforts to control them, states and localities increasingly are creating legislation and ordinances to reduce the sale or use of invasive plants that are commonly available in the marketplace. For example, Knox County, Indiana prohibits the sale and planting of more than 60 invasive plants, many of which are commonly available in the horticultural trade; Fauquier County, Virginia requires landowners whose property contains running bamboo to prevent it from spreading onto other properties and within 15 feet of a public road or right of way; and the State of Delaware recently passed a law prohibiting the sale or distribution of numerous invasive plants, including many commonly used in landscaping.*

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

### Addendum f to Standard 189.1-2020

#### Revise Section 3.2 as shown.

[ . . . ]

**landscaped areas:** areas where the plant species selection and their specific location are by human design.

[ . . . ]

#### **plants:**

[ . . . ]

- b. ~~**invasive plants:** species of plants that are not native to the building project site and that cause or are likely to cause environmental harm. At a minimum, the list of invasive species for a building project site includes plants included in city, county, and regional lists and state and federal noxious weeds laws.~~
- b. **invasive plants:** species of plants that are included on an approved list of non-native plants that cause or are likely to cause environmental harm and species of plants that are regulated by noxious weed laws. (**Informative Note:** Refer to Informative Appendix G for example lists of invasive plants for select locations.)

[ . . . ]

#### Revise 5.3.3.1 as shown.

##### 5.3.3.1 Invasive Plants-

- a. Invasive plants shall be removed from the landscaped areas of the building project site parcel of land and ~~destroyed or disposed of in a land fill~~ disposed of in a manner that prevents the plant from dispersing seeds or reproducing.
- b. Invasive plants shall not be planted ~~on the building project site~~.

**Exception to 5.3.3.1:** *Plants used as turfgrass or planted for the purpose of harvesting for human consumption shall not be subject to Section 5.3.3.1.*

**Modify Section 10.9.1 as shown.**

d. *Where invasive plants are identified in accordance with Section 5.3.2, the plan for operation shall include the management of any invasive plants in non-landscaped areas or of a reinfestation in landscaped areas. The plan shall specify procedures for identifying and controlling the spread or reinfestation of invasive plants.*

**Modify Informative Appendix G as shown.**

<u>Reference</u>	<u>Title</u>	<u>Section</u>
[...]		
<b><u>Connecticut Invasive Plant Working Group</u></b> <b><u>UConn Extension</u></b> <b><u>Storrs, CT 06269</u></b> <b><u>info@cipwg.org</u></b>		
<a href="https://cipwg.uconn.edu/invasive_plant_list">https://cipwg.uconn.edu/invasive_plant_list</a>	<u>Invasive Plant List</u>	<u>3.2, 5.3.3.1</u>
[...]		
<b><u>Department of Land and Natural Resources (DLNR)</u></b> <b><u>Kalanimoku Building</u></b> <b><u>1151 Punchbowl St.</u></b> <b><u>Honolulu, HI 96813</u></b> <b><u>(808) 587-0400; dlnr@hawaii.gov</u></b>		
<a href="http://www.hear.org/hortweeds">http://www.hear.org/hortweeds</a>	<u>Hawaii's Most Invasive Horticultural Plants</u>	<u>3.2, 5.3.3.1</u>
[...]		
<b><u>Green Business Certification Inc.</u></b> <b><u>P.O. Box 822964, Philadelphia, PA 19182</u></b> <b><u>1-800-795-1746; www.sustainablesites.org</u></b>		
<u>Sustainable SITES Initiative</u>	<u>SITES v2 Rating System</u>	<u>3.2, 5.3.3.1, 10.9.1</u>
<u>Sustainable SITES Initiative</u>	<u>SITES v2 Reference Guide</u>	<u>3.2, 5.3.3.1, 10.9.1</u>
[...]		
<b><u>Maine Department of Agriculture, Conservation and Forestry</u></b> <b><u>22 State House Station</u></b> <b><u>18 Elkins Lane</u></b> <b><u>Augusta, ME 04333</u></b> <b><u>(207) 287-3200</u></b>		
<a href="http://www.maine.gov/dacf/mnap/features/invasive_plants/inv sheets.htm">http://www.maine.gov/dacf/mnap/features/invasive_plants/inv sheets.htm</a>	<u>Maine Invasive Plant Fact Sheets</u>	<u>3.2, 5.3.3.1</u>
[...]		
<b><u>National Association of Invasive Plant Councils</u></b> <b><u>California Invasive Plant Council</u></b> <b><u>1442-A Walnut St., #462</u></b> <b><u>Berkeley, CA 94709</u></b> <b><u>(510) 843-3902</u></b>		
<a href="https://www.na-ipc.org/invasive-plant-lists">https://www.na-ipc.org/invasive-plant-lists</a>	<u>Invasive Species Lists</u>	<u>3.2, 5.3.3.1</u>
[...]		
<b><u>GardenSmart Oregon</u></b>		
<a href="https://www.invasive.org/gist/products/outreach/gardensmart_oregon_reduced.pdf">https://www.invasive.org/gist/products/outreach/gardensmart_oregon_reduced.pdf</a>	<u>GardenSmart Oregon: A Guide to Non-invasive Plants</u>	<u>3.2, 5.3.3.1</u>

<b>Reference</b>	<b>Title</b>	<b>Section</b>
[...]		
<b><u>United States Department of Agriculture</u></b> <b><u>Forest Service Alaska Regional Office</u></b> <b><u>PO Box 21628</u></b> <b><u>709 W. 9th Street</u></b> <b><u>Juneau, AK 99802-1628</u></b> <b><u>(907) 586-8806</u></b>		
<a href="https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev2_037726.pdf">https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev2_037726.pdf</a>	<u>Selected Invasive Plants of Alaska</u>	<u>3.2, 5.3.3.1</u>
[...]		
<b><u>Washington State Noxious Weed Control Board</u></b> <b><u>1111 Washington Street SE</u></b> <b><u>Olympia WA 98504</u></b> <b><u>noxiousweeds@agr.wa.gov</u></b>		
<a href="https://www.nwcb.wa.gov/images/weeds/botanical_bullies.pdf">https://www.nwcb.wa.gov/images/weeds/botanical_bullies.pdf</a>	<u>Is Your Garden Harboring Botanical Bullies?</u>	<u>3.2, 5.3.3.1</u>
[...]		

**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<sup>®</sup> (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](http://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](http://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](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.**