

**ANSI/ASHRAE/ICC/USGBC/IES Addendum c 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 on June 22, 2019; by the ASHRAE Technology Council on June 26, 2019; by the International Code Council on May 31, 2019; by the USGBC Board of Directors on July 9, 2019; by the IES Board of Directors on June 10, 2019; and by the American National Standards Institute on June 27, 2019.

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 (<https://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.

© 2019 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 Liaison: Connor Barbaree
ICC Liaison: Mike Pfeiffer
IES Liaison: Mark Lien
USGBC Liaison: Wes Sullens

Roger Hedrick*, <i>Chair</i>	Christine Subasic*	Greg Johnson
Michael Jouaneh*, <i>Vice-Chair</i>	Martha VanGeem*	Jim Kendzel
Charles Eley*, <i>Vice-Chair</i>	Scott West*	Andrew Klein
Larry Schoen*, <i>Vice-Chair</i>	Daniel Whittet*	Gary Klein
Jessica Gracie-Griffin*, <i>Vice-Chair</i>	Jason Wilen*	Tom Lawrence
Costas Balaras*	Joe Winters*	George Lea
Jeff Boldt*	Mohamed Abdelrahim	Christine C. Locklear
Ernie Conrad*	Anand Achari	Richard Lord
John Cross*	Leon Alevantis	Keith Madigan
Michael Cudahy*	Vinay Ananthachar	David Madsen
Jim Edelson*	Susan Bronson	Merle McBride
Anthony Floyd*	Scott Buckley	Adam McMillen
Sam Francis*	Julie Chandler	Brent Mecham
Susan Gitlin*	Dru Crawley	Andrew Persily
Thomas Hogarth*	John Cribbs	Kathleen Petrie
Donald Horn*	Thomas Culp	Teresa Rainey
Neil Leslie*	Craig Drumheller	Jane Rohde
Stephany Mason*	Mark Frankel	Loren Ross
Molly McGuire*	Barry Giles	Michael Schmeida
Jonathan McHugh*	Gregg Gress	David Shepherd
Adam McMillen*	Maureen Guttman	Wayne Stoppelmoor
Gwelen Paliaga*	Katherine Hammack	Christian Taber
Thomas Pape*	Chris Hsieh	Dan Whittet
Steve Rosenstock*	Johnathan Humble	Jian Zhang
Kent Sovocool*	Ksenija Janjic	
Dennis Stanke*	Josh Jacobs	

* Denotes voting member at time of publication

ASHRAE STANDARDS COMMITTEE 2019–2020

Wayne H. Stoppelmoor, Jr., *Chair*
Drury B. Crawley, *Vice-Chair*
Els Baert
Charles S. Barnaby
Niels Bidstrup
Robert B. Burkhead
Thomas E. Cappellin
Douglas D. Fick
Michael W. Gallagher
Walter T. Grondzik

Susanna S. Hanson
Rick M. Heiden
Jonathan Humble
Srinivas Katipamula
Essam E. Khalil
Kwang Woo Kim
Larry Kouma
Cesar L. Lim
Karl L. Peterman
Erick A. Phelps

Lawrence J. Schoen
Steven C. Sill
Richard T. Swierczyna
Christian R. Taber
Russell C. Tharp
Adrienne G. Thomle
Michael W. Woodford
Craig P. Wray
Jaap Hogeling, *BOD ExO*
Malcolm D. Knight, *CO*

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 addendum. 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 updates the existing requirements for the volatile organic compound (VOC) content option of paints and coatings by (a) limiting the paint categories that can use the VOC content option and (b), for paint categories using the VOC content option, requiring them to comply only with the requirements of the California Air Resources Board Suggested Control Measure for Architectural Coatings.

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 189.1-2017

Revise Section 8.4.2 as shown.

8.4.2 Materials. Reported emissions or volatile organic compound (VOC) contents specified in the following subsections shall be from a representative product sample, and Emissions testing shall be conducted ~~determined~~ with each product reformulation or at a minimum of every three years.

Exception to Section 8.4.2: Products certified under third-party certification programs as meeting the specific emission ~~or VOC content~~ requirements listed in the following subsections are exempted from ~~this~~ the three-year testing requirement ~~but shall meet all the other requirements as listed.~~

Revise Section 8.4.2.2 as shown.

8.4.2.2 Paints and Coatings. Products in this category include ~~anticorrosive coatings, basement specialty coatings, concrete/masonry sealers, concrete curing compounds, dry fog coatings, faux finishing coatings, fire resistive coatings, flat and nonflat topcoats, floor coatings, graphic arts (sign) coatings, high temperature coatings, industrial maintenance coatings, low solids coatings, mastic texture coatings, metallic pigmented coatings, multicolor coatings, pretreatment wash primers, primers, reactive penetrating sealers, recycled coatings, shellacs (clear and opaque), specialty primers, stains, stone consolidants, swimming pool coatings, tub and tile refining coatings, undercoaters, waterproofing membranes, wood coatings (clear wood finishes), wood preservatives, and zinc primers. Paints and coatings~~ All architectural

coatings, as defined by the California Air Resources Board (CARB) Suggested Control Measure (SCM) for Architectural Coatings, applied on-site on the interior of the building shall meet the following requirements. Flat, nonflat, primer, sealer, and undercoater coatings, used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with either Section 8.4.2.2.1 or 8.4.2.2.2 Sections 8.4.2.2.1 and 8.4.2.2.2. All other architectural coatings shall comply with either Section 8.4.2.2.1 or 8.4.2.2.2.

8.4.2.2.1 Emissions Requirements Emissions shall be determined according to CDPH/EHLB/Standard Method V1.1 (commonly referred to as California Section 01350) and shall comply with the limit requirements for either office or classroom spaces regardless of the space type. The emissions testing shall be performed by an ISO/IEC 17025 accredited laboratory that has the CDPH/EHLB/Standard Method V.1.1, U.S. EPA Method TO-17 and ASTM Standard Method D5197 within the scope of its accreditation. Third-party certifiers shall be accredited to ISO/IEC 17065 and have the relevant certification program in the scope of accreditation.

8.4.2.2.2 Volatile Organic Compound (VOC) Content Requirements. The VOC content of architectural coatings shall comply with VOC limits of the CARB SCM for Architectural Coatings.

~~**8.4.2.2.2 Volatile Organic Compound (VOC) Content Requirements**~~

- ~~a. The VOC content for flat and non-flat coatings, non-flat high gloss coatings, specialty coatings, basement specialty coatings, concrete/masonry sealers, fire resistive coatings, floor coatings, low solids coatings, primers, sealers and under-coaters, rust preventative coatings, shellacs (clear and opaque), stains, wood coatings, reflective wall coatings, varnishes, conjugated oil varnish, lacquer, and clear brushing lacquer shall be determined and limited in accordance with Green Seal Standard GS-11~~
- ~~b. The VOC content for concrete curing compounds, dry fog coatings, faux finishing coatings, graphic arts coatings (sign paints), industrial maintenance coatings, mastic texture coatings, metallic pigmented coatings, multicolor coatings, pretreatment wash primers, reactive penetrating sealers, recycled coatings, specialty primers, wood preservatives, and zinc primers shall be determined and limited in accordance with the California Air Resources Board Suggested Control Measure for Architectural Coatings or SCAQMD Rule 1113r.~~
- ~~e. The VOC content for high temperature coatings, stone consolidants, swimming pool coatings, tub and tile refinishing coatings, and waterproofing membranes primers shall be determined and limited in accordance with the California Air Resources Board Suggested Control Measure for Architectural Coatings.~~

Modify Section as shown.

Reference	Title	Section
[...]		
California Air Resources Board (CARB) 1001 "I" Street P.O. Box 2815 Sacramento, CA 95812, United States 1-916-322-2990; www.arb.ca.gov/homepage.htm		
[...]		
CARB SCM for Architectural Coatings-2007	California Air Resources Board (CARB) Suggested Control Measure for Architectural Coatings	8.4.2.2-2
[...]		
Green Seal 1001 Connecticut Avenue, NW, Suite 827 Washington, DC 20036-5525, United States 1-202-872-6400; www.greenseal.org		
GS-11, 3.2, October 26, 2015	Green Seal Standard for Paints, Coatings, Stains, and Sealers. Section 3.0: "Product-Specific Health and Environmental Requirements	8.4.2.2-2
[...]		

**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.

