



# ADDENDA

**ANSI/ASHRAE Addendum c to  
ANSI/ASHRAE Standard 62.2-2016**

# Ventilation and Acceptable Indoor Air Quality in Residential Buildings

Approved by the ASHRAE Standards Committee on June 22, 2019; by the ASHRAE Technology Council on June 26, 2019; and by the American National Standards Institute on June 27, 2019.

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, 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).

© 2019 ASHRAE

ISSN 1041-2336



**ASHRAE Standing Standard Project Committee 62.2**  
**Cognizant TC: 4.3, Ventilation Requirements and Infiltration**  
**SPLS Liaison: Karl L. Peterman**

Iain S. Walker*, <i>Chair</i>	Gregg Gress	Amy B. Musser*
James C. Moore, III*, <i>Vice-Chair</i>	Henry T. Greist	Paul H. Raymer*
Darren B. Meyers*, <i>Secretary</i>	Sanjeev K. Hingorani	Armin Rudd
Nick H. Agopian	Mark C. Jackson*	John S. Saunders
David A. Baylon*	David E. Jacobs*	Max H. Sherman
Gary Crow	DeWayne Jenkins	Don T. Stevens*
Roy R. Crawford*	Richard J. Karg*	Thomas R. Stroud*
David C. Delaquila*	Jason T. LeRoy*	Brian Toll
S. Craig Drumheller*	Kimberly Llewellyn*	Eric D. Werling*
Philip W. Fairey*	Joseph W. Lstiburek*	Ted A. Williams
Paul Francisco*	Michael R. Lubliner*	Aykut Yilmaz*
Patricia M. Fritz	Jeff R. Miller*	
Marian Goebes*	Wayne E. Morris	

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

---

**ASHRAE STANDARDS COMMITTEE 2019–2020**

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

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

- 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 objections on informative material are not offered the right to appeal at ASHRAE or ANSI.)**

## FOREWORD

*Addendum c aims to minimize the potential for formulating variable ventilation control strategies that could result in substantial underventilation for noticeable periods of time.*

**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 c to Standard 62.2-2016

*Revise Section 4.5 as shown.*

**4.5 Variable Mechanical Ventilation.** Dwelling-unit mechanical ventilation systems designed to provide variable ventilation shall comply with Section 4.5.1, 4.5.2, or 4.5.3. Sections 4.5.2 and 4.5.3 also require compliance with Normative Appendix C and require verification with supporting documentation from the manufacturer, designer, or specifier of the ventilation control system that the system meets the requirements of these sections. ~~Where the dwelling-unit ventilation rate varies based on occupancy, occupancy shall be determined by occupancy sensors or by an occupant programmable schedule. Tracking or scheduling of occupancy is permitted.~~

**4.5.1 Short-Term Average Ventilation.** To comply with this section, a variable ventilation system shall be installed to provide an average dwelling-unit ventilation rate over each consecutive period of three hours or less ~~any three-hour period~~ that is greater than or equal to  $Q_{fan}$  as calculated using Section 4.1, and shall not provide a ventilation rate of zero over any three-hour interval.

**4.5.2 Scheduled Ventilation.** This section ~~may~~ shall only be used when one or more fixed patterns of designed ventila-

tion are known at the time compliance to this standard is being determined. Such patterns include those both clock-driven and driven by typical meteorological data. Compliance with this section can be demonstrated with either Section 4.5.2.1 or 4.5.2.2.

**4.5.2.1 Annual Average Schedule.** An annual schedule of ventilation complies with this section when the annual average relative exposure ~~during occupied periods~~ is no more than unity one, and the peak relative exposure  $R_i$  shall not exceed five (5) for any time step, as calculated in Normative Appendix C.

**4.5.2.2 Block Scheduling.** The schedule of ventilation complies with this section if it is broken into blocks of time and each block individually has an average relative exposure during occupied periods that is no more than unity one as calculated in Normative Appendix C. All blocks shall end with a relative exposure less than or equal to one.

**4.5.2.2.1 Short Blocks.** ~~For each block that is less than 2 days in duration but does not meet the requirements of Section 4.5.1, the procedure in Normative Appendix C shall be run multiple times. For any runs after the first run, the relative exposure at the end of the prior run shall be used as the initial condition in the current run. The block complies if the average relative exposure during occupied periods in the final run is no more than unity. Blocks that are less than 18 hours in duration must be run at least 3 times. Other blocks must be run at least twice.~~

**4.5.3 Real-Time Control.** A real-time ventilation controller complies with this section when it is designed to adjust the ventilation system based on real-time input to the ventilation calculations so that the average relative exposure during occupied periods is no more than one unity, and the peak relative exposure  $R_i$  shall not exceed 5 for any time step, as calculated in Normative Appendix C. The averaging period shall be at least one day but no more than one year and shall be based on simple, recursive or running average, but not extrapolation.

For the purposes of calculating average relative exposure, a dwelling unit is permitted to be treated as unoccupied during a time step only if it is unoccupied for the entire time step.



## **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, 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.**