



# ADDENDA

**ANSI/ASHRAE Addenda h and I to  
ANSI/ASHRAE Standard 62.1-2010**

# Ventilation for Acceptable Indoor Air Quality

Approved by the ASHRAE Standards Committee on June 23, 2012; by the ASHRAE Board of Directors on June 27, 2012; and by the American National Standards Institute on June 28, 2012.

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. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE Web site ([www.ashrae.org](http://www.ashrae.org)) or in paper form from the Manager of Standards.

The latest edition of an ASHRAE Standard may be purchased on the ASHRAE Web site ([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: 404-321-5478. 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).

© 2012 ASHRAE

ISSN 1041-2336



**ASHRAE Standing Standard Project Committee 62.1**  
**Cognizant TC: TC 4.3, Ventilation Requirements and Infiltration**  
**SPLS Liaison: Steven J. Emmerich**

Roger L. Hedrick, <i>Chair*</i>	Kevin B. Gallen	Laura Gardner Petrillo
John K. McFarland, <i>Vice-Chair*</i>	Gregg Gress	Lisa J. Rogers*
Hugo Aguilar*	Hamid Habibi*	Duane P. Rothstein*
Gary L. Berlin	Donald C. Herrmann*	Chandra Sekhar*
Hoy R. Bohanon, Jr.	Nathan Lewis Ho	Charles J. Seyffer
Gregory Brunner	Eli P. Howard, III*	Harris M. Sheinman
Mark P. Buttner*	Bashar Madani	Jeffrey K. Smith*
Gustavo Gusmão Chaves	James Patrick McClendon	Kirk J. Stache*
Eric Chen	Molly E. McGuire	W. Brad M. Stanley
James K. Chisholm	Darren B. Meyers	Wayne R. Thomann*
Waller S. Clements	Adam S. Muliawan	Pawel Wargocki*
Leonard A. Damiano*	Jianlei Niu	Scott D. Williams*
Francis J. Fisher, Jr.*		Terri L. Wytko

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

---

**ASHRAE STANDARDS COMMITTEE 2011–2012**

Carol E. Marriott, <i>Chair</i>	Krishnan Gowri	Janice C. Peterson
Kenneth W. Cooper, <i>Vice-Chair</i>	Maureen Grasso	Douglas T. Reindl
Douglass S. Abramson	Cecily M. Grzywacz	Boggarm S. Setty
Karim Amrane	Richard L. Hall	James R. Tauby
Charles S. Barnaby	Rita M. Harrold	James K. Vallort
Hoy R. Bohanon, Jr.	Adam W. Hinge	William F. Walter
Steven F. Bruning	Debra H. Kennoy	Michael W. Woodford
David R. Conover	Jay A. Kohler	Craig P. Wray
Steven J. Emmerich	Frank Myers	Eckhard A. Groll, <i>BOD ExO</i>
Allan B. Fraser		Ross D. Montgomery, <i>CO</i>

Stephanie C. Reiniche, *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 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**

Table 6-1 of Standard 62.1-2010 includes ventilation rates for “Sports arena (play area)” and “Gym, stadium (play area).” Both space types have ventilation rates based on floor area only; the per-person rate is zero. Users of the standard have expressed interest in applying demand-controlled ventilation to these space types, which is effectively prohibited by the lack of a per-person component to the ventilation rate. This addendum replaces both of these space types with

“Gym, sports arena (play area),” with  $R_p = 20$  cfm/person and  $R_a = 0.18$  cfm/ft<sup>2</sup>.

One concern about allowing CO<sub>2</sub>-based demand-controlled ventilation in these spaces is that the volume per person in these spaces is typically large, which means that CO<sub>2</sub> concentration changes will have longer than usual lag times behind occupancy changes.

**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 h to Standard 62.1-2010**

Revise Table 6-1 as follows (the rest of Table 6-1 remains unchanged).

**TABLE 6-1 MINIMUM VENTILATION RATES IN BREATHING ZONE (Continued)**  
(This table is not valid in isolation; it must be used in conjunction with the accompanying notes.)

Occupancy Category	People Outdoor Air Rate $R_p$		Area Outdoor Air Rate $R_a$		Notes	Default Values			Air Class
	cfm/person	L/s·person	cfm/ft <sup>2</sup>	L/s·m <sup>2</sup>		Occupant Density (see Note 4)	Combined Outdoor Air Rate (see Note 5)		
							cfm/person	L/s·person	
<b>Sports and Entertainment</b>									
Sports arena- (play area)	–	–	<del>0.30</del>	<del>1.5</del>	E	–			1
Gym, stadium- (play area)	–	–	<del>0.30</del>	<del>1.5</del>		30			2
<u>Gym, sports arena (play area)</u>	<u>20</u>	<u>10</u>	<u>0.18</u>	<u>0.9</u>	E	<u>7</u>	<u>45</u>	<u>23</u>	<u>2</u>

**(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**

Table 6-1 of Standard 62.1-2010 includes ventilation rates for warehouses, which would apply to refrigerated warehouses. Refrigerated warehouse spaces are significantly different from conventional warehouses in a number of ways. The low temperatures will slow the emission of contaminants, such as VOCs, from the materials stored in the space; the characteristics of the items being stored will be different; and the amount of time spent in the space by occupants may be shorter (particularly for spaces kept at sub-freezing temperatures).

This addendum adds a refrigerated warehouse space type to Table 6-1, providing revised ventilation rates for these spaces. These rates include a “People Outdoor Air

Rate,  $R_p$ ” which will require ventilation during periods of expected occupancy, but do not include an “Area Outdoor Air Rate,  $R_a$ ” which will allow the ventilation rate to be zero for refrigerated warehouses with no occupants. Note E to Table 6-1 is modified to indicate that if combustion-powered equipment (e.g., a propane forklift) is used in the space, additional ventilation is required.

This addendum was provided to TC 10.1, Custom Engineered Refrigeration Systems, for comment. Based on those comments, the “Area Outdoor Air Rate” was set to zero, and no distinction is made between refrigerated and freezer spaces.

**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 I to Standard 62.1-2010**

Add a new occupancy category to Table 6-1 and revise Note E as follows (the rest of Table 6-1 remains unchanged).

**TABLE 6-1 MINIMUM VENTILATION RATES IN BREATHING ZONE (Continued)**  
(This table is not valid in isolation; it must be used in conjunction with the accompanying notes.)

Occupancy Category	People Outdoor Air Rate $R_p$		Area Outdoor Air Rate $R_a$		Notes	Default Values			Air Class
						Occupant Density (see Note 4)	Combined Outdoor Air Rate (see Note 5)		
	cfm/person	L/s·person	cfm/ft <sup>2</sup>	L/s·m <sup>2</sup>		#/1000 ft <sup>2</sup> or #/100 m <sup>2</sup>	cfm/person	L/s·person	
<u>Miscellaneous Spaces</u>									
<u>Freezer and refrigerated spaces (&lt;50°F)</u>	<u>10</u>	<u>5</u>	<u>0</u>	<u>0</u>	<u>E</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>

ITEM-SPECIFIC NOTES FOR TABLE 6-1

E When combustion equipment is intended to be used on the playing surface or in the space, additional dilution ventilation and/or source control shall be provided.

## **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.

