



**BSR/ASHRAE Addendum s  
to ANSI/ASHRAE Standard 62.1-2016**

**Public Review Draft**

# **Proposed Addendum s to Standard 62.1-2016, Ventilation for Acceptable Indoor Air Quality**

**Second Public Review (December 2018)  
(Draft shows Proposed Changes to Current Standard)**

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed standard, go to the ASHRAE website at [www.ashrae.org/standards-research--technology/public-review-drafts](http://www.ashrae.org/standards-research--technology/public-review-drafts) and access the online comment database. The draft is subject to modification until it is approved for publication by the Board of Directors and ANSI. Until this time, the current edition of the standard (as modified by any published addenda on the ASHRAE website) remains in effect. The current edition of any standard may be purchased from the ASHRAE Online Store at [www.ashrae.org/bookstore](http://www.ashrae.org/bookstore) or by calling 404-636-8400 or 1-800-727-4723 (for orders in the U.S. or Canada).

This standard is under continuous maintenance. To propose a change to the current standard, use the change submittal form available on the ASHRAE website, [www.ashrae.org](http://www.ashrae.org).

The appearance of any technical data or editorial material in this public review document does not constitute endorsement, warranty, or guaranty by ASHARE of any product, service, process, procedure, or design, and ASHRAE expressly disclaims such.

© 2019 ASHRAE. This draft is covered under ASHRAE copyright. Permission to reproduce or redistribute all or any part of this document must be obtained from the ASHRAE Manager of Standards, 1791 Tullie Circle, NE, Atlanta, GA 30329. Phone: 404-636-8400, Ext. 1125. Fax: 404-321-5478. E-mail: [standards.section@ashrae.org](mailto:standards.section@ashrae.org).

**ASHRAE, 1791 Tullie Circle, NE, Atlanta GA 30329-2305**

(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

*The ventilation rate procedure in 62.1-2016 contains requirements in notes. This proposed addendum relocates requirements to the body of the standard. Another proposed change is to clarify that in the presence of unusual sources the rates in the VRP must be supplemented by additional ventilation to be determined by the IAQ procedure or an EHS professional. The default values per person in Table 6.2.2.1 (Minimum Ventilation Rates in Breathing Zone) do not contain any adjustments for  $E_v$  and in many cases are taken out of context. They are not used in the ventilation calculations. These values are deleted.*

*[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]*

## Addendum s to 62.1-2016

---

*Add a new definition in Section 3 as shown below. The remainder of Section 3 is unchanged.*

### 3. DEFINITIONS (SEE FIGURE 3.1)

*unusual source*: an item or activity that could create or emit contaminants that occurs rarely within an occupancy category.

*Modify Section 6.1.1 as shown below.*

**6.1.1 Ventilation Rate Procedure.** The prescriptive design procedure presented in Section 6.2, in which outdoor air intake rates are determined based on space type/application, occupancy level, and floor area, shall be permitted to be used for any zone or system.

**Informative Note:** The Ventilation Rate Procedure minimum rates are based on contaminant sources and source strengths that are typical for the listed occupancy categories.

*Modify Section 6.2.2.1 as shown below. The current Section 6.2.2.1.1.2 (Laboratories) was added by Addendum w to 62.1-2016. Published addenda are available for free download from the ASHRAE website at <https://www.ashrae.org/technical-resources/standards-and-guidelines/standards-addenda>.*

**6.2.2.1 Breathing Zone Outdoor Airflow.** The outdoor airflow required in the breathing zone ( $V_{bz}$ ) of the occupiable space or spaces in a ventilation zone shall be not less than the value determined in accordance with Equation 6.2.2.1.

$$V_{bz} = R_p \times P_z + R_a \times A_z \quad (6.2.2.1)$$

where

- $A_z$  = zone floor area, the net occupiable floor area of the ventilation zone, ft<sup>2</sup> (m<sup>2</sup>)  
 $P_z$  = zone population, the number of people in the ventilation zone during use  
 $R_p$  = outdoor airflow rate required per person as determined from Table 6.2.2.1

**Informative Note:** These values are based on adapted occupants.

- $R_a$  = outdoor airflow rate required per unit area as determined from Table 6.2.2.1

**Informative Notes:**

1. Equation 6.2.2.1 accounts for people-related sources and area-related sources independently in the determination of the outdoor air rate required at the breathing zone. The use of Equation 6.2.2.1 in the context of this standard does not necessarily imply that simple addition of outdoor airflow rates for different sources can be applied to any other aspect of indoor air quality.
2. The rates in Table 6.2.2.1 are based on all other applicable requirements of this standard being met. If other requirements of the standard are not met, then the rates do not apply.

**6.2.2.1.1 Unlisted Occupancy.** Where the occupancy category for a proposed space or zone is not listed, the requirements for the listed occupancy category that is most similar in terms of occupant density, activities, and building construction shall be used.

**6.2.2.1.2 Source Strengths.** The Ventilation Rate Procedure minimum rates are based on contaminant sources and source strengths that are typical for the listed occupancy categories. Where unusual sources are expected, the additional ventilation or air cleaning required shall be calculated using Section 6.3.6 of the IAQ procedure or criteria established by Environmental Health and Safety professional responsible to the owner.

**Informative Notes:**

1. Zones where emissions are expected from stored hazardous materials are not typical for any listed occupancy category.
2. Dry ice, theatrical smoke, and smoke-producing activities are not typical for any listed occupancy categories.

**6.2.2.1.3 Air density.** Volumetric airflow rates are based on dry air density of 0.075 lb<sub>da</sub>/ft<sup>3</sup> (1.2 kg<sub>da</sub>/m<sup>3</sup>) at a barometric pressure of 1 atm (101.3 kPa) and an air temperature of 70°F (21°C). Rates shall be permitted to be adjusted for actual density.

**6.2.2.1.4 Dwelling Units with Transient Occupancy.** Air from one residential dwelling shall not be recirculated or transferred to any other space outside of that dwelling.

**6.2.2.1.4.25 Laboratories.** Laboratory spaces that comply with all requirements of ANSI/AIHA Z9.5<sup>6</sup> are not required to comply with the rates in Table 6.2.2.1.

**6.2.2.1.46 Design Zone Population.** Design zone population ( $P_z$ ) shall equal the largest (peak) number of people expected to occupy the ventilation zone during typical use.

**Exceptions:**

1. Where the number of people expected to occupy the ventilation zone fluctuates, zone population equal to the average number of people shall be permitted, provided such average is determined in accordance with Section 6.2.6.2.

- Where the largest or average number of people expected to occupy the ventilation zone cannot be established for a specific design, an estimated value for zone population shall be permitted, provided such value is the product of the net occupiable area of the ventilation zone and the default occupant density listed in Table 6.2.2.1.

**6.2.2.1.6.1 Design Zone Population for Dwelling Units with Transient Occupancy.** Default occupancy for dwelling units shall be two persons for studio and one-bedroom units, with one additional person for each additional bedroom.

**Add new Section 6.2.5.1.3 as shown below.**

**6.2.5.1.3 Other Ventilation Requirements.** When a zone ventilation rate is obtained from criteria other than this standard the ventilation rate shall be converted to cfm or l/s and the value added to  $V_{out}$  for use in system design calculations.

**Modify Section 6.2.7.1 as shown below. The remainder of Section 6.2.7.1 is unchanged.**

**6.2.7.1 Demand Control Ventilation (DCV).** DCV shall be permitted as an optional means of dynamic reset.

**Exception:** CO<sub>2</sub>-based DCV shall not be applied in zones with indoor sources of CO<sub>2</sub> other than occupants or with CO<sub>2</sub> removal mechanisms, such as gaseous air cleaners.

**6.2.7.1.1** For DCV zones in the occupied mode, breathing zone outdoor airflow ( $V_{bz}$ ) shall be reset in response to current population. Current population estimates used in DCV control calculations shall not result in ventilation rates that are less than those required by the actual population during any one-hour time period.

**6.2.7.1.2** For DCV zones in the occupied mode, breathing zone outdoor airflow ( $V_{bz}$ ) shall be not less than the building component ( $R_a \times A_z$ ) for the zone.

~~**Exception:** 6.2.7.1.3 For DCV zones in the occupied standby mode, B~~breathing zone outdoor airflow shall be permitted to be reduced to zero ~~for zones in occupied standby mode~~ for the occupancy categories indicated OS in Table 6.2.2.1, provided that airflow is restored to  $V_{bz}$  whenever occupancy is detected.

**Modify Table 6.2.2.1 as shown below.**

**TABLE 6.2.2.1 Minimum Ventilation Rates in Breathing Zone**

~~(Table 6.2.2.1 shall 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	OS (6.2.7.1.3)
						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		

Correctional Facilities									
Cell	5	2.5	0.12	0.6	25	10	4.9	2	
Dayroom	5	2.5	0.06	0.3	30	7	3.5	1	
Guard stations	5	2.5	0.06	0.3	15	9	4.5	1	

BSR/ASHRAE Addendum s to ANSI/ASHRAE Standard 62.1-2016, *Ventilation and Acceptable Indoor Air Quality*  
 Second Public Review Draft

Booking/waiting	7.5	3.8	0.06	0.3		50	9	4.4	2
<b>Educational Facilities</b>									
Daycare (through age 4)	10	5	0.18	0.9		25	17	8.6	2
Daycare sickroom	10	5	0.18	0.9		25	17	8.6	3
Classrooms (ages 5–8)	10	5	0.12	0.6		25	15	7.4	1
Classrooms (age 9 plus)	10	5	0.12	0.6		35	13	6.7	1
Lecture classroom	7.5	3.8	0.06	0.3	H	65	8	4.3	1 X
Lecture hall (fixed seats)	7.5	3.8	0.06	0.3	H	150	8	4.0	1 X
Art classroom	10	5	0.18	0.9		20	19	9.5	2
Science laboratories	10	5	0.18	0.9		25	17	8.6	2
University/college	10	5	0.18	0.9		25	17	8.6	2
Wood/metal shop	10	5	0.18	0.9		20	19	9.5	2
Computer lab	10	5	0.12	0.6		25	15	7.4	1
<u>Libraries</u>	<u>5</u>	<u>2.5</u>	<u>0.12</u>	<u>0.6</u>		<u>10</u>			<u>1</u>
Media center	10	5	0.12	0.6	A	25	15	7.4	1
Music/theater/dance	10	5	0.06	0.3	H	35	12	5.9	1 X
Multiuse assembly	7.5	3.8	0.06	0.3	H	100	8	4.1	1 X
<b>Food and Beverage Service</b>									
Restaurant dining rooms	7.5	3.8	0.18	0.9		70	10	5.1	2
Cafeteria/fast-food dining	7.5	3.8	0.18	0.9		100	9	4.7	2
Bars, cocktail lounges	7.5	3.8	0.18	0.9		100	9	4.7	2
Kitchen (cooking)	7.5	3.8	0.12	0.6		20	14	7.0	2

**GENERAL NOTES FOR TABLE 6.2.2.1**

- 1 **Related requirements:** The rates in this table are based on all other applicable requirements of this standard being met.
- 2 **Environmental Tobacco Smoke:** This table applies to ETS-free areas. Refer to Section 5.17 for requirements for buildings containing ETS areas and ETS-free areas.
- 3 **Air density:** Volumetric airflow rates are based on dry air density of 0.075 lb<sub>air</sub>/ft<sup>3</sup> (1.2 kg<sub>air</sub>/m<sup>3</sup>) at a barometric pressure of 1 atm (101.3 kPa) and an air temperature of 70°F (21°C). Rates shall be permitted to be adjusted for actual density.
- 4 **Default occupant density:** The default occupant density shall be used where the actual occupant density is not known.
- 5 **Default combined outdoor air rate (per person):** Rate is based on the default occupant density.
- 6 **Unlisted occupancies:** Where the occupancy category for a proposed space or zone is not listed, the requirements for the listed occupancy category that is most similar in terms of occupant density, activities, and building construction shall be used.

**ITEM-SPECIFIC NOTES FOR TABLE 6.2.2.1**

- A—For high-school and college libraries, the values shown for “Public Assembly Spaces—Libraries” shall be used.
- B—Rate may not be sufficient where stored materials include those having potentially harmful emissions.
- C—Rate does not allow for humidity control. “Deck area” refers to the area surrounding the pool that is capable of being wetted during pool use or when the pool is occupied. Deck area that is not expected to be wetted shall be designated as an occupancy category.
- D—Rate does not include special exhaust for stage effects such as dry-ice vapors and smoke.
- E—Where combustion equipment is intended to be used on the playing surface or in the space, additional dilution ventilation, source control, or both shall be provided.
- F—Default occupancy for dwelling units shall be two persons for studio and one-bedroom units, with one additional person for each additional bedroom.
- G—Air from one residential dwelling shall not be recirculated or transferred to any other space outside of that dwelling.
- H—Ventilation air for this occupancy category shall be permitted to be reduced to zero when the space is in occupied-standby mode.

**TABLE 6.2.2.1 Minimum Ventilation Rates in Breathing Zone (Continued)**  
 (Table 6.2.2.1 shall be used in conjunction with the accompanying notes.)

Occupancy Category	People Outdoor Air Rate R <sub>p</sub>		Area Outdoor Air Rate R <sub>a</sub>		Notes	Default Values			Air Class	OS (6.2.7.1.3)
	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)			
						#/1000 ft <sup>2</sup> or #/100 m <sup>2</sup>	cfm/person	L/s•person		

**General**

Break rooms	5	2.5	0.06	0.3	H	25	7	3.5	1	X
Coffee stations	5	2.5	0.06	0.3	H	20	8	4	1	X
Conference/meeting	5	2.5	0.06	0.3	H	50	6	3.1	1	X
Corridors	—	—	0.06	0.3	H	—			1	X
Occupiable storage rooms for liquids or gels	5	2.5	0.12	0.6	B	2	65	32.5	2	

**Hotels, Motels, Resorts, Dormitories**

Bedroom/living room	5	2.5	0.06	0.3	H	10	11	5.5	1	X
Barracks sleeping areas	5	2.5	0.06	0.3	H	20	8	4.0	1	X
Laundry rooms, central	5	2.5	0.12	0.6		10	17	8.5	2	
Laundry rooms within dwelling units	5	2.5	0.12	0.6		10	17	8.5	1	
Lobbies/prefunction	7.5	3.8	0.06	0.3	H	30	10	4.8	1	X
Multipurpose assembly	5	2.5	0.06	0.3	H	120	6	2.8	1	X

**Office Buildings**

Breakrooms	5	2.5	0.12	0.6		50	7	3.5	1	
Main entry lobbies	5	2.5	0.06	0.3	H	10	11	5.5	1	X
Occupiable storage rooms for dry materials	5	2.5	0.06	0.3		2	35	17.5	1	
Office space	5	2.5	0.06	0.3	H	5	17	8.5	1	X
Reception areas	5	2.5	0.06	0.3	H	30	7	3.5	1	X
Telephone/data entry	5	2.5	0.06	0.3	H	60	6	3.0	1	X

**GENERAL NOTES FOR TABLE 6.2.2.1**

- 7 **Related requirements:** The rates in this table are based on all other applicable requirements of this standard being met.
- 8 **Environmental Tobacco Smoke:** This table applies to ETS-free areas. Refer to Section 5.17 for requirements for buildings containing ETS areas and ETS-free areas.
- 9 **Air density:** Volumetric airflow rates are based on dry air density of 0.075 lb<sub>dry</sub>/ft<sup>3</sup> (1.2 kg<sub>dry</sub>/m<sup>3</sup>) at a barometric pressure of 1 atm (101.3 kPa) and an air temperature of 70°F (21°C). Rates shall be permitted to be adjusted for actual density.
- 10 **Default occupant density:** The default occupant density shall be used where the actual occupant density is not known.
- 11 **Default combined outdoor air rate (per person):** Rate is based on the default occupant density.
- 12 **Unlisted occupancies:** Where the occupancy category for a proposed space or zone is not listed, the requirements for the listed occupancy category that is most similar in

terms of occupant density, activities, and building construction shall be used.

**ITEM-SPECIFIC NOTES FOR TABLE 6.2.2.1**

- A—For high school and college libraries, the values shown for “Public Assembly Spaces—Libraries” shall be used.
- B—Rate may not be sufficient where stored materials include those having potentially harmful emissions.
- C—Rate does not allow for humidity control. “Deck area” refers to the area surrounding the pool that is capable of being wetted during pool use or when the pool is occupied. Deck area that is not expected to be wetted shall be designated as an occupancy category.
- D—Rate does not include special exhaust for stage effects such as dry ice vapors and smoke.
- E—Where combustion equipment is intended to be used on the playing surface or in the space, additional dilution ventilation, source control, or both shall be provided.
- F—Default occupancy for dwelling units shall be two persons for studio and one-bedroom units, with one additional person for each additional bedroom.
- G—Air from one residential dwelling shall not be recirculated or transferred to any other space outside of that dwelling.
- H—Ventilation air for this occupancy category shall be permitted to be reduced to zero when the space is in occupied-standby mode.

**TABLE 6.2.2.1 Minimum Ventilation Rates in Breathing Zone (Continued)**  
 (Table 6.2.2.1 shall 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	OS (6.2.7.1.3)
	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)			
						#/1000 ft <sup>2</sup> or #/100 m <sup>2</sup>	cfm/person	L/s•person		

**Miscellaneous Spaces**

Bank vaults/safe deposit	5	2.5	0.06	0.3	H	5	17	8.5	2	X
Banks or bank lobbies	7.5	3.8	0.06	0.3	H	15	12	6.0	1	X
Computer (not printing)	5	2.5	0.06	0.3	H	4	20	10.0	1	X
Freezer and refrigerated spaces (<50°F)	10	5	0	0	E	0	0	0	2	
General manufacturing (excludes heavy industrial and processes using chemicals)	10	5.0	0.18	0.9		7	36	18	3	
Pharmacy (prep. area)	5	2.5	0.18	0.9		10	23	11.5	2	
Photo studios	5	2.5	0.12	0.6		10	17	8.5	1	
Shipping/receiving	10	5	0.12	0.6	B	2	70	35	2	
Sorting, packing, light assembly	7.5	3.8	0.12	0.6		7	25	12.5	2	
Telephone closets	—	—	0.00	0.0		—	—	—	1	
Transportation waiting	7.5	3.8	0.06	0.3	H	100	8	4.1	1	X
Warehouses	10	5	0.06	0.3	B	—	—	—	2	

**Public Assembly Spaces**

Auditorium seating area	5	2.5	0.06	0.3	H	150	5	2.7	1	X
Places of religious	5	2.5	0.06	0.3	H	120	6	2.8	1	X
Courtrooms	5	2.5	0.06	0.3	H	70	6	2.9	1	X
Legislative chambers	5	2.5	0.06	0.3	H	50	6	3.1	1	X

BSR/ASHRAE Addendum s to ANSI/ASHRAE Standard 62.1-2016, *Ventilation and Acceptable Indoor Air Quality*  
 Second Public Review Draft

Libraries	5	2.5	0.12	0.6		10	17	8.5	1	
Lobbies	5	2.5	0.06	0.3	H	150	5	2.7	1	X
Museums (children's)	7.5	3.8	0.12	0.6		40	11	5.3	1	
Museums/galleries	7.5	3.8	0.06	0.3	H	40	9	4.6	1	X

**GENERAL NOTES FOR TABLE 6.2.2.1**

- 13 Related requirements:** The rates in this table are based on all other applicable requirements of this standard being met.
- 14 Environmental Tobacco Smoke:** This table applies to ETS-free areas. Refer to Section 5.17 for requirements for buildings containing ETS areas and ETS-free areas.
- 15 Air density:** Volumetric airflow rates are based on dry air density of 0.075 lb<sub>da</sub>/ft<sup>3</sup> (1.2 kg<sub>da</sub>/m<sup>3</sup>) at a barometric pressure of 1 atm (101.3 kPa) and an air temperature of 70°F (21°C). Rates shall be permitted to be adjusted for actual density.
- 16 Default occupant density:** The default occupant density shall be used where the actual occupant density is not known.
- 17 Default combined outdoor air rate (per person):** Rate is based on the default occupant density.
- 18 Unlisted occupancies:** Where the occupancy category for a proposed space or zone is not listed, the requirements for the listed occupancy category that is most similar in terms of occupant density, activities, and building construction shall be used.

**ITEM-SPECIFIC NOTES FOR TABLE 6.2.2.1**

- A**—For high-school and college libraries, the values shown for “Public Assembly Spaces—Libraries” shall be used.
- B**—Rate may not be sufficient where stored materials include those having potentially harmful emissions.
- C**—Rate does not allow for humidity control. “Deck area” refers to the area surrounding the pool that is capable of being wetted during pool use or when the pool is occupied. Deck area that is not expected to be wetted shall be designated as an occupancy category.
- D**—Rate does not include special exhaust for stage effects such as dry-ice vapors and smoke.
- E**—Where combustion equipment is intended to be used on the playing surface or in the space, additional dilution ventilation, source control, or both shall be provided.
- F**—Default occupancy for dwelling units shall be two persons for studio and one-bedroom units, with one additional person for each additional bedroom.
- G**—Air from one residential dwelling shall not be recirculated or transferred to any other space outside of that dwelling.
- H**—Ventilation air for this occupancy category shall be permitted to be reduced to zero when the space is in occupied-standby mode.

**TABLE 6.2.2.1 Minimum Ventilation Rates in Breathing Zone (Continued)**  
 (Table 6.2.2.1 shall be used in conjunction with the accompanying notes.)

Occupancy Category	People Outdoor Air Rate R <sub>p</sub>		Area Outdoor Air Rate R <sub>a</sub>		Notes	Default Values				Air Class	OS (6.2.7.1.3)
						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			

**Transient Residential**

Dwelling unit	5	2.5	0.06	0.3	F, G, H	F			1	X
Common corridors	—	—	0.06	0.3	H				1	X

**Retail**

Sales (except as below)	7.5	3.8	0.12	0.6		15	16	7.8	2	
Mall common areas	7.5	3.8	0.06	0.3	H	40	9	4.6	1	X
Barbershop	7.5	3.8	0.06	0.3	H	25	10	5.0	2	X
Beauty and nail salons	20	10	0.12	0.6		25	25	12.4	2	
Pet shops (animal areas)	7.5	3.8	0.18	0.9		10	26	12.8	2	
Supermarket	7.5	3.8	0.06	0.3	H	8	15	7.6	1	X
Coin-operated laundries	7.5	3.8	0.12	0.6		20	14	7.0	2	

**Sports and Entertainment**



BSR/ASHRAE Addendums to ANSI/ASHRAE Standard 62.1-2016, *Ventilation and Acceptable Indoor Air Quality*  
 Second Public Review Draft

Gym, sports arena (play area)	20	10	0.18	0.9	E	7	45	<del>23</del>	2	
Spectator areas	7.5	3.8	0.06	0.3	H	150	8	<del>4.0</del>	1	<u>X</u>
Swimming (pool & deck)	—	—	0.48	2.4	C	—			2	
Disco/dance floors	20	10	0.06	0.3	H	100	<del>21</del>	<del>10.3</del>	2	<u>X</u>
Health club/aerobics room	20	10	0.06	0.3		40	<del>22</del>	<del>10.8</del>	2	
Health club/weight rooms	20	10	0.06	0.3		10	<del>26</del>	<del>13.0</del>	2	
Bowling alley (seating)	10	5	0.12	0.6		40	<del>13</del>	<del>6.5</del>	1	
Gambling casinos	7.5	3.8	0.18	0.9		120	9	4.6	1	
Game arcades	7.5	3.8	0.18	0.9		20	<del>17</del>	<del>8.3</del>	1	
Stages, studios	10	5	0.06	0.3	D, H	70	<del>11</del>	<del>5.4</del>	1	<u>X</u>

**GENERAL NOTES FOR TABLE 6.2.2.1**

**19 Related requirements:** The rates in this table are based on all other applicable requirements of this standard being met.

**20 Environmental Tobacco Smoke:** This table applies to ETS-free areas. Refer to Section 5.17 for requirements for buildings containing ETS areas and ETS-free areas.

**21 Air density:** Volumetric airflow rates are based on dry air density of 0.075 lb<sub>dry</sub>/ft<sup>3</sup> (1.2 kg<sub>dry</sub>/m<sup>3</sup>) at a barometric pressure of 1 atm (101.3 kPa) and an air temperature of 70°F (21°C). Rates shall be permitted to be adjusted for actual density.

**22 Default occupant density:** The default occupant density shall be used where the actual occupant density is not known.

**23 Default combined outdoor air rate (per person):** Rate is based on the default occupant density.

**24 Unlisted occupancies:** Where the occupancy category for a proposed space or zone is not listed, the requirements for the listed occupancy category that is most similar in terms of occupant density, activities, and building construction shall be used.

**ITEM-SPECIFIC NOTES FOR TABLE 6.2.2.1**

**A**—For high-school and college libraries, the values shown for “Public Assembly Spaces—Libraries” shall be used.

**B**—Rate may not be sufficient where stored materials include those having potentially harmful emissions.

**C**—Rate does not allow for humidity control. “Deck area” refers to the area surrounding the pool that is capable of being wetted during pool use or when the pool is occupied. Deck area that is not expected to be wetted shall be designated as an occupancy category.

**D**—Rate does not include special exhaust for stage effects such as dry ice vapors and smoke.

**E**—Where combustion equipment is intended to be used on the playing surface or in the space, additional dilution ventilation, source control, or both shall be provided.

**F**—Default occupancy for dwelling units shall be two persons for studio and one-bedroom units, with one additional person for each additional bedroom.

**G**—Air from one residential dwelling shall not be recirculated or transferred to any other space outside of that dwelling.

**H**—Ventilation air for this occupancy category shall be permitted to be reduced to zero when the space is in occupied-standby mode.