



STANDARD

ANSI/ASHRAE Standard 62.1-2016
(Supersedes ANSI/ASHRAE Standard 62.1-2013)
Includes ANSI/ASHRAE addenda listed in Appendix K

Ventilation for Acceptable Indoor Air Quality

TABLE 6.2.2.1 Minimum Ventilation Rates in Breathing Zone

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			
	cfm/person	L/s·person	cfm/ft ²	L/s·m ²		Occupant Density (see Note 4) #/1000 ft ² or #/100 m ²	Combined Outdoor Air Rate (see Note 5)		Air Class
							cfm/person	L/s·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
Booking/waiting	7.5	3.8	0.06	0.3		50	9	4.4	2
Educational Facilities									
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
Lecture hall (fixed seats)	7.5	3.8	0.06	0.3	H	150	8	4.0	1
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 laboratories	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
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
Multiuse assembly	7.5	3.8	0.06	0.3	H	100	8	4.1	1
Food and Beverage Service									
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

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			
	cfm/person	L/s·person	cfm/ft ²	L/s·m ²		Occupant Density (see Note 4)	Combined Outdoor Air Rate (see Note 5)		Air Class
							#/1000 ft ² or #/100 m ²	cfm/person	
General									
Break rooms	5	2.5	0.06	0.3	H	25	7	3.5	1
Coffee stations	5	2.5	0.06	0.3	H	20	8	4	1
Conference/meeting	5	2.5	0.06	0.3	H	50	6	3.1	1
Corridors	—	—	0.06	0.3	H	—			1
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
Barracks sleeping areas	5	2.5	0.06	0.3	H	20	8	4.0	1
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
Multipurpose assembly	5	2.5	0.06	0.3	H	120	6	2.8	1
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
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
Reception areas	5	2.5	0.06	0.3	H	30	7	3.5	1
Telephone/data entry	5	2.5	0.06	0.3	H	60	6	3.0	1

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			
	cfm/person	L/s/person	cfm/ft ²	L/s·m ²		Occupant Density (see Note 4)	Combined Outdoor Air Rate (see Note 5)		Air Class
						#/1000 ft ² or #/100 m ²	cfm/person	L/s/person	
Miscellaneous Spaces									
Bank vaults/safe deposit	5	2.5	0.06	0.3	H	5	17	8.5	2
Banks or bank lobbies	7.5	3.8	0.06	0.3	H	15	12	6.0	1
Computer (not printing)	5	2.5	0.06	0.3	H	4	20	10.0	1
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
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
Places of religious worship	5	2.5	0.06	0.3	H	120	6	2.8	1
Courtrooms	5	2.5	0.06	0.3	H	70	6	2.9	1
Legislative chambers	5	2.5	0.06	0.3	H	50	6	3.1	1
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
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

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				
	cfm/ person	L/s/ person	cfm/ft ²	L/s·m ²		Occupant Density (see Note 4)		Combined Outdoor Air Rate (see Note 5)		Air Class
						#/1000 ft ² or #/100 m ²		cfm/ person	L/s/ person	
Residential										
Dwelling unit	5	2.5	0.06	0.3	F, G, H	F				1
Common corridors	—	—	0.06	0.3	H					1
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
Barbershop	7.5	3.8	0.06	0.3	H	25		10	5.0	2
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
Coin-operated laundries	7.5	3.8	0.12	0.6		20		14	7.0	2
Sports and Entertainment										
Gym, sports arena (play area)	20	10	0.18	0.9	E	7		45	23	2
Spectator areas	7.5	3.8	0.06	0.3	H	150		8	4.0	1
Swimming (pool & deck)	—	—	0.48	2.4	C	—				2
Disco/dance floors	20	10	0.06	0.3	H	100		21	10.3	2
Health club/aerobics room	20	10	0.06	0.3		40		22	10.8	2
Health club/weight rooms	20	10	0.06	0.3		10		26	13.0	2
Bowling alley (seating)	10	5	0.12	0.6		40		13	6.5	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		17	8.3	1
Stages, studios	10	5	0.06	0.3	D, H	70		11	5.4	1