



**BSR/ASHRAE Addendum w
to ANSI/ASHRAE Standard 62.1-2022**

Public Review Draft

Proposed Addendum w to Standard 62.1-2022, Ventilation and Acceptable Indoor Air Quality

**First Public Review (July 2025)
(Draft shows Proposed Changes to Current Standard)**

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FOREWORD

This proposed addendum adjusts the default occupant densities given in Table 6-1 so as not to exceed the occupant density allowances in the International Building Code 2024.

This proposed addendum also renames three Occupancy Categories for clarity.

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~striketrough~~ (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 w to 62.1-2022

Revise Table 6-1 as shown below.

Table 6-1 Minimum Ventilation Rates in Breathing Zone

| Occupancy Category | People Outdoor Air Rate R_p | | Area Outdoor Air Rate R_a | | Default Values | Air Class | OS (6.2.6 .1.4) | Maximum CO2 above Ambient, $\Delta C_{6.1}$ |
|---|-------------------------------|------------|-----------------------------|--------|------------------------|-----------|-----------------|---|
| | cfm/person | L/s·person | cfm/ft ² | L/s·m2 | Occupant Density | | | |
| | | | | | #/1000 ft2 or #/100 m2 | | | |
| Animal Facilities | | | | | | | | |
| Animal exam room (veterinary office) | 10 | 5 | 0.12 | 0.6 | 20 | 2 | | NA |
| Animal imaging (MRI/CT/PET) | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Animal operating rooms | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Animal postoperative recovery room | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Animal preparation rooms | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Animal procedure room | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Animal surgery scrub | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Large-animal holding room | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Necropsy | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Small-animal-cage room (static cages) | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Small-animal-cage room (ventilated cages) | 10 | 5 | 0.18 | 0.9 | 20 | 3 | | NA |
| Correctional Facilities | | | | | | | | |
| Booking/waiting | 7.5 | 3.8 | 0.06 | 0.3 | 50 | 2 | | 1200 |
| Cell | 5 | 2.5 | 0.12 | 0.6 | 25 | 2 | | NA |
| Dayroom | 5 | 2.5 | 0.06 | 0.3 | 30 | 1 | | 1500 |
| Guard stations | 5 | 2.5 | 0.06 | 0.3 | 15 | 1 | | 1200 |
| Educational Facilities | | | | | | | | |
| Art classroom | 10 | 5 | 0.18 | 0.9 | 20 | 2 | | NA |

| | | | | | | | | |
|--|-----|-----|------|-----|--------------------|---|---|-----------|
| Classrooms (ages 5 to 8) | 10 | 5 | 0.12 | 0.6 | 25 | 1 | | 600 |
| Classrooms (age 9 plus) | 10 | 5 | 0.12 | 0.6 | 35 | 1 | | 600 |
| <u>Computer lab Information technology equipment facilities (occupiable)</u> | 10 | 5 | 0.12 | 0.6 | 25 | 1 | | 600 |
| Daycare sickroom | 10 | 5 | 0.18 | 0.9 | 25 | 3 | | NA |
| Daycare (through age 4) | 10 | 5 | 0.18 | 0.9 | 25 | 2 | | NA |
| <u>Lecture classroom Assembly without fixed seats - concentrated (chairs only-not fixed)</u> | 7.5 | 3.8 | 0.06 | 0.3 | 65 | 1 | ✓ | 1200 |
| Lecture hall (fixed seats) | 7.5 | 3.8 | 0.06 | 0.3 | 150 143 | 1 | ✓ | 1200 |
| Libraries | 5 | 2.5 | 0.12 | 0.6 | 10 | | | 600 |
| Media center | 10 | 5 | 0.12 | 0.6 | 25 | 1 | | 600 |
| Multiuse assembly <u>(tables and chairs)</u> | 7.5 | 3.8 | 0.06 | 0.3 | 100 67 | 1 | ✓ | 1200 |
| Music/theater/dance | 10 | 5 | 0.06 | 0.3 | 35 | 1 | ✓ | 2100 |
| Science laboratories | 10 | 5 | 0.18 | 0.9 | 25 | 2 | | NA |
| University/college laboratories | 10 | 5 | 0.18 | 0.9 | 25 | 2 | | NA |
| Wood/metal shop | 10 | 5 | 0.18 | 0.9 | 20 | 2 | | NA |
| Food and Beverage Service | | | | | | | | |
| Bars, cocktail lounges | 7.5 | 3.8 | 0.18 | 0.9 | 100 | 2 | | 1200 |
| Cafeteria/fast-food dining | 7.5 | 3.8 | 0.18 | 0.9 | 100 67 | 2 | | 900 |
| Kitchen (cooking) | 7.5 | 3.8 | 0.12 | 0.6 | 20 5 | 2 | | NA |
| Restaurant dining rooms | 7.5 | 3.8 | 0.18 | 0.9 | 70 67 | 2 | | 1500 |
| General | | | | | | | | |
| Break rooms | 5 | 2.5 | 0.06 | 0.3 | 25 | 1 | ✓ | 1500 |
| Coffee stations | 5 | 2.5 | 0.06 | 0.3 | 20 | 1 | ✓ | 1200 |
| Conference/meeting | 5 | 2.5 | 0.06 | 0.3 | 50 | 1 | ✓ | 1500 |
| Corridors | — | — | 0.06 | 0.3 | — | 1 | ✓ | NA |
| Occupiable storage rooms for liquids or gels | 5 | 2.5 | 0.12 | 0.6 | 2 | 2 | | NA |
| Hotels, Motels, Resorts, Dormitories | | | | | | | | |
| Barracks sleeping areas | 5 | 2.5 | 0.06 | 0.3 | 20 | 1 | ✓ | 900 |
| Bedroom/living room | 5 | 2.5 | 0.06 | 0.3 | 10 | 1 | ✓ | 600 |
| Laundry rooms, central | 5 | 2.5 | 0.12 | 0.6 | 10 | 2 | | NA |
| Laundry rooms within dwelling units | 5 | 2.5 | 0.12 | 0.6 | 10 | 1 | | NA |
| Lobbies/prefunction | 7.5 | 3.8 | 0.06 | 0.3 | 30 | 1 | ✓ | 1500 |
| Multipurpose assembly | 5 | 2.5 | 0.06 | 0.3 | 120 | 1 | ✓ | 1800 |
| Miscellaneous Spaces | | | | | | | | |
| Banks or bank lobbies | 7.5 | 3.8 | 0.06 | 0.3 | 15 | 1 | ✓ | 900 |
| Bank vaults/safe deposit | 5 | 2.5 | 0.06 | 0.3 | 5 | 2 | ✓ | 600 |
| <u>Computer (not printing) Information technology equipment facilities (occupiable)</u> | 5 | 2.5 | 0.06 | 0.3 | 4 3 | 1 | ✓ | <u>NA</u> |
| Freezer and refrigerated spaces (<50°F | 10 | 5 | 0 | 0 | 0 | 2 | | NA |

[10°C])

| | | | | | | | | |
|---|-----|-----|------|-----|--------------------|---|---|------|
| Manufacturing where hazardous materials are not used | 10 | 5 | 0.18 | 0.9 | 7 | 2 | | 600 |
| Manufacturing where hazardous materials are used (excludes heavy industrial and chemical processes) | 10 | 5 | 0.18 | 0.9 | 7 | 3 | | NA |
| Pharmacy (prep. area) | 5 | 2.5 | 0.18 | 0.9 | 10 | 2 | | 900 |
| Photo studios | 5 | 2.5 | 0.12 | 0.6 | 10 | 1 | | NA |
| Shipping/receiving | 10 | 5 | 0.12 | 0.6 | 2 | 2 | | 700 |
| Sorting, packing, light assembly | 7.5 | 3.8 | 0.12 | 0.6 | 7 | 2 | | 900 |
| Telephone closets | — | — | 0.00 | 0.0 | — | 1 | | NA |
| Transportation waiting | 7.5 | 3.8 | 0.06 | 0.3 | 100 67 | 1 | ✓ | 1800 |
| Warehouses | 10 | 5 | 0.06 | 0.3 | — | 2 | | 700 |
| Office Buildings | | | | | | | | |
| Breakrooms | 5 | 2.5 | 0.12 | 0.6 | 50 | 1 | | 1500 |
| Main entry lobbies | 5 | 2.5 | 0.06 | 0.3 | 10 | 1 | ✓ | 1200 |
| Occupiable storage rooms for dry materials | 5 | 2.5 | 0.06 | 0.3 | 2 | 1 | | 700 |
| Office space | 5 | 2.5 | 0.06 | 0.3 | 5 | 1 | ✓ | 600 |
| Reception areas | 5 | 2.5 | 0.06 | 0.3 | 30 | 1 | ✓ | 2100 |
| Telephone/data entry | 5 | 2.5 | 0.06 | 0.3 | 60 | 1 | ✓ | 1800 |
| Public Assembly Spaces | | | | | | | | |
| Auditorium seating area | 5 | 2 | 0.06 | 0.3 | 150 143 | 1 | ✓ | 1800 |
| Courtrooms | 5 | 2.5 | 0.06 | 0.3 | 70 | 1 | ✓ | 1500 |
| Legislative chambers | 5 | 2.5 | 0.06 | 0.3 | 50 | 1 | ✓ | 1800 |
| Libraries | 5 | 2.5 | 0.12 | 0.6 | 10 | 1 | | 600 |
| Lobbies | 5 | 2.5 | 0.06 | 0.3 | 150 | 1 | ✓ | 1800 |
| Museums (children's) | 7.5 | 3.8 | 0.12 | 0.6 | 40 | 1 | | 1800 |
| Museums/galleries | 7.5 | 3.8 | 0.06 | 0.3 | 40 33 | 1 | ✓ | 1500 |
| Places of religious worship | 5 | 2.5 | 0.06 | 0.3 | 120 | 1 | ✓ | 1800 |
| Residential | | | | | | | | |
| Common corridors | — | — | 0.06 | 0.3 | | 1 | ✓ | NA |
| Retail | | | | | | | | |
| Sales (except as below) | 7.5 | 3.8 | 0.12 | 0.6 | 15 | 2 | | 900 |
| Barbershop | 7.5 | 3.8 | 0.06 | 0.3 | 25 7 | 2 | ✓ | NA |
| Beauty and nail salons | 20 | 10 | 0.12 | 0.6 | 25 7 | 2 | | NA |
| Coin-operated laundries | 7.5 | 3.8 | 0.12 | 0.6 | 20 7 | 2 | | NA |
| Mall common areas | 7.5 | 3.8 | 0.06 | 0.3 | 40 33 | 1 | ✓ | 2100 |
| Pet shops (animal areas) | 7.5 | 3.8 | 0.18 | 0.9 | 10 | 2 | | NA |
| Supermarket | 7.5 | 3.8 | 0.06 | 0.3 | 8 | 1 | ✓ | 1500 |

| Sports and Entertainment | | | | | | | | |
|---------------------------------|-----|-----|------|-----|---------------------------|---|---|-------------|
| Bowling alley (seating) | 10 | 5 | 0.12 | 0.6 | 40 | 1 | | 900 |
| Disco/dance floors | 20 | 10 | 0.06 | 0.3 | 100 | 2 | ✓ | 1500 |
| Gambling casinos | 7.5 | 3.8 | 0.18 | 0.9 | 120 <u>91</u> | 1 | | 1200 |
| Game arcades | 7.5 | 3.8 | 0.18 | 0.9 | 20 | 1 | | 900 |
| Gym, sports arena (play area) | 20 | 10 | 0.18 | 0.9 | 7 | 2 | | 900 |
| Health club/aerobics room | 20 | 10 | 0.06 | 0.3 | 40 <u>20</u> | 2 | | <u>1200</u> |
| Health club/weight rooms | 20 | 10 | 0.06 | 0.3 | 10 | 2 | | 1500 |
| Spectator areas | 7.5 | 3.8 | 0.06 | 0.3 | 150 <u>143</u> | 1 | ✓ | 1500 |
| Stages, studios | 10 | 5 | 0.06 | 0.3 | 70 <u>67</u> | 1 | ✓ | 1500 |
| Swimming (pool and deck) | — | — | 0.48 | 2.4 | — | 2 | | NA |

Revise Informative Appendix G as shown below.

Table G-1 Minimum Outdoor and Primary Airflow Rates

| Occupancy Category | Zone Minimum Airflow | | | |
|--|----------------------------|----------------------|--|-----------------------|
| | Outdoor Airflow Rate R_s | | Minimum Primary Airflow Rate, R_{pz} | |
| | cfm/ft ² | L/s·m ² | cfm/ft ² | L/s·m ² |
| Educational Facilities | | | | |
| Classrooms (ages 5 to 8) | 0.65 | 3.25 | 1.12 | 5.60 |
| Classrooms (ages 9 plus) | 0.82 | 4.10 | 1.41 | 7.05 |
| Computer lab Information technology equipment facilities (occupiable) | 0.65 | 3.25 | 1.12 | 5.60 |
| Media center | 0.65 | 3.25 | 1.12 | 5.60 |
| Music/theater/dance | 0.72 | 3.60 | 1.24 | 6.20 |
| Multiuse assembly (tables and chairs) | 1.42 0.98 | 7.10 4.92 | 2.45 1.69 | 12.25 8.44 |
| General | | | | |
| Conference/meeting | 0.44 | 2.20 | 0.76 | 3.80 |
| Corridors | 0.11 | 0.55 | 0.19 | 0.95 |
| Office Buildings | | | | |
| Breakrooms | 0.65 | 3.25 | 1.12 | 5.60 |
| Main entry lobbies | 0.19 | 0.95 | 0.33 | 1.65 |
| Occupiable storage rooms for dry materials | 0.12 | 0.60 | 0.21 | 1.05 |
| Office space | 0.15 | 0.75 | 0.26 | 1.30 |
| Reception areas | 0.37 | 1.85 | 0.64 | 3.20 |
| Telephone/data entry | 0.63 | 3.15 | 1.09 | 5.45 |

Revise Informative Appendix M as shown below.

Table M-1 Check Table for the Ventilation Rate Procedure (VRP)

| Occupancy Category | Combined Outdoor Air Rate (R_c) | |
|--|-------------------------------------|----------------------|
| | cfm/ft ² | L/s·m ² |
| Animal Facilities | | |
| Animal exam room (veterinary office) | 0.43 | 2.13 |
| Animal imaging (MRI/CT/PET) | 0.51 | 2.53 |
| Animal operating rooms | 0.51 | 2.53 |
| Animal postoperative recovery room | 0.51 | 2.53 |
| Animal preparation rooms | 0.51 | 2.53 |
| Animal procedure room | 0.51 | 2.53 |
| Animal surgery scrub | 0.51 | 2.53 |
| Large-animal holding room | 0.51 | 2.53 |
| Necropsy | 0.51 | 2.53 |
| Small-animal-cage room (static cages) | 0.51 | 2.53 |
| Small-animal-cage room (ventilated cages) | 0.51 | 2.53 |
| Correctional Facilities | | |
| Booking/waiting | 0.58 | 2.93 |
| Cell | 0.33 | 1.63 |
| Dayroom | 0.28 | 1.40 |
| Guard stations | 0.18 | 0.90 |
| Educational Facilities | | |
| Art classroom | 0.51 | 2.53 |
| Classrooms (ages 5 through 8) | 0.49 | 2.47 |
| Classrooms (ages 9 plus) | 0.63 | 3.13 |
| Computer lab Information technology equipment facilities (occupiable) | 0.49 | 2.47 |
| Daycare sickroom | 0.57 | 2.87 |
| Daycare (through age 4) | 0.57 | 2.87 |
| Lecture classroom Assembly without fixed seats - concentrated (chairs only-not fixed) | 0.73 | 3.69 |
| Lecture hall (fixed seats) | 1.58 1.51 | 8.00 7.65 |
| Libraries | 0.23 | 1.13 |
| Media center | 0.49 | 2.47 |
| Multiuse assembly (tables and chairs) | 1.08 0.75 | 5.47 3.79 |
| Music/theater/dance | 0.55 | 2.73 |
| Science laboratories | 0.57 | 2.87 |
| University/college laboratories | 0.57 | 2.87 |
| Wood/metal shop | 0.51 | 2.53 |

| | | |
|---|----------------------|----------------------|
| Food and Beverage Service | | |
| Bars, cocktail lounges | 1.24 | 6.27 |
| Cafeteria/fast-food dining | 1.24 0.91 | 6.27 4.60 |
| Kitchen (cooking) | 0.36 0.21 | 1.81 1.05 |
| Restaurant dining rooms | 0.94 0.91 | 4.75 4.59 |
| Food and Beverage Service, General | | |
| Break rooms | 0.25 | 1.23 |
| Coffee stations | 0.21 | 1.07 |
| Conference/meeting | 0.41 | 2.07 |
| Corridors | 0.08 | 0.40 |
| Occupiable storage rooms for liquids or gels | 0.17 | 0.87 |
| Hotels, Motels, Resorts, Dormitories | | |
| Barracks sleeping areas | 0.21 | 1.07 |
| Bedroom/living room | 0.15 | 0.73 |
| Laundry rooms (central) | 0.23 | 1.13 |
| Laundry rooms within dwelling units | 0.23 | 1.13 |
| Lobbies/prefunction | 0.38 | 1.92 |
| Multipurpose assembly | 0.88 | 4.40 |
| Miscellaneous Spaces | | |
| Banks or bank lobbies | 0.23 | 1.16 |
| Bank vaults/safe deposit | 0.11 | 0.57 |
| Computer (not printing) Information technology equipment facilities (occupiable) | 0.11 0.10 | 0.57 0.50 |
| Freezer and refrigerated spaces (<50°F [10°C]) | 0.03 | 0.13 |
| General manufacturing (excludes heavy industrial and processes using chemicals) | 0.33 | 1.67 |
| Pharmacy (prep area) | 0.31 | 1.53 |
| Photo studios | 0.23 | 1.13 |
| Shipping/receiving | 0.19 | 0.93 |
| Sorting, packing, light assembly | 0.23 | 1.15 |
| Telephone closets | 0.00 | 0.00 |
| Transportation waiting | 1.08 0.75 | 5.47 3.80 |
| Warehouses | 0.09 | 0.47 |

Table M-1 Check Table for the Ventilation Rate Procedure (VRP) (Continued)

| Occupancy Category | Combined Outdoor Air Rate (R_c) | |
|--|-------------------------------------|----------------------|
| | cfm/ft ² | L/s· m ² |
| Office Buildings | | |
| Breakrooms | 0.49 | 2.47 |
| Main entry lobbies | 0.15 | 0.73 |
| Occupiable storage rooms for dry materials | 0.09 | 0.47 |
| Office space | 0.11 | 0.57 |
| Reception areas | 0.28 | 1.40 |
| Telephone/data entry | 0.48 | 2.40 |
| Public Assembly Spaces | | |
| Auditorium seating area | 1.08 1.03 | 5.40 5.15 |
| Courtrooms | 0.55 | 2.73 |
| Legislative chambers | 0.41 | 2.07 |
| Libraries | 0.23 | 1.13 |
| Lobbies | 1.08 | 5.40 |
| Museums (children's) | 0.56 | 2.83 |
| Museums/galleries | 0.48 0.41 | 2.43 2.08 |
| Places of religious worship | 0.88 | 4.40 |
| Retail | | |
| Sales (except as below) | 0.31 | 1.56 |
| Barbershop | 0.33 0.15 | 1.67 0.76 |
| Beauty and nail salons | 0.83 0.35 | 4.13 1.74 |
| Coin-operated laundries | 0.36 0.23 | 1.81 1.16 |
| Mall common areas | 0.48 0.41 | 2.43 2.08 |
| Pet shops (animal areas) | 0.34 | 1.71 |
| Supermarket | 0.16 | 0.81 |
| Sports and Entertainment | | |
| Bowling alley (seating) | 0.69 | 3.47 |
| Disco/dance floors | 2.75 | 13.73 |
| Gambling casinos | 1.44 1.15 | 7.28 5.81 |
| Game arcades | 0.44 | 2.21 |
| Gym, sports arena (play area) | 0.43 | 2.13 |
| Health club/aerobics room | 1.15 0.61 | 5.73 3.02 |
| Health club/weight rooms | 0.35 | 1.73 |
| Spectator areas | 1.58 1.51 | 8.00 7.65 |
| Stages, studios | 1.01 0.97 | 5.07 4.92 |
| Swimming (pool and deck) | 0.64 | 3.20 |

Table J-1 Rate Rationale (see Table 6-1)

| Occupancy Category | Description/Rationale | People Outdoor Air Rate, cfm/person | People Outdoor Air Rate, L/s/person | Area Outdoor Air Rate, cfm/ft ² | Area Outdoor Air Rate, L/s·m ² | Air Class |
|---|--|-------------------------------------|-------------------------------------|--|---|-----------|
| Educational Facilities | | | | | | |
| <u>Computer lab</u> <u>Information technology equipment facilities</u> <u>(occupiable)</u> | Occupant activity is primarily sedentary (seated or light walking). However, occupants are generally more vocal. Also, the occupants can be children/young adults with higher metabolic rates. There are some significant space- related contaminants, typically toner cartridges and paper. | 10 | 5 | 0.12 | 0.6 | 1 |
| <u>Lecture classroom</u> <u>Assembly without fixed seats – concentrated (chairs only- not fixed)</u> | Occupant activity is primarily sedentary (seated or light walking). However, occupants are generally more vocal, resulting in higher metabolic rates. There are no significant space-related contaminants. | 7.5 | 3.8 | 0.06 | 0.3 | 1 |
| <u>Multiuse assembly (tables and chairs)</u> | Occupant activity is primarily sedentary (seated or light walking). However, occupants are generally more vocal, resulting in higher metabolic rates. There are no significant space-related contaminants. | 7.5 | 3.8 | 0.06 | 0.3 | 1 |
| Miscellaneous Spaces | | | | | | |
| <u>Computer (not printing)</u> <u>Information technology equipment facilities</u> <u>(occupiable)</u> | Occupant activity is primarily sedentary (seated). There are no significant space-related contaminants. | 5 | 2.5 | 0.06 | 0.3 | 1 |