



ADDENDA

**ANSI/ASHRAE Addendum x to
ANSI/ASHRAE Standard 62.1-2022**

Ventilation and Acceptable Indoor Air Quality

Approved by the ASHRAE Standards Committee on September 23, 2022; by the ASHRAE Board of Directors on October 14, 2022; and by the American National Standards Institute on November 8, 2022.

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Cognizant TC: 4.3, Ventilation Requirements and Infiltration

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FOREWORD

The exhaust procedure in Standard 62.1-2022 contains requirements in notes. This addendum relocates those requirements to the body of the standard. The performance compliance path is modified to be consistent with the proposed changes to the IAQ Procedure.

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 x to Standard 62.1-2022

Modify Section 6.5 as shown. Renumber existing Sections 6.5.1.1 and 6.5.1.2 accordingly.

6.5 Exhaust Ventilation. The Prescriptive Compliance Path in Section 6.5.1 or the Performance Compliance Path in Section 6.5.2 shall be used to meet the requirements of this section. Exhaust makeup air shall be permitted to be any combination of outdoor air, recirculated air, or transfer air.

6.5.1 Prescriptive Compliance Path. The design exhaust airflow shall be determined in accordance with the requirements in Tables 6-2 and 6-3.

Exceptions to Section 6.5.1:

1. Laboratory spaces that comply with all requirements of ANSI Z9.5 or determined otherwise by the Environmental Health and Safety professional responsible to the owner.
2. Parking garages where two or more sides comprise walls that are at least 50% open to the outside.
3. Exhaust air from toilets that has been cleaned to meet Class 1 criteria per Section 5.18.1 shall be permitted to be recirculated.

6.5.1.1 Source Strengths. The minimum exhaust rates in Table 6-2 are based on contaminant sources and source strengths that are typical for the listed occupancy categories. Where unusual sources are expected within a listed occupancy category, the additional exhaust required shall be calculated using Section 6.5.2 performance compliance path.

6.5.1.2 Combustion Equipment. For specific occupancy categories, the exhaust requirements in Section 6.5.1.2.1 through 6.5.1.2.4 shall apply whenever combustion equipment is operated. For occupancy categories where combustion equipment is operated, the exhaust requirements in Section 6.5.2 shall apply.

6.5.1.2.1 Auto Repair Rooms. Stands where engines are run in auto repair rooms shall have exhaust systems that directly connect to the engine exhaust and prevent escape of fumes.

6.5.1.2.2 Parking Garages. Systems in parking garages shall be designed to operate continuously whenever the garage is in use.

Exception to 6.5.1.2.2: Intermittent operation shall be allowed provided the system is designed in accordance with the procedure in Section 6.5.2.

6.5.1.2.3 Kitchens. Kitchen exhaust shall comply with requirements of ASHRAE Standard 154^X.

6.5.1.2.4 Laboratories. Laboratory spaces with combustion equipment shall comply with all requirements of ANSI Z9.5 or with the requirements provided by the Environmental Health and Safety professional responsible to the owner.

6.5.2 Performance Compliance Path. The exhaust airflow shall be determined in accordance with the following subsections.

6.5.2.1 Contaminant Sources. ~~Contaminants or mixtures of concern for purposes of the design shall be identified. For each contaminant or mixture of concern, indoor sources (occupants, materials, activities, and processes) and outdoor sources shall be identified, and the emission rate for each contaminant of concern from each source shall be determined.~~

6.5.2.1 Design Compounds and PM_{2.5} Sources. The exhaust system design shall be based on the design compounds (DCs) and PM_{2.5} specified in Table 6-5 at a minimum. Additional

compounds from outdoor sources identified in accordance with Section 4 or from unusual sources shall be determined and shall be added to the DC list if a design limit from a cognizant authority exists. For each DC and PM2.5, the emission rates from indoor sources from people, building materials, furnishings, equipment, and other sources and the rate of contaminant influx into the building (mass per unit time) shall be determined.

Informative Note: See Section 6.3.

~~**6.5.2.2 Contaminant Concentration.** For each contaminant of concern, a concentration limit and its corresponding exposure period and an appropriate reference to a cognizant authority shall be specified~~

6.5.2.2 Design Compounds and PM2.5 Concentration. The concentration limits, referred to as “design limits,” shall be as specified in Table 6-5. Design exhaust shall be such that the calculated concentration of each DC, mixture of DCs, and PM2.5 does not exceed its limit. For any compounds added to the minimum DC list in Table 6-5, data from cognizant authorities shall be used to determine if the compound causes the effects listed in Table 6-6 (Section 6.3.2) and compounds having one or more of the mixture effects will be added to the mixture list for that effect. For each mixture, the mixed exposure sum (E_m) as determined by Equation 6-12 shall be less than 1.0.

6.5.2.3 Objective Evaluation. Perform DC and PM2.5 measurement in the completed and occupied exhaust zone to verify that design limits are met. The peak concentration over an 8-hour occupied period shall not exceed the design limit for CO.

For ozone and PM2.5, the average concentration measured over an 8-hour occupied period shall be below the design limit.

For all other compounds, the concentration measured over the maximum period allowed by the test method up to 8 hours shall be below the design Limit for each DC. For DCs mixtures, the mixture calculation shall be less than 1.0. The concentrations shall be measured using the relevant laboratory methods specified in Table 7-1. Inorganic compounds and PM2.5 may be measured instead using direct-read instruments that are calibrated in accordance with the device manufacturer’s recommendations, are capable of measuring below the design limit, and that follow the performance requirements specified in Table 7-2.

6.5.2.4 Subjective Evaluation. Using a subjective occupant evaluation conducted in the completed building, the minimum exhaust airflow rates required to achieve acceptability of 80% or more shall be determined within each zone served by the exhaust system.

Exception to 6.5.2.4: The minimum exhaust airflow rates shall be not less than those found in accordance with Section 6.5.2.4 for a substantially similar zone.

~~**6.5.2.35 Dynamic Reset.** The system shall be permitted to be designed to reset the exhaust flow as operating conditions change. Monitoring and control systems shall be provided to automatically detect contaminant DC or PM2.5 levels of concern and modulate exhaust airflow such that contaminant DC or PM2.5 levels are maintained at not greater than the specified contaminant DC or PM2.5 compound design target concentration limits.~~

Add new reference in Section 9 as shown. The remainder of Section 9 is unchanged.

XX. ASHRAE. 2016. ANSI/ASHRAE Standard 154, *Ventilation for Commercial Cooking Operations*. Atlanta: ASHRAE.

Modify Table 6-2 as shown.

Table 6-2 Minimum Exhaust Rates

Occupancy Category	Exhaust Rate, cfm/unit	Exhaust Rate, cfm/ft ²	Notes	Exhaust Rate, L/s·unit	Exhaust Rate, L/s·m ²	Air Class
Arenas	—	0.50	B	—	—	1
Art classrooms	—	0.70		—	3.5	2
Auto repair rooms	—	1.50	A	—	7.5	2
Barber shops	—	0.50		—	2.5	2
Beauty and nail salons	—	0.60		—	3.0	2
Cells with toilet	—	1.00		—	5.0	2
Copy, printing rooms	—	0.50		—	2.5	2
Darkrooms	—	1.00		—	5.0	2
Educational science laboratories	—	1.00		—	5.0	2
Janitor closets, trash rooms, recycling	—	1.00		—	5.0	3
Kitchenettes	—	0.30		—	1.5	2
Kitchens—commercial	—	0.70		—	3.5	2
Locker rooms for athletic, industrial, and health care facilities	—	0.50		—	2.5	2
All other locker rooms	—	0.25		—	1.25	2
Shower rooms <u>per shower head</u>	20/50		G, I	10/25		2
Continuous operation	<u>20</u>			<u>10</u>		
Intermittent operation	<u>50</u>			<u>25</u>		
Paint spray booths	—	—	F	—	—	4
Parking garages	—	0.75	E	—	3.7	2
Pet shops (animal areas)	—	0.90		—	4.5	2
Refrigerating machinery rooms	—	—	F	—	—	3
Residential Dwelling-unit kitchens	50/100	—	G	25/50	—	2
Continuous operation	<u>50</u>			<u>25</u>		
Intermittent operation	<u>100</u>			<u>50</u>		
Soiled laundry storage rooms	—	1.00	F	—	5.0	3
Storage rooms, chemical	—	1.50	F	—	7.5	4
Toilets—private (<u>one person</u>)	25/50	—	E, H	12.5/25	—	2
Continuous operation	<u>25</u>			<u>12.5</u>		
Intermittent operation	<u>50</u>			<u>25</u>		
Toilets—public (<u>≥1 person</u>) per fixture (water closet or urinal)	50/70	—	D, H	25/35	—	2
Continuous operation	<u>50</u>			<u>25</u>		
Intermittent operation	<u>70</u>			<u>35</u>		
Woodwork shop/classrooms	—	0.50		—	2.5	2

NOTES:

- A Stands where engines are run shall have exhaust systems that directly connect to the engine exhaust and prevent escape of fumes.
B Where combustion equipment is intended to be used on the playing surface additional dilution ventilation, source control, or both shall be provided.
C Exhaust shall not be required where two or more sides comprise walls that are at least 50% open to the outside.
D Rate is per water closet, urinal, or both. Provide the higher rate where periods of heavy use are expected to occur. The lower rate shall be permitted to be used otherwise.
E Rate is for a toilet room intended to be occupied by one person at a time. For continuous system operation during hours of use, the lower rate shall be permitted to be used. Otherwise the higher rate shall be used.
F See other applicable standards for exhaust rate.
G For continuous system operation, the lower rate shall be permitted to be used. Otherwise the higher rate shall be used.
H Exhaust air that has been cleaned to meet Class 1 criteria from Section 5.16.1 shall be permitted to be recirculated.
I Rate is per showerhead.

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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.

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