CONTENTS

ANSI/ASHRAE Standard 62.1-2019
Ventilation for Acceptable Indoor Air Quality

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FOREWORD

Standard 62.1 has undergone key changes over the years, reflecting the ever-expanding body of knowledge, experience, and research related to ventilation and air quality. While the purpose of the standard remains unchanged—to specify minimum ventilation rates and other measures intended to provide indoor air quality (IAQ) that is acceptable to human occupants and that minimizes adverse health effects—the means of achieving this goal have evolved.

In its first edition, the standard adopted a prescriptive approach to ventilation by specifying both minimum and recommended outdoor airflow rates to obtain acceptable indoor air quality for a variety of indoor spaces. In 1981, the standard reduced minimum outdoor airflow rates and introduced an alternative performance-based approach, the IAQ Procedure, which allowed for the calculation of the amount of outdoor air necessary to maintain the levels of indoor air contaminants below recommended limits. In 2004—the last time the standard was revised in its entirety—the IAQ Procedure was modified to improve enforceability, but more significantly the Ventilation Rate Procedure was modified, changing both the minimum outdoor airflow rates and the procedures for calculating both zone-level and system-level outdoor airflow rates. Today, the standard includes three procedures for ventilation design: the IAQ Procedure, the Ventilation Rate Procedure, and the Natural Ventilation Procedure.

The following are among significant changes made in the 2019 edition of the standard:

- *The scope is changed to remove commentary and to more specifically identify occupancies previously not covered.*
- *Informative tables of ventilation rates per unit area are included for checking existing buildings and design of new buildings.*
- *The Ventilation Rate Procedure is modified with a new simplified version for determining E_v and a more robust option for determining values of E_z.*
- *The Natural Ventilation Procedure is significantly modified to provide a more accurate calculation methodology and also define the process for designing an engineered system.*
- *Natural ventilation now requires consideration of the quality of the outdoor air and interaction of the outdoor air with mechanically cooled spaces.*
- *Air-cleaning devices that generate ozone are prohibited.*
- *Humidity control requirements are now expressed as dew point and not as relative humidity.*
- *The standard now defers to ANSI Z9.5 on ventilation for laboratories handling hazardous materials.*
- *Patient care spaces in the scope of ASHRAE/ASHE Standard 170 now follow the requirements of Standard 170; ancillary spaces not previously classified have been added.*

For more specific information on these and other changes made to the standard, refer to Informative Appendix O.

Standard 62.1 is updated on a regular basis using ASHRAE's continuous maintenance procedures. Addenda are publicly reviewed, approved by ASHRAE and ANSI, and posted on the ASHRAE website. Change proposals can be submitted online at www.ashrae.org/continuous-maintenance. The project committee for Standard 62.1 takes formal action on all change proposals received.

1. PURPOSE

1.1 The purpose of this standard is to specify minimum ventilation rates and other measures intended to provide indoor air quality (IAQ) that is acceptable to human occupants and that minimizes adverse health effects.

1.2 This standard is intended for regulatory application to new buildings, additions to existing buildings, and those changes to existing buildings that are identified in the body of the standard.

1.3 This standard is intended to be used to guide the improvement of IAQ in existing buildings.

2. SCOPE

2.1 This standard applies to spaces intended for human occupancy within buildings except those within dwelling units in residential occupancies in which occupants are nontransient.

2.2 This standard defines requirements for ventilation and air-cleaning system design, installation, commissioning, and operation and maintenance.

2.3 In addition to ventilation, this standard contains requirements related to certain contaminants and contaminant sources, including outdoor air, construction processes, moisture, and biological growth.

2.4 This standard does not prescribe specific ventilation rate requirements for the following:

a. Spaces that contain smoking or that do not meet the requirements in the standard for separation from spaces that contain smoking
b. Patient care areas not listed in this standard
c. Laboratories with hazardous materials

3. DEFINITIONS

3.1 Terminology (See Figure 3-1)

acceptable indoor air quality (IAQ): air in which there are no known contaminants at harmful concentrations, as determined by cognizant authorities, and with which a substantial majority (80% or more) of the people exposed do not express dissatisfaction.

air:

ambient air: the air surrounding a building; the source of outdoor air brought into a building.

cool air: air whose temperature is less than the average space temperature.

exhaust air: air removed from a space and discharged to outside the building by means of mechanical or natural ventilation systems.

indoor air: the air in an enclosed occupiable space.

makeup air: any combination of outdoor air and transfer air intended to replace exhaust air and exfiltration.

outdoor air: ambient air and ambient air that enters a building through a ventilation system, through intentional openings for natural ventilation, or by infiltration.

primary air: air supplied to the ventilation zone prior to mixing with any locally recirculated air.

recirculated air: air removed from a space and reused as supply air.

return air: air removed from a space to be recirculated or exhausted.

supply air: air delivered by mechanical or natural ventilation to a space and composed of any combination of outdoor air, recirculated air, or transfer air.

transfer air. air moved from one indoor space to another.

ventilation air: that portion of supply air that is outdoor air plus any recirculated air that has been treated for the purpose of maintaining acceptable IAQ.

warm air: air whose temperature is greater than the average space temperature.

air-cleaning system: a device or combination of devices applied to reduce the concentration of airborne contaminants such as microorganisms, dusts, fumes, respirable particles, other particulate matter, gases, vapors, or any combination thereof.

air conditioning: the process of treating air to meet the requirements of a conditioned space by controlling its temperature, humidity, cleanliness, and distribution.

breathing zone: the region within an occupied space between planes 3 and 72 in. (75 and 1800 mm) above the floor and more than 2 ft (600 mm) from the walls or fixed air-conditioning equipment.

ceiling return: air removed from the space more than 4.5 ft (1.4 m) above the floor.

ceiling supply: air supplied to the space more than 4.5 ft (1.4 m) above the floor.