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ASHRAE Guideline 42-2023
Enhanced Indoor Air Quality in Commercial and Institutional Buildings

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Preview

NOTE

Approved addenda, errata, or interpretations for this guideline can be downloaded free of charge from the ASHRAE website at www.ashrae.org/technology.

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(This foreword is not part of this guideline. It is merely informative and does not contain requirements necessary for conformance to the guideline.)

FOREWORD

Since 1999, ASHRAE has maintained a minimum standard for ventilation, first through Standard 62 and then through its successor, Standard 62.1. As a minimum standard intended for international code adoption, ANSI/ASHRAE Standard 62.1 cannot mandate the abundance of evidence-based, improved indoor air quality (IAQ) practices. ASHRAE Guideline 42 was developed to fill this gap.

ASHRAE Guideline 42 is intended for a global audience of engineers, designers, hygienists, air quality practitioners, and building owners and provides a roadmap of varied best practices for improving ventilation and acceptable IAQ. The guideline steps users through concepts, research, and processes that have proven useful when effectively designed, installed, and operated. Guideline 42 also aims to supplement related publications from ASHRAE and other organizations. Future editions will incorporate relevant research and technologies as they are tested and validated to improve IAQ. Guideline 42 is not intended to be all inclusive, nor does its use guarantee enhanced ventilation.

The sections of Guideline 42 are purposefully organized to reflect the path of air, beginning outside the building and moving through the building envelope, systems, and equipment to the indoor space. Enhanced IAQ is a function of interacting building systems and occupant activity. Highlighting the air path, and arranging subsections accordingly, creates a logical framework for future revisions. Figure 1 shows how the sections of ANSI/ASHRAE Standard 62.1 relate to those of Guideline 42. Figures 2 and 3 show how the sections of Guideline 42 relate to areas of the building and ventilation system.

1. PURPOSE

1.1 The purpose of this guideline is to recommend measures that exceed minimum requirements for improving indoor air quality (IAQ) in commercial and institutional buildings. These measures are intended to provide enhanced IAQ that is acceptable to human occupants and that minimizes adverse health effects.

2. SCOPE

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

2.2 This guideline provides recommendations related to certain sources and for ventilation and air-cleaning system design, installation, commissioning, and operation and maintenance.

3. DEFINITIONS

Definitions for terms designated with an asterisk (*) are from ANSI/ASHRAE Standard 62.1, and terms designated with a dagger (†) are from the online ASHRAE Terminology Database (www.ashrae.org/terminology).

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.

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.

locally recirculated air: indoor air that is recirculated within a space by mechanically powered equipment such as ceiling fans or in-room air-cleaning device.

makeup air*: any combination of outdoor 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 indoor air quality.

Preview