ASHRAE GUIDELINE

Ventilation and Indoor Air Quality in Low-Rise Residential Buildings

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a. interpretation of the contents of this Guideline,
b. participation in the next review of the Guideline,
c. offering constructive criticism for improving the Guideline, or
d. permission to reprint portions of the Guideline.

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NOTE

When interpretations or errata to this guideline have been approved, they can be downloaded free of charge from the ASHRAE Web site at http://www.ashrae.org.

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

FOREWORD

In 2003, ASHRAE published Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings, the first stand-alone ventilation and indoor air quality (IAQ) standard specifically written for low-rise residential buildings. Although Standard 62.2 provides far more detailed residential ventilation requirements than were contained in the previous versions of Standard 62, the 62.2 project committee felt that the new standard by itself did not adequately address the need to provide information on achieving good IAQ in low-rise residential buildings. In writing Guideline 24, the committee was able to address IAQ and ventilation issues where consensus could not be achieved in Standard 62.2, and to provide explanatory and educational material that would be inappropriate in a code-intended document.

While the title of Guideline 24P—Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings—is nearly identical to that of Standard 62.2, this guideline's purpose and scope contain many significant differences from the standard. The purpose of the standard is limited to defining the roles of and minimum requirements for mechanical and natural ventilation systems and the building envelope intended to provide acceptable IAQ in low-rise residential buildings. While these roles and requirements are written with the intent of providing acceptable IAQ in low-rise residential buildings, the much broader purpose of this guideline is to provide information on achieving good IAQ.

The scope of this guideline is also much broader than the scope of the standard. Both scopes specify that the documents apply to residential buildings three stories or fewer in height above grade, including manufactured and modular houses. However, the standard's scope goes on to specifically exclude unvented combustion space heaters and to provide a list of reasons that may prevent acceptable IAQ from being achieved, despite meeting all of the minimum requirements. Given its broader scope, the guideline provides information aimed at helping to achieve good IAQ regardless of circumstances that might make such information inappropriate for a standard limited to providing minimum requirements.

Thus, in addition to providing informative background material on residential IAQ, this guideline addresses important residential IAQ issues that were not addressed in Standard 62.2 due to lack of consensus or other reasons. Some of these issues were addressed in pre-publication draft versions of Standard 62.2 and include carbon monoxide (CO) alarms, air distribution, better air filtration, and unvented combustion appliances. This guideline also provides useful information on topics such as verification of ventilation equipment performance and operations and maintenance which, though important, are not easily addressed in a code-intended standard.

1. PURPOSE

1.1 This guideline provides information on achieving good indoor air quality (IAQ) that may go beyond minimum requirements.

1.2 It also provides information relevant to ventilation and IAQ on envelope and system design, material selection, commissioning and installation, and operation and maintenance.

2. SCOPE

This guideline primarily applies to ventilation and IAQ for human occupancy in residential buildings three stories or fewer in height above grade, including manufactured and modular houses.

3. DEFINITIONS

When the following terms are used in this guideline, the definitions provided in this section apply.

acceptable indoor air quality: air toward which a substantial majority of occupants express no dissatisfaction with respect to odor and sensory irritation and in which there are not likely to be contaminants at concentrations that are known to pose a health risk.

***air cleaning*:** the use of equipment that removes particulate, microbial, or gaseous contaminants (including odors) from air.

***air, exhaust*:** air discharged from any space to the outside by an exhaust system.

***air, indoor*:** air in an occupiable space.

***air, outdoor*:** air from outside the building that is taken into a ventilation system or that enters a space through infiltration or natural ventilation openings.

***air, transfer*:** air that is moved from one occupiable space to another, usually through doorways or grilles.

***air, ventilation*:** outdoor air that is delivered to a space to dilute airborne contaminants.

air change rate: airflow in volume units per hour divided by the volume of the space for which the air change rate is being determined. Identical units are typically used so that the data is expressed in air changes per hour.

balanced system: a system in which one or more fans supply outdoor air and exhaust building air at substantially equal rates.

***bathroom*:** any room containing a bathtub, a shower, a spa, or a similar source of moisture.

***cognizant authority*:** an agency or organization that has the expertise and jurisdiction to establish and regulate concentration limits for airborne contaminants; or an agency or organization that is recognized as authoritative and has the scope and expertise to establish guidelines, limit values, or concentration levels for airborne contaminants.