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ASHRAE Guideline 10-2023
Interactions Affecting the Achievement of Acceptable Indoor Environments

NOTE

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

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

FOREWORD

Guideline 10 focuses on the interactions among environmental conditions (e.g., thermal conditions, indoor air quality) as they affect the acceptability of the indoor environment. This guideline is intended to facilitate the understanding and use of documents such as ASHRAE Standards 55 and 62.1 and the Indoor Air Quality Design Guide as a whole rather than separately. To a lesser extent, Guideline 10 also addresses mechanical energy (including noise and vibration) and electromagnetic radiation (including environmental lighting and ultraviolet and infrared radiation) as important factors affecting the acceptability of the indoor environment.

The guideline is intended to provide the user with currently available knowledge on the effects of interactions on achieving acceptable indoor environments. In contrast to ASHRAE Standards 55 and 62.1, which address thermal comfort and ventilation/indoor air quality (IAQ), respectively but separately, this document emphasizes interactions among these and other indoor environmental factors with the intention of increasing readers' awareness and understanding of how to improve the acceptability of the indoor environment. However, current knowledge on interactions between and among factors that most affect occupants of indoor environments is limited. Meeting the requirements of standards for various aspects of indoor environments, such as air quality, thermal conditions, acoustics, or illumination, is not always sufficient to ensure the acceptability of the environment to all relevant parties. This guideline represents a preliminary effort to describe the interactions relevant for achieving acceptable indoor environments that can provide further assistance to building design professionals and building operators as well as investigators and researchers. The guideline project committee believes the guideline will call attention to the significance of interactive effects in determining the acceptability of any indoor environment or any combination of indoor environmental conditions and its limitations.

Guideline 10 reflects scientific data known to the committee or brought to its attention by commenters and accepted by the committee as valid and relevant. The guideline also contains information that represents the professional judgment of the members who are deemed to be experts in the field.

There are many important factors that determine the acceptability of the indoor environment that have not been identified or addressed in this guideline. Future versions of this guideline will include more detail on these related factors as well as new information and updates to the current material.

1. PURPOSE

The purpose of this guideline is to provide guidance regarding factors and their interactions as they affect the indoor environmental conditions acceptable to human occupants with regard to comfort and health.

2. SCOPE

2.1 This guideline provides guidance regarding factors and their interactions and includes thermal comfort, indoor air quality (IAQ), sound and vibration, and non-ionizing electromagnetic radiation (including visible light).

2.2 It applies to the design, construction, commissioning, operation, and maintenance of buildings.

2.3 It applies to all indoor or enclosed spaces that people may occupy, with the following exceptions:

a. Areas of buildings intended primarily for manufacturing, commercial processing, or industrial processing
b. Parking garages
c. Storage spaces intended for only incidental human occupancy
d. Other such enclosed spaces not designed primarily for human occupancy

3. DEFINITIONS

acceptable indoor environment: an environment that is suitable for the purposes of the intended occupancy.

Note: The meaning of *acceptability* depends on the criteria and the process that is applied to perform the determination. This is influenced by the individuals involved in this process (e.g., occupants, building operators, owners, and visitors) along with relevant health and other standards. These different individuals may render diverse determinations. Acceptability of an indoor environment is the determination of any affected party that the environment is suitable for the purposes of the intended occupancy.

It should be noted that acceptability is not identical to the satisfaction of most or all occupants, which would generally require a somewhat higher level of environmental quality. Ultimately, acceptability is defined by the process used to determine it, as well as by the individuals who make the evaluations, assess-