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ANSI/ASHRAE Standard 55-2020
Thermal Environmental Conditions for Human Occupancy

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NOTE

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

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FOREWORD

This 2020 edition of ASHRAE Standard 55 incorporates eight addenda to the 2017 edition that were written with a renewed focus on application of the standard by practitioners and use of clear, enforceable language.

The core of the standard in Sections 4 and 5 specifies methods to determine thermal environmental conditions (temperature, humidity, air speed, and radiant effects) in buildings and other spaces that a significant proportion of the occupants will find acceptable at a certain metabolic rate and clothing level. The comprehensive analytical method to determine these conditions uses calculation algorithms included in the standard and appendices, all of which are implemented in the Thermal Comfort Tool.

Section 6 contains requirements for demonstrating that a design of an occupied space or building meets the comfort requirements in Sections 4 and 5. Section 7 includes requirements for the measurement and evaluation of existing thermal environments and is also applicable to commissioning.

Because the two personal characteristics of occupants (metabolic rate and clothing level) vary, operating set points for buildings are not mandated by this standard.

Standard 55 was first published in 1966 and republished in 1974, 1981, and 1992. As of 2004, it is updated using ASHRAE's continuous maintenance procedures. According to these procedures, the standard is continuously revised by addenda that are publicly reviewed, approved by ASHRAE and ANSI, and published and posted for free on the ASHRAE website.

The eight approved addenda to the 2017 edition are summarized in detail in Informative Appendix N. The most noteworthy changes are summarized as follows:

- a. A new method was added for the avoidance of draft risk at the ankle region.*
- b. Thermal Environmental Control Classification Levels were added as part of the required documentation in Section 6. These levels document how much control occupants have over their thermal environmental conditions in a given space.*
- c. The Graphical Method was removed and replaced with normative graphical examples of specific conditions using the 'matrix' method and elevated airspeed methods. The previous Graphical Method was increasingly more lenient than the analytical method, with significant error possible in certain conditions.*
- d. Applicability was expanded of the adaptive model used for naturally conditioned spaces. The model is now applicable to buildings that have a mechanical cooling system installed, as long as the system is not running.*

1. PURPOSE

The purpose of this standard is to specify the combinations of indoor thermal environmental factors and personal factors that will produce thermal environmental conditions acceptable to a majority of the occupants within the space.

2. SCOPE

2.1 The environmental factors addressed in this standard are temperature, thermal radiation, humidity, and air speed; the personal factors are those of activity and clothing.

2.2 It is intended that all of the criteria in this standard be applied together, as comfort in the indoor environment is complex and responds to the interaction of all of the factors that are addressed herein.

2.3 This standard specifies thermal environmental conditions acceptable for healthy adults at atmospheric pressure equivalent to altitudes up to 3000 m (10,000 ft) in indoor spaces designed for human occupancy for periods not less than 15 minutes.