



Designation: E2320 – 19

Standard Classification for Serviceability of an Office Facility for Thermal Environment and Indoor Air Conditions^{1,2}

This standard is issued under the fixed designation E2320; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reappraisal. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This classification contains pairs of scales for classifying an aspect of the serviceability of an office facility, that is, the capability of an office facility to meet certain possible requirements for suitable thermal environment and indoor air conditions.

1.2 Within this aspect of serviceability, each pair of scales shown in Figs. 1-5³ is for classifying one topic of serviceability. Each topic typically is broken down into two more demand functions and supply features. Each paragraph in an Occupant Requirement Scale (DEMAND Scale, see Figs. 1-5) summarizes one level of requirement for serviceability on that function, which occupants might require. The matching paragraph in the Facility Rating Scale (SUPPLY Scale, see Figs. 1-5) is a translation of the requirement into a description of certain features of a facility which, taken in combination, indicate that the facility is likely to meet that level of required serviceability.

1.3 The paragraphs in the Facility Rating Scale (see Figs. 1-5) are indicative and not comprehensive. They are for quick scanning to estimate approximately, quickly, and economically how well a facility is likely to meet the needs of one or another type of occupant group over time. The paragraphs are not for measuring, knowing, or evaluating how an office facility is performing.

¹ This classification is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.25 on Whole Buildings and Facilities.

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² Portions of this document are based on material originally prepared by the International Centre For Facilities (ICF) and © 1993 by ICF and Minister of PUBLIC Works and Government Services Canada. Their cooperation in the development of this standard is acknowledged.

³ Text in Figs. 1-5 is derived from Davis, et al., *Serviceability Tools, Vol 2, Scales for Setting Occupant Requirement and Rating Buildings*, International Centre for Facilities, Ottawa, Ontario, Canada, 1993, 2003, and Davis, et al., *Serviceability Tools, Vol 4, Requirement Scales for Office Buildings*, and *Vol 5, Rating Scales for Office Buildings*, International Centre for Facilities, Ottawa, Ontario, Canada, 1993, 2003.

1.4 This classification can be used to estimate the level of serviceability of an existing facility. It can also be used to estimate the serviceability of a facility that has been planned but not yet built, such as one for which schematic or preliminary drawings and outline specifications have been prepared.

1.5 This standard indicates what would cause a facility to be rated (classified) at a certain level of serviceability but does not state how to conduct a serviceability rating or how to assign a serviceability score. That information is found in Practice E1334. The scales in this classification are complimentary to and compatible with Practice E1334. Each requires the other.

1.6 This standard indicates what would cause a requirement to be classified as being at a specific level, but does not state how to ascertain a requirement, or how to assign a specific level. This information is found in Practice E1679. The scales in this classification are complimentary to and compatible with Practice E1679. Each requires the other.

1.7 The scales are intended to identify the levels of various requirements unique to a particular user, and the serviceability (capability) of a building to meet those requirements. The scales thus supplement rather than include code requirements. It remains the responsibility of designers, builders, and building managers to meet applicable code requirements relative to their respective roles in facility design, construction, and ongoing management.

1.8 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.9 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory requirements prior to use.*

1.10 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

DEMAND A.4.1 For Temperature and Humidity

Demand Scales in this Topic: A.4.1 information on requirements for interior temperature and humidity.

Subject Matter: Occupant requirements for thermal comfort for occupants, humidity for occupants, air movement, and humidification for machines.

Notes:

From the options below, please select the level that best describes the REQUIREMENT.

Requirement Level	DEMAND A.4.1 For Temperature and Humidity
9 ○	<p>THERMAL COMFORT FOR OCCUPANTS: The temperature should feel comfortable at all times. No hot or cold areas in internal spaces, or near windows or external walls.</p> <p>HUMIDITY FOR OCCUPANTS: Levels of humidity should be comfortable at all times. No stuffy areas.</p> <p>AIR MOVEMENT: Air movement should normally be barely perceptible. No drafty or stuffy areas.</p> <p>HUMIDITY FOR MACHINES: Require conditions at all times in the range specified for computers (personal or laptop), printers and copiers. Effective control of relative humidity in range of 40 % to 60 % in all areas where this type of equipment is operated.</p>
8 ○	
7 ○	<p>THERMAL COMFORT FOR OCCUPANTS: An acceptable range of thermal comfort must be met almost all the time, in most spaces. These conditions exist except for about 5 working days each year when outdoor conditions are extreme. For example: conditions met in most spaces except for a few work areas which experience only minor discomfort for a few hours.</p> <p>HUMIDITY FOR OCCUPANTS: Can tolerate minor discomfort for about 5 working days each year when outdoor conditions are extremely dry or humid. For example: when insufficient dehumidification creates a stuffy feeling or insufficient humidification resulting in dry skin or static electricity.</p> <p>AIR MOVEMENT: Air movement should normally be barely perceptible. Minimal drafty areas or stuffy areas for brief periods of time.</p> <p>HUMIDITY FOR MACHINES: Effective control of relative humidity in range of 30 % to 70 % in all areas where computers (personal and laptops), printers and copiers are operated. These conditions exist except for about 5 working days per year during extreme weather conditions.</p>
6 ○	

FIG. 1 Demand Scale A.4.1 for Information on Temperature and Humidity

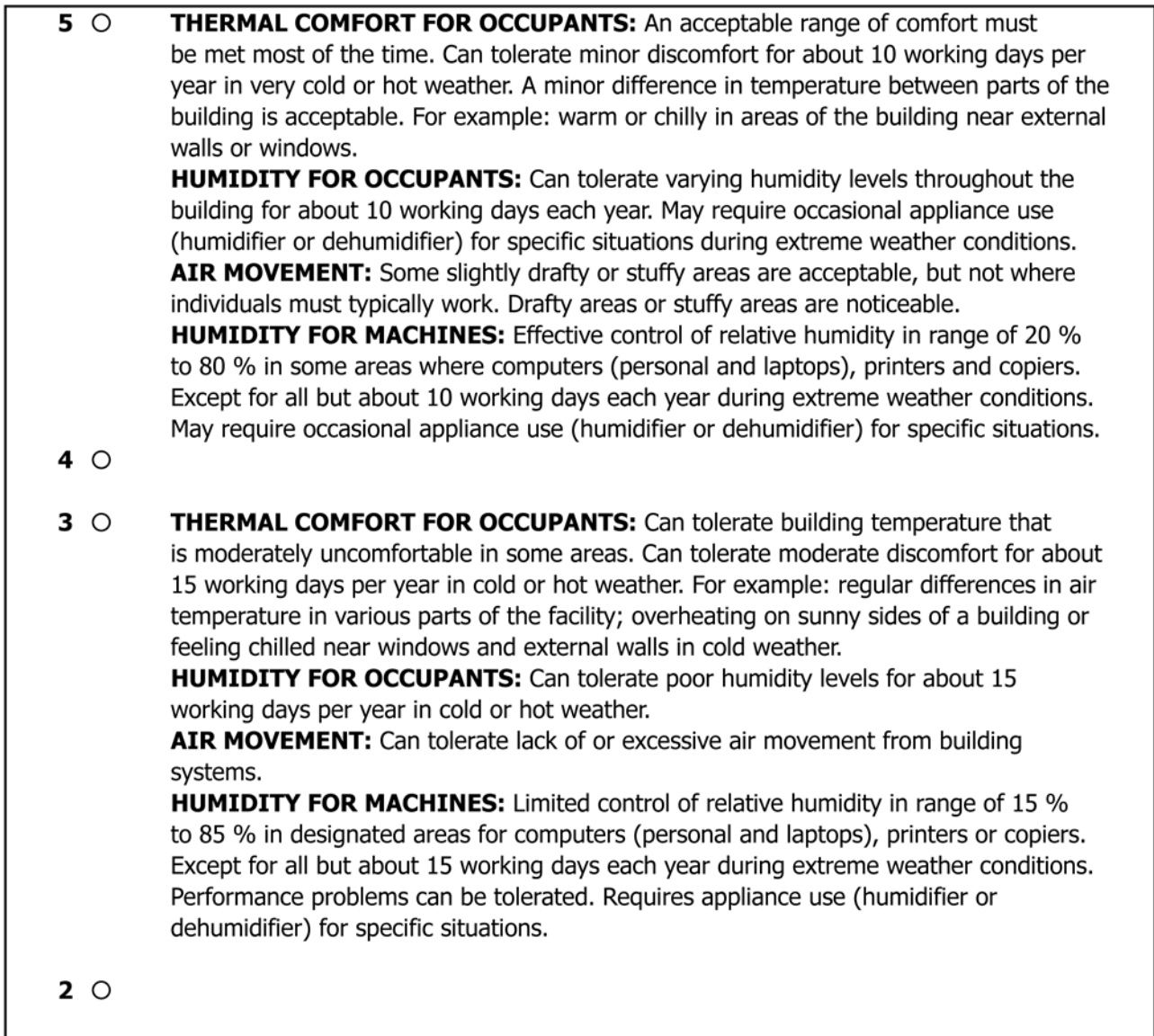


FIG. 1 Demand Scale A.4.1 for Information on Temperature and Humidity (continued)

2. Referenced Documents

2.1 ASTM Standards:⁴

- E631 Terminology of Building Constructions
- E1334 Practice for Rating the Serviceability of a Building or Building-Related Facility (Withdrawn 2013)⁵
- E1480 Terminology of Facility Management (Building-Related)
- E1679 Practice for Setting the Requirements for the Serviceability of a Building or Building-Related Facility, and for Determining What Serviceability is Provided or Proposed

2.2 ASHRAE Standards:⁶

- ANSI/ASHRAE 52.2-2017 Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size
- ANSI/ASHRAE 55-2017 Thermal Environmental Conditions for Human Occupancy
- ANSI/ASHRAE 62.1-2019 Ventilation for Acceptable Indoor Air Quality
- ASHRAE Position Document on Indoor Air Quality

⁴ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

⁵ The last approved version of this historical standard is referenced on www.astm.org.

⁶ Available from American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE), 1791 Tullie Circle, NE, Atlanta, GA 30329, http://www.ashrae.org.