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.

Designation: E1670 – 95a (Reapproved 2018)

An American National Standard

Standard Classification for Serviceability of an Office Facility for Management of Operations and Maintenance[1,2]

This standard is issued under the fixed designation E1670; 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 reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This classification covers 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 operations and maintenance.

1.2 Within that aspect of serviceability, each pair of scales, shown in Figs. 1-4, are for classifying one topic of serviceability. Each paragraph in an Occupant Requirement Scale (see Figs. 1-4) summarizes one level of serviceability on that topic, which occupants might require. The matching entry in the Facility Rating Scale (see Figs. 1-4) 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 entries in the Facility Rating Scale (see Figs. 1-4) are indicative and not comprehensive. They are for quick scanning and rating a facility and not for evaluating or diagnosing it.

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 single-line drawings and outline specifications have been prepared.

1.5 This classification indicates what would cause a facility to be rated at a certain level of serviceability but does not state how to conduct a serviceability rating nor 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 The values stated in inch-pound units are to be regarded as standard. No other units of measurement are included in this standard.

1.7 *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.*

2. Referenced Documents

2.1 *ASTM Standards:*[3]

E631 Terminology of Building Constructions

E1334 Practice for Rating the Serviceability of a Building or Building-Related Facility (Withdrawn 2013)[4]

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 *ISO Document:*[5]

ISO 6240 International Standard, Performance Standards in Building—Contents and Presentation

3. Terminology

3.1 *Definitions:*

3.1.1 *facility*—a physical setting used to serve a specific purpose. **E631**

3.1.1.1 *Discussion*— A facility may be within a building, a whole building, or a building with its site and surrounding environment; or it may be a construction that is not a building. The term encompasses both the physical object and its use.

3.1.2 *facility serviceability*—the capability of a facility to perform the function(s) for which it is designed, used, or required to be used. **E631**

3.1.2.1 *Discussion*—The scope of this performance is of the facility as a system, including its subsystems, components and materials and their interactions, such as acoustical,

[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] 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.

[4] The last approved version of this historical standard is referenced on www.astm.org.

[5] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

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B.3. Management of Operations and Maintenance

Scale B.3.1. Strategy and program for operations and maintenance

Facility Management Requirement Scale		Facility Rating Scale
9 ❑	❍ **LEVEL OF MAINTENANCE AND OPERATION:** Require buildings to be maintained and operated at a high level, helping occupants to be fully productive within their work environment. ❍ **TOLERANCE FOR OCCUPANT LOSS OF PRODUCTIVITY:** Any loss of productivity due to breakdown of building services cannot be tolerated. ❍ **AVAILABILITY OF SUPPORT SERVICES:** Need highly organized and responsive support service available to supplement in-house staff.	9 ❑ ❍ **Strategy and program:** Clearly documented O&M strategy to go beyond simple maintenance to make the building(s) as comfortable and flexible as is cost-effective in response to changing occupant needs, e.g. cooling, ventilating and power. Explicit objectives and criteria are adopted for performance measurement. ❍ **Adequacy of budget:** Budget is appropriate to carry out strategy and program. ❍ **Human resources:** One maintenance person per 40,000 gross sq ft. About 25% of their time is spent on preventative maintenance. ❍ **Availability of replacement parts:** All parts are readily available on site. **maintenance contractors:** Outside resources are readily available and retained by firm contractual agreements.
8 ❑		
7 ❑	❍ **LEVEL OF MAINTENANCE AND OPERATION:** Require buildings to be operated and maintained at a higher than average level. ❍ **TOLERANCE FOR OCCUPANT LOSS OF PRODUCTIVITY:** Breakdowns must be rare, having negligible effect on productivity, and be repaired in hours, not days. ❍ **AVAILABILITY OF SUPPORT SERVICES:** Require readily available outside support services to support in-house maintenance staff.	7 ❑ ❍ **Strategy and program:** Well documented O&M strategy to go beyond simple maintenance to make the building(s) as comfortable and flexible within set-point ranges optimized for operating economy. Some objectives and criteria for performance measurement. ❍ **Adequacy of budget:** Budget is lean, but adequate to carry out strategy and program. ❍ **Human resources:** One maintenance person per 50,000 gross sq ft. About 25% of their time is spent on preventative maintenance. ❍ **Availability of replacement parts:** Critical and routine maintenance parts are readily available on-site. **maintenance contractors:** With some exceptions, outside support services are under firm contract.
6 ❑		
5 ❑	❍ **LEVEL OF MAINTENANCE AND OPERATION:** Require buildings to be operated and maintained in a manner acceptable to the typical occupant in that locality. ❍ **TOLERANCE FOR OCCUPANT LOSS OF PRODUCTIVITY:** Breakdown of building services can be tolerated if rarely occurring, having minor effect on productivity, causing only minimal disruption, and requiring same-day repair. ❍ **AVAILABILITY OF SUPPORT SERVICES:** Require support services to be available.	5 ❑ ❍ **Strategy and program:** Brief written O&M strategy for responding to changing occupant needs, e.g. cooling, ventilating and power. ❍ **Adequacy of budget:** Budget is tight, barely sufficient for carrying out strategy and program. ❍ **Human resources:** One maintenance person per 75,000 gross sq ft. Preventative maintenance budget is less than 10% of total maintenance budget. ❍ **Availability of replacement parts:** Ample supply of critical repair parts is available. Non-critical parts are available through alternative sources, usually within 24 hours. ❍ **Maintenance contractors:** In-hours staff only adequate for basic maintenance and tasks requiring basic skills. Contractors provide maintenance requiring specialized skills, and extra staff at peak workload times.
4 ❑		

Scale B.3.1. continued on next page

FIG. 1 Scale B.3.1 for Strategy and Program for Operations and Maintenance

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B.3. Management of Operations and Maintenance

Scale B.3.1. Strategy and program for operations and maintenance (continued)

Facility Management Requirement Scale		Facility Rating Scale
3 ❑ ❍ **LEVEL OF MAINTENANCE AND OPERATION:** Require minimal operation and maintenance. ❍ **TOLERANCE FOR OCCUPANT LOSS OF PRODUCTIVITY:** Even lengthy or disruptive breakdown need not be costly for the organization.	2 ❑	3 ❑ ❍ **Strategy and program:** Strategy is to be seen to answer complaints, but actually do minimum to get by. ❍ **Adequacy of budget:** Budget is not adequate for a basic but effective O&M program. ❍ **Human resources:** One maintenance person per 100,000 or more gross sq ft. No separate budget for preventative maintenance. ❍ **Availability of replacement parts:** Few repair parts available. Critical parts usually available within 48 hours. ❍ **Maintenance contractors:** Repair of breakdowns is staff's primary responsibility. Some service companies are under contract.
1 ❑ ❍ **LEVEL OF MAINTENANCE AND OPERATION:** Very few occupants. ❍ **TOLERANCE FOR OCCUPANT LOSS OF PRODUCTIVITY:** Little consequence if frequent or major disruptions.		1 ❑ ❍ **Strategy and program:** No O&M strategy or program for responding to occupant complaints. ❍ **Adequacy of budget:** O&M budget is negligible and does not permit an organized or planned O&M program. ❍ **Human resources:** No maintenance staff. ❍ **Availability of replacement parts:** No repair parts available on-site. Critical parts usually available within 48 hours. ❍ **Maintenance contractors:** No firm contracts exist with outside contractors.

❑ Exceptionally important. ❑ Important. ❑ Minor Importance.	
Minimum Threshold level =	❑ NA ❑ NR ❑ Zero ❑ DP

NOTES ***Space for handwritten notes on Requirements or Ratings***

FIG. 1 Scale B.3.1 for Strategy and Program for Operations and Maintenance *(continued)*

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