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An American National Standard

Standard Classification for Serviceability of an Office Facility for Manageability[1,2]

This standard is issued under the fixed designation E 1701; 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 contains pairs of scales (see Figs. 1-8) 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 manageability.

1.2 Within that aspect of serviceability, each pair of scales (see Figs. 1-8) are for classifying one topic of serviceability. Each paragraph in an Occupant Requirement Scale summarizes one level of serviceability on that topic, which occupants might require. The matching entry in the facility rating scale 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. 1-8) are indicative and not comprehensive. They are for quick scanning, to estimate approximately, quickly, and economically, how well an office facility is likely to meet the needs of one or another type of occupant group, over time. The entries are not for measuring, knowing, or evaluating how an office facility is performing.

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 E 1334. The scales in Figs. 1-8 are complimentary to and compatible with Practice E 1334. Each requires the other.

2. Referenced Documents

2.1 *ASTM Standards:*

E 631 Terminology of Building Constructions[3]

E 1334 Practice for Rating the Serviceability of a Building or Building-Related Facility[3]

E 1679 Practice for Rating Serviceability of a Building or Building-Related Facility[3]

2.2 *ISO Documents:*[4]

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

ISO/DIS 7162 Draft International Standard, Performance Standards in Building—Contents and Format of Standards for Evaluation of Performance

ISO/DIS 7164 Draft International Standard, Performance Standards in Building—Definitions and Means of Expression for the Performance of a Whole Building

3. Terminology

3.1 *Definitions:*

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

3.1.1.1 *Discussion*—A facility may be within a building, or 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.

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, hydrothermal, air purity, and economic; and of the relative importance of each performance requirement.

3.1.3 *office*—a place, such as a room, suite, or building, in which business, clerical, or professional activities are conducted.

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[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] *Annual Book of ASTM Standards*, Vol 04.11.

[4] Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

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B.2. Manageability

Scale B.2.1. Reliability of external supply

Facility Management Requirement Scale		Facility Rating Scale
9 ❑ ❍ **FREQUENCY OF POWER OUTAGES**: Required levels are: electrical power out not more than once, for less than 3 hours, in a 3 year period. ❍ **FREQUENCY OF LOSS OF LISTED SERVICES**: Required levels are: no loss of building services (see Table B2-A.) in a 12 month period, or backup services available. ❍ **WORK DURATION DURING LOSS OF SERVICES**: Required levels are: staff able to work for up to one day with loss of two building services, e.g. windows open, sufficient daylight for almost all people, or enough standby power to continue essential operations. ❍ **NEED FOR EVACUATION**: Required levels are: no evacuations.	8 ❑	9 ❑ ❍ **Electrical power supply**: There were no electrical power outages in the last 12 months. Electrical power (utility supply or on-site distribution) was out not more than once, for less than 3 hours, in the last 3 years. ❍ **Building services (except power)**: From the list in Table B2-A. there was no loss of service in the last 12 months, or, there are backup services for continued operations.
7 ❑ ❍ **FREQUENCY OF POWER OUTAGES**: Required levels are, for a 12 month period: electrical power out 1 or 2 times, each lasting less than half a day, or 3 times, each lasting less than 20 minutes. ❍ **FREQUENCY OF LOSS OF LISTED SERVICES**: Required levels are, for a 12 month period: loss of building services (see Table B2-A.) 1 or 2 times, each lasting less than half a day, or 3 times, each lasting less than 30 minutes. ❍ **WORK DURATION DURING LOSS OF SERVICES**: Required levels are, for a 12 month period: staff able to work for up to half a day with loss of two building services, e.g. sufficient daylight for most people, and windows open. ❍ **NEED FOR EVACUATION**: Required levels are, for a 12 month period: no evacuations.	6 ❑	7 ❑ ❍ **Electrical power supply**: Electrical power (utility supply or on-site distribution) was out 1 or 2 times in the last 12 months, with each occasion less than half a day. ❍ **Building services (except power)**: From the list in Table B2-A. loss of service in the last 12 months was 1 or 2 outages, each less than half a day.
5 ❑ ❍ **FREQUENCY OF POWER OUTAGES**: Acceptable levels are, for a 12 month period: electrical power out 1 or 2 times, each lasting less than half a day, or 3 times, each lasting less than 30 minutes. ❍ **FREQUENCY OF LOSS OF LISTED SERVICES**: Acceptable levels are, for a 12 month period: loss of building services (see Table B2-A.) 2 or 3 times, each lasting less than half a day, or 5 times, each lasting less than 30 minutes. ❍ **WORK DURATION DURING LOSS OF SERVICES**: Acceptable levels are, for a 12 month period: staff able to work for up to half a day with loss of one building service, e.g. sufficient daylight for most people, but windows do not open. ❍ **NEED FOR EVACUATION**: Acceptable levels are, for a 12 month period: no evacuations.	4 ❑	5 ❑ ❍ **Electrical power supply**: Electrical power (utility supply or on-site distribution) was out 2 or 3 times in the last 12 months, with one occasion more than half a day. ❍ **Building services (except power)**: From the list in Table B2-A. loss of service in the last 12 months was 2 or 3 outages, each less than half a day.

Scale B.2.1. continued on next page

FIG. 1 Scale B.2.1 for Reliability of External Supply

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B.2. Manageability

Scale B.2.1. Reliability of external supply (continued)

Facility Management Requirement Scale		Facility Rating Scale
3 ❑ ❍ **FREQUENCY OF POWER OUTAGES**: Acceptable levels are, for a 12 month period: electrical power out 2 or 3 times, each lasting less than 1 day, or 4 to 6 times, each lasting less than 30 minutes. ❍ **FREQUENCY OF LOSS OF LISTED SERVICES**: Acceptable levels are, for a 12 month period: loss of building services (see Table B2-A.) up to 3 times, each lasting less than one day, or 4 to 6 times, each lasting less than 1 hour. ❍ **WORK DURATION DURING LOSS OF SERVICES**: Acceptable levels are, for a 12 month period: staff able to work for up to 2 hours, e.g. sufficient daylight for some people, but windows do not open. ❍ **NEED FOR EVACUATION**: Acceptable levels are, for a 12 month period: occasional full or partial evacuation of the building, e.g. once in 1 to 3 years.	2 ❑	3 ❑ ❍ **Electrical power supply**: Electrical power (utility supply or on-site distribution) was out 2 or 3 times in the last 12 months, each less than 1 day. ❍ **Building services (except power)**: From the list in Table B2-A. loss of service in the last 12 months was up to 3 outages, each lasting less than 1 day.
1 ❑ ❍ **FREQUENCY OF POWER OUTAGES**: Acceptable levels are, for a 12 month period: electrical power out more than 3 times, lasting more than 1 day on one of the occasions. ❍ **FREQUENCY OF LOSS OF LISTED SERVICES**: Acceptable levels are, for a 12 month period: serious loss of building services (see Table B2-A.) more than 3 times, each lasting a day or more. ❍ **WORK DURATION DURING LOSS OF SERVICES**: Acceptable levels are, for a 12 month period: staff unable to work during that time; e.g. not enough daylight, windows do not open. ❍ **NEED FOR EVACUATION**: Acceptable levels are, for a 12 month period: full or partial evacuation of the building 2 or more times.		1 ❑ ❍ **Electrical power supply**: Electrical power (utility supply or on-site distribution) was out more than 3 times, or more than 1 day, in the last 12 months. ❍ **Building services (except power)**: From the list in Table B2-A. there was serious loss of service, e.g. more than 3 times in the last 12 months, with each lasting a day, or more.

❑ 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.2.1 for Reliability of External Supply *(continued)*

3.1.4 For standard definitions of additional terms applicable to this classification, as well as those in 3.1.1-3.1.3, see Terminology E 631.

4. Significance and Use

4.1 Each facility rating scale in this classification (see Figs. 1-8) provides a means to estimate the level of serviceability of a building or facility for one topic of serviceability, and to compare that level against the level of any other building or facility.

4.2 This classification can be used for comparing how well different buildings or facilities meet a particular requirement for serviceability. It is applicable despite differences such aslocation, structure, mechanical systems, age, and building shape.

4.3 This classification can be used to estimate the amount of variance of serviceability from target or from requirement, for a single office facility, or within a group of office facilities.

4.4 This classification can be used to estimate the following:

4.4.1 Serviceability of an existing facility for uses other than its present use.

4.4.2 Serviceability (potential) of a facility that has been planned but not yet built.

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B.2. Manageability

Scale B.2.2. Anticipated remaining service life

Facility Management Requirement Scale		Facility Rating Scale
9 ❑ ❍ **REMAINING SERVICE LIFE OF BUILDING COMPONENTS AND SYSTEMS**: The acceptable level is a total of 26 or more points from Table B2-B. with remedial action budgeted or approved on remaining items.	8 ❑	9 ❑ ❍ **Major building components**: A total of 26 or more points are scored from Table B2-B., with remedial action budgeted and approved on the remaining items.
7 ❑ ❍ **REMAINING SERVICE LIFE OF BUILDING COMPONENTS AND SYSTEMS**: The acceptable level is a total of 22 to 25 points from Table B2-B.	6 ❑	7 ❑ ❍ **Major building components**: A total of 22-25 points are scored from Table B2-B.
5 ❑ ❍ **REMAINING SERVICE LIFE OF BUILDING COMPONENTS AND SYSTEMS**: The acceptable level is a total of 16 to 21 points from Table B2-B.	4 ❑	5 ❑ ❍ **Major building components**: A total of 16-21 points are scored from Table B2-B.
3 ❑ ❍ **REMAINING SERVICE LIFE OF BUILDING COMPONENTS AND SYSTEMS**: The acceptable level is a total of 11 to 15 points from Table B2-B.	2 ❑	3 ❑ ❍ **Major building components**: A total of 11-15 points are scored from Table B2-B.
1 ❑ ❍ **REMAINING SERVICE LIFE OF BUILDING COMPONENTS AND SYSTEMS**: The acceptable level is less than 10 points from Table B2-B.		1 ❑ ❍ **Major building components**: Less than 10 points are scored from Table B2-B.

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

NOTES *Space for handwritten notes on Requirements or Ratings*

FIG. 2 Scale B.2.2 for Anticipated Remaining Service Life

4.4.3 Serviceability (potential) of a facility for which a remodeling has been planned.

4.5 Use of this classification does not result in building evaluation or diagnosis. Building evaluation or diagnosis generally requires a special expertise in building engineering or technology, and the use of instruments, tools, or measurements.

4.6 This classification applies only to facilities that are building constructions, or parts thereof. (While this classification may be useful in rating the serviceability of facilities that are not building constructions, such facilities are outside the scope of this classification.)

4.7 This classification is not intended for, and is not suitable for, use for regulatory purposes, nor for fire hazard assessment nor fire risk assessment.

5. Basis of Classification

5.1 The scales in Figs. 1-8 contain the basis for classification.

5.2 Instructions for use of this classification are contained in Practices E 1334 and E 1679.

6. Keywords

6.1 building; energy consumption in office buildings; facility; facility occupants; function; maintenance and operation; ease of; manageability; of building; office; performance; rating; rating scale; requirements; serviceability

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B.2. Manageability

Scale B.2.3. Ease of operation

Facility Management Requirement Scale		Facility Rating Scale
9 ❑ ❍ **STOREROOM FOR BUILDING OPERATIONS**: Require well located, well ventilated storeroom for supplies and parts for building operations. ❍ **SPACE FOR BUILDING OPERATION PERSONNEL**: Require space for building operation personnel that is quiet, convenient, and well ventilated.	9 ❑	❍ **Storeroom**: A good size storeroom for supplies and small consumables for building operations is provided. It is well located, with good humidity control and air quality. ❍ **Space for building operation personnel**: The operator's office and locker space are well ventilated, and quiet, with a convenient location. ❍ **Operating instructions for services and equipment**: Operating instructions are complete and up-to-date for instruction and verification.
	8 ❑	
7 ❑ ❍ **STOREROOM FOR BUILDING OPERATIONS**: Require well located, well ventilated storeroom for supplies for building operations. ❍ **SPACE FOR BUILDING OPERATION PERSONNEL**: Require space for building operation personnel that is quiet, convenient, and well ventilated.	7 ❑	❍ **Storeroom**: An adequate storeroom for supplies and small consumables for building operations is provided. ❍ **Space for building operation personnel**: The operator's office, adjacent to the mechanical room, is well ventilated, and quiet. There are lockers in the corridor. ❍ **Operating instructions for services and equipment**: Operating manuals are up-to-date, and adequate for instruction and verification.
	6 ❑	
5 ❑ ❍ **STOREROOM FOR BUILDING OPERATIONS**: Basic storeroom for building operations is needed. ❍ **SPACE FOR BUILDING OPERATION PERSONNEL**: Size and condition of space for building operator's office are not important.	5 ❑	❍ **Storeroom**: A barely adequate storeroom for supplies and small consumables for building operations is provided. ❍ **Space for building operation personnel**: The operator's office is just adequate, e.g. noisy, small, ventilation just adequate. There are lockers in the corridor. ❍ **Operating instructions for services and equipment**: Operating manuals are just adequate, e.g. mostly up-to-date.
	4 ❑	
3 ❑ ❍ **STOREROOM FOR BUILDING OPERATIONS**: No need for a building operations storeroom on-site.	3 ❑	❍ **Storeroom**: There is no building operations storeroom on-site, but shelving and storage lockers are provided in shops and mechanical spaces. ❍ **Space for building operation personnel**: The operator's area is inadequate, e.g. operator's desk and lockers are in the mechanical room or passage. ❍ **Operating instructions for services and equipment**: Operating manuals are poor, e.g. incomplete operating instructions.
	2 ❑	
1 ❑ ❍ **STOREROOM FOR BUILDING OPERATIONS**: No need for a building operations storeroom on-site.	1 ❑	❍ **Storeroom**: There is no building operations storeroom on-site. ❍ **Space for building operation personnel**: There is no allocated space for the operator. ❍ **Operating instructions for services and equipment**: Manuals are mostly missing, or non-existent.

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

NOTES *Space for handwritten notes on Requirements or Ratings*

FIG. 3 Scale B.2.3 for Ease of Operation

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