Designation: E1694 – 95a (Reapproved 2012)

# Standard Classification for Serviceability of an Office Facility for Special Facilities and Technologies<sup>1,2</sup>

This standard is issued under the fixed designation E1694; 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  $(\varepsilon)$  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 special facilities and technologies.
- 1.2 Each pair of scales shown in Figs. 1-6 printed side-by-side on a page, are for classifying one topic of serviceability within that aspect of serviceability. Each paragraph in an Occupant Requirement Scale (see Figs. 1-6) summarizes one level of serviceability on that topic that occupants might require. The matching entry in the Facility Rating Scale (See Figs. 1-6) is a translation of the requirement into a description of certain features of a facility that, 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. 1-6) 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, and 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 it 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 complementary to and compatible with Practice E1334. Each requires the other.

#### 2. Referenced Documents

2.1 ASTM Standards:<sup>3</sup>

E631 Terminology of Building Constructions

E1334 Practice for Rating the Serviceability of a Building or Building-Related Facility

E1679 Practice for Setting the Requirements for the Serviceability of a Building or Building-Related Facility

2.2 ISO Documents:<sup>4</sup>

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 For standard definitions of terms applicable to this classification, see Terminology E631.
- 3.1.2 *facility*, *n*—a physical setting used to serve a specific purpose. **E631**
- 3.1.2.1 *Discussion*—A facility may be within a building, or a whole building, or a building with its sites and surrounding environment; or it may be a construction that is not a building. The term encompasses both the physical object and its use.
- 3.1.3 facility serviceability—the capability of a facility to perform the function(s) for which it is designed, used, or required to be used.

  E631
- 3.1.3.1 *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,

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<sup>&</sup>lt;sup>3</sup> 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.

<sup>&</sup>lt;sup>4</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

# Scale A.13.1. Group or shared conference centre

0	ccupant Requirement Scale		Facility Rating Scale		
9	O LOCATION OF MEETING SPACE: Require consistent access to a conference centre for the organization in the same building or complex. O SIZE OF MEETINGS: For large meetings, e.g. 50 to 100 people.	8	9	O <u>Present provision</u> : A departmental conference centre exists, able to handle several groups of 25 to 50 people at tables in adjacent meeting rooms, with a main plenary session of 200 people or more.	
7	O LOCATION OF MEETING SPACE: Can tolerate using space in a canteen, work area or display area. O SIZE OF MEETINGS: Require space for large meetings in the same building, e.g. 100 people. O FUTURE NEED FOR A CONFERENCE CENTRE: A certain or very likely need in the future for a departmental conference centre in the same building or complex.	6	7	O <u>Present provision</u> : A departmental conference centre is not provided. Large meetings, e.g. 100 people, can take place in a separate display or work area where office work is only minimally disrupted, or, in a portion of a food service eating area that can easily be closed off.  O <u>Potential space</u> : There is space available for a dedicated departmental conference centre, with the necessary qualities of size, dimensions, location, and access to facilities.  O <u>Potential services</u> : Building services could be modified or added to, at reasonable effort and cost.	
5	O LOCATION OF MEETING SPACE: Can tolerate using space in an open plan area adjacent to a main circulation route or lobby. O SIZE OF MEETINGS: Require space for large meetings in the same building, e.g. 100 people. O FUTURE NEED FOR A CONFERENCE CENTRE: Foresee a possible need in the future for a departmental conference centre in the same building or complex.	4	5	O <u>Present provision</u> : A departmental conference centre is not provided. Large meetings, e.g. 100 people, can take place in an open plan area, located close to the main circulation route and entry.  O <u>Potential space</u> : Space is available for a dedicated departmental conference centre, but is of marginal quality, e.g. marginal ceiling height for a main auditorium, poor location in the building, insufficient nearby toilets, and marginal space for adjacent meeting rooms.  O <u>Potential services</u> : Building services are inadequate, but with sufficient capacity to upgrade, or could be added with moderate difficulty and cost.	
3	O LOCATION OF MEETING SPACE: No present or future need for a departmental conference facility in the same building or complex.	2	3	O <u>Potential space</u> : A departmental conference centre is not provided. There is no suitable space available, e.g. insufficient ceiling height for a main auditorium, and narrow room dimensions. Meeting rooms are not adjacent, and have poor access.  O <u>Potential services</u> : Building services are inadequate. There is some capacity or space to upgrade but very difficult and costly.	
1	O LOCATION OF MEETING SPACE: There is no requirement at this level. O SIZE OF MEETINGS: There is no requirement at this level. O FUTURE NEED FOR A CONFERENCE CENTRE: There is no requirement at this level.		1	O <u>Potential space</u> : A departmental conference centre is not provided. There is no available space, e.g. insufficient space for adjacent meeting rooms and office, and insufficient public circulation space. O <u>Potential services</u> : Building services are inadequate with no capacity or space to upgrade. Sound separation is inadequate and upgrade is very difficult and costly.	

□ Exceptionally important. □ Important. □ Minor Importance.

Minimum Threshold level = □ NA □ NR □ Zero □ DP

NOTES Space for handwritten notes on Requirements or Ratings

FIG. 1 Scale A.13.1 for Group or Shared Conference Center

### Scale A.13.2. Video teleconference facilities

Occupant Requirement Scale		Facility Rating Scale			
9 O PRESENT NEED FOR FACILITY: Require immediate access to a video teleconference centre in the same building or complex.	8	9	O <u>Present provision</u> : A dedicated video teleconference centre is fully installed to a good standard, or is easily upgraded.		
7 O PRESENT NEED FOR FACILITY: No immediate need for a teleconference centre in the same building or complex. O FUTURE NEED FOR FACILITY: A certain or very likely need in the future for a video teleconference centre in the same building or complex.	6	7	O <u>Potential space</u> : Video teleconference facilities are not provided. Space for a video teleconference facility is good, e.g. in the range of 3.0 m to 3.5 m ceiling height in screen end of space.  O <u>Potential services</u> : Building services are easily capable of providing special conditions required with minimum effort and cost. Air handling is very quiet.		
<ul> <li>O PRESENT NEED FOR FACILITY:         <ul> <li>No immediate need for a video teleconference centre in the same building.</li> <li>O FUTURE NEED FOR FACILITY: A possible need in the future for a video teleconference centre in the same building or complex.</li> </ul> </li> </ul>	4	5	O <u>Potential space</u> : Video teleconference facilities are not provided. Space for a video teleconference facility is just adequate, e.g. in the range of 3.0 m ceiling height.  O <u>Potential services</u> : There is capability in building services to provide the special conditions required, if upgraded, or special air handling and acoustic isolation can be added with moderate effort and cost.		
3 ○ PRESENT NEED FOR FACILITY: No present need for a video teleconference centre in the same building or complex. ○ FUTURE NEED FOR FACILITY: No future need for a video teleconference centre in the same building or complex.	2	3	O <u>Potential space</u> : Video teleconference facilities are not provided. There is no suitable space, e.g. marginal ceiling height, and poor location. O <u>Potential services</u> : Building services are inadequate. There is some capacity to upgrade ventilation, but it is very difficult and costly. Sound separation is insufficient and upgrade is very difficult and costly.		
1 O PRESENT NEED FOR FACILITY: No requirement at this level. O FUTURE NEED FOR FACILITY: No requirement at this level.		1	O <u>Potential space</u> : Video teleconference facilities are not provided. There is no space, e.g. insufficient ceiling height. O <u>Potential services</u> : Building services are inadequate with no capacity to upgrade. Sound separation is insufficient and upgrade is very difficult and costly.		
□ Exceptionally important. □ Important. □ Minor Importance.					
$     \text{Minimum } \underline{\mathbf{T}} \text{hreshold level} =                                   $					

NOTES Space for handwritten notes on Requirements or Ratings

FIG. 2 Scale A.13.2 for Video Teleconference Facilities

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

3.1.4 *office*—a place, such as a room, suite, or building, in which business, clerical, or professional activities are conducted. **E631** 

### 4. Significance and Use

4.1 Each Facility Rating Scale in this classification provides a means for estimating the level of serviceability of a building or facility for one topic of serviceability, and for comparing that level against the level of any other building or facility.

# Scale A.13.3. Simultaneous translation

	Occupant Requirement Scale			Facility Rating Scale	
9	O PRESENT NEED FOR TRANSLATION FACILITY: Operations require permanent translation facilities in at least one large conference or meeting room.	8	9	O <u>Present provision</u> : Permanent translation facilities are provided in one or two of the largest conference and meeting rooms. Space is available in several meeting rooms for portable booths. Cables and electronic equipment are installed.	
<i>7</i> □	O PRESENT NEED FOR TRANSLATION FACILITY: Occasional need for permanent translation facilities. Can tolerate using meeting rooms with portable booths for translators.  O FUTURE NEED FOR FACILITY: A certain or very likely need in the future for permanent translation facilities in the building or complex.	6	7	O <u>Present provision</u> : Permanent translation booths are provided in one or two of the largest conference and meeting rooms. Translators bring their own equipment and cabling. Some existing meeting rooms are suitable for portable booths for translators.  O <u>Potential for translator facilities</u> : The building could easily be fitted up to provide permanent facilities to a high standard, at a low cost, e.g. flat cable under carpet tile, enhanced ventilation and good acoustics.	
5	O PRESENT NEED FOR TRANSLATION FACILITY: No present need for permanent translation facilities. Can tolerate using meeting rooms with portable booths for translators. O FUTURE NEED FOR FACILITY: A possible need in the future for permanent translation facilities in the building or complex.	4	5	O <u>Present provision</u> : No permanent accommodation exists for simultaneous translation. Some existing meeting rooms are suitable for portable booths for translators.  O <u>Potential for translator facilities</u> : The building could be fitted up to provide permanent facilities for translators at moderate cost and difficulty, and provide adequate quality, e.g. cables in combination with surface conduit and ceiling space, and booth ventilation the same as for meeting rooms.	
3	O PRESENT NEED FOR TRANSLATION FACILITY: No present need for permanent translation facilities. Can tolerate using meeting rooms with portable booths for translators. O FUTURE NEED FOR FACILITY: No foreseeable need for permanent translation facilities in the building or complex.	2	3	O <u>Present provision</u> : No permanent accommodation exists for simultaneous translation. Some existing meeting rooms are marginally suitable for portable booths for translators.  O <u>Potential for translator facilities</u> : The building could be fitted up to provide technical facilities for translators, but with marginal quality, e.g. surface run cables, ventilation the same as for open office, or, very costly and difficult.	
1	O PRESENT NEED FOR TRANSLATION FACILITY: No need for translation facilities now, or in the future.		1	<ul> <li>Present provision: No permanent accommodation exists for simultaneous translation. If meeting rooms exist, they are not suitable for portable booths for translators.</li> <li>Potential for translator facilities: No capability exists to provide technical facilities for translators, e.g. a booth with ventilation and cables.</li> </ul>	
□ Exceptionally important. □ Important. □ Minor Importance.					

NOTES Space for handwritten notes on Requirements or Ratings

Minimum  $\underline{\mathbf{T}}$ hreshold level =

FIG. 3 Scale A.13.3 for Simultaneous Translation

□NA □NR □Zero □DP

### Scale A.13.4. Satellite and microwave links

	Occupant Requirement Scale			Facility Rating Scale
9	O PRESENT NEED FOR LINK: Require immediate use of a satellite or microwave link.	8	9	O <u>Present provision</u> : Satellite or microwave links are installed.
7	O PRESENT NEED FOR LINK: No immediate need for a satellite or microwave link. O FUTURE NEED FOR LINK: A certain or very likely need in the future for a satellite or microwave link.	6	7	O <u>Potential for installation</u> : There are presently no satellite or microwave links. Satellite and microwave links are possible, with building preparation at low cost and effort, e.g. ground area has line-of-sight, or roof has structural strength for a large dish without additional strengthening.
5	O PRESENT NEED FOR LINK: No immediate need for a satellite or microwave link. O FUTURE NEED FOR LINK: Foresee a possible need in the future for a satellite or microwave link.	4	5	O <u>Potential for installation</u> : There are presently no satellite or microwave links. Satellite and microwave links are possible, with building preparation at moderate cost and effort, e.g. roof has line-of-sight, and roof has structural strength for a large dish without major strengthening.
3	O PRESENT NEED FOR LINK: No immediate need for a satellite or microwave link. O FUTURE NEED FOR LINK: No foreseeable need for a satellite or microwave link.	2	3	O <u>Potential for installation</u> : There are presently no satellite or microwave links. No provision for satellite and microwave links is possible without major cost and effort, e.g. roof lacks structural strength for a large dish without major strengthening. Line-of-sight is not available from ground level.
1	O PRESENT NEED FOR LINK: No need for a satellite or microwave link. O FUTURE NEED FOR LINK: No need for a satellite or microwave link in the future.		1	O <u>Potential for installation</u> : There are presently no satellite or microwave links. No provision exists for satellite and microwave links, e.g. line-of-sight is not available from ground or roof level. There is no structural capability for this on the roof.
Exceptionally important. Important. Minor Importance.				
Minimum Threshold level = $\square$ NA $\square$ NR $\square$ Zero $\square$ DP				

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

#### FIG. 4 Scale A.13.4 for Satellite and Microwave Links

- 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 as location, 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: (1) serviceability of an existing facility for uses other than its present use; (2) the serviceability (potential) of a facility that has been planned but not yet built; and (3) the serviceability (potential) of a facility for which a remodelling has been planned.
- 4.5 The use of this classification does not result in building evaluation or diagnosis. Building evaluation or diagnosis

# Scale A.13.5. Mainframe computer centre

	Occupant Requirement Scale			Facility Rating Scale	
9	O PRESENT NEED FOR COMPUTER CENTRE: Require immediate use of a mainframe computer centre of good quality, e.g. with access floor, full ceiling height, separate air handling with exhaust to the outside, and backup power.	8	9	O <u>Present provision</u> : A mainframe computer centre is already installed, with full access flooring, and a minimum 2.4 m height between access floor and ceiling. There is a separate air handling unit drawing outside air and exhausting to the outside. There is a backup power supply.	
7	O PRESENT NEED FOR COMPUTER CENTRE: No immediate need for a mainframe centre. O FUTURE NEED FOR COMPUTER CENTRE: A certain or very likely need in the future for a computer centre of good quality.	6	7	O <u>Present provision</u> : No mainframe computer centre exists, but there are one or more small computer rooms.  O <u>Potential for installation</u> : It is possible to install a computer centre, with little difficulty and cost to upgrade the building, e.g. has suitable ceiling height and floor load capacity, can add to or upgrade raised floor, can add dedicated ventilation, has ceiling and light fixtures, power, mechanical systems, and a firefighting system.	
5	O PRESENT NEED FOR COMPUTER CENTRE: No immediate need for a mainframe computer centre. O FUTURE NEED FOR COMPUTER CENTRE: Foresee a possible need in the future for a computer centre.	4	5	O <u>Potential for installation</u> : No mainframe computer centre exists. It is possible to install a computer centre, with moderate difficulty and cost to prepare the building, e.g. has suitable ceiling height and floor load capacity, can install a raised floor, can add dedicated ventilation, has ceiling and light fixtures, power, mechanical systems, and a firefighting system.	
3	O PRESENT NEED FOR COMPUTER CENTRE: No immediate need for a mainframe computer centre. O FUTURE NEED FOR COMPUTER CENTRE: No foreseeable need in the future for a computer centre.	2	3	O <u>Potential for installation</u> : No mainframe computer centre exists. It is possible to install a computer centre, but it is difficult and costly, e.g. need a major refit of part of the facility, with great difficulty and expense.	
1	O PRESENT NEED FOR COMPUTER CENTRE: No need for a mainframe computer centre. O FUTURE NEED FOR COMPUTER CENTRE: No need for a mainframe computer centre in the future.	**************************************	1	O <u>Potential for installation</u> : No mainframe computer centre exists. It is not feasible to install a computer centre, e.g. need major reconstruction of part of the facility, due to inadequate ceiling height, ventilation, power supply, and floor load capacity.	
ΟE	□ Exceptionally important. □ Important. □ Minor Importance.				

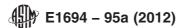
NOTES Space for handwritten notes on Requirements or Ratings

FIG. 5 Scale A.13.5 for Mainframe Computer Center

□NA □NR □Zero □DP

generally requires special expertise in building engineering or technology and the use of instruments, tools, or measurements.

Minimum Threshold level =



# Scale A.13.6. Telecommunications centre

	Occupant Requirement Sc	ale			Facility Rating Scale
9	O IMMEDIATE NEED FOR ACCE A CENTRE: Require immediate use telecommunications centre of good e.g. with backup and standby service adequate physical security.	of a quality,	8	9	O <u>Present provision</u> : A telecommunications centre is already installed, with full backup and standby services, e.g. data and phone lines are physically protected from the centre to the underground building entry, standby power, separate ventilation capability, backup water supply, satellite or microwave link, adequate physical security, and adequate floor load capacity and seismic design.
7	O IMMEDIATE NEED FOR ACCE A CENTRE: No immediate need for to a telecommunications centre. O FUTURE NEED FOR ACCESS T CENTRE: A certain or very likely not the future for a communications cen good quality.	access O A eed in	6	7	O <u>Present provision</u> : An inadequate telecommunications centre exists.  O <u>Potential for installation</u> : The building could be fitted up to provide a good quality telecommunications centre at moderate or low cost and difficulty, e.g. standby power, separate ventilation capability, backup water supply, secure phone lines, satellite or microwave link, adequate physical security, and adequate floor load capacity and seismic design.
5	O IMMEDIATE NEED FOR ACCE A CENTRE: No immediate need for to a telecommunications centre. O FUTURE NEED FOR ACCESS T CENTRE: Foresee a possible need ir future for a communications centre.	access O A	4	5	O <u>Present provision</u> : No telecommunications centre exists. O <u>Potential for installation</u> : The building could be fitted up to provide an adequate telecommunications centre at high cost and difficulty, e.g. standby power, separate ventilation capability, backup water supply, secure phone lines, satellite or microwave link, adequate physical security, and adequate floor load capacity and seismic design.
3	O IMMEDIATE NEED FOR ACCE A CENTRE: No immediate need for to a telecommunications centre. O FUTURE NEED FOR ACCESS T CENTRE: No foreseeable need in th for a communications centre.	access O A	2	3	O <u>Present provision</u> : No telecommunications centre exists. O <u>Potential for installation</u> : It is possible, but extremely difficult and costly to prepare the building, e.g. it is difficult to provide standby power, ventilation, water, phone lines, adequate physical security, and adequate floor load capacity and seismic design.
1	O IMMEDIATE NEED FOR ACCE A CENTRE: No need for a tele- communications centre. O FUTURE NEED FOR ACCESS T CENTRE: No need for a tele- communications centre in the future	O A		1	O <u>Present provision</u> : No telecommunications centre exists. O <u>Potential for installation</u> : It is not feasible or possible, e.g. it is impractical to provide standby power, ventilation, water, phone lines, adequate physical security, and adequate floor load capacity and seismic design.
□ F·	ceptionally important. 🚨 Import	ant. □M	inor l	 Impo	ortance.
$     \text{Minimum } \underline{\mathbf{T}} \text{hreshold level} =                                   $					

NOTES Space for handwritten notes on Requirements or Ratings

FIG. 6 Scale A.13.6 for Telecommunications Center

4.6 This classification applies only to facilities that are building constructions or parts thereof. (While this classifica-

tion 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 for fire risk assessment.

#### 5. Basis of Classification

5.1 The scales shown in Figs. 1-6 contain the basis for classification.

5.2 Instructions for the use of this classification are contained in Practices E1334 and E1679.

#### 6. Keywords

6.1 building; computer center; mainframe; conference center; facility; facility occupants; function; microwave communication; office; performance; rating; rating scale; requirements; serviceability; simultaneous translation; telecommunications center; use; video teleconference

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