



## Standard Classification for Building Floor Area Measurements for Facility Management<sup>1</sup>

This standard is issued under the fixed designation E 1836; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

### 1. Scope

1.1 This classification provides a systematic basis for categorizing how floor area in buildings is measured for certain specified purposes, such as facility management, occupant requirements, space planning, or strategic facility planning.

1.2 This classification does not specify what measurements must be conducted.

1.3 Annex A1 may be used to classify floor area in one or more specific functional types of buildings, such as offices, laboratory, or manufacturing buildings and building-related facilities.

1.4 This classification can be applied to owned, rented, and leased buildings.

1.5 The classification in Annex A1 is not intended for use in lease negotiations with owners of commercial office buildings or related properties. For that purpose, users are referred to the American National Standard published by the American National Standards Institute under the designation ANSI Z65.1 and commonly known as the ANSI-BOMA standard.

1.6 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.

### 2. Referenced Documents

#### 2.1 ASTM Standards:

E 1664 Classification for Serviceability of an Office Facility for Layout and Building Factors<sup>2</sup>

#### 2.2 ANSI Standard:

ANSI Z65.1 – 89 Standard Method for Measuring Floor Area in Office Buildings<sup>3</sup>

### 3. Terminology

#### 3.1 Definitions:

3.1.1 *building, n, vt*—(1) a shelter comprising a partially or totally enclosed space, erected by means of a planned process

of forming and combining materials; (2) the act or process of constructing.

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

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

3.1.3 Definitions of Terms Specific to This Standard:

3.1.4 The definitions of terms listed also appear in Annex A1.

3.1.5 *building projection, n*—a convector, baseboard heating unit, radiator, or other building element located inside a building adjacent to a wall that prevents the use of that space for furniture, equipment, circulation, or other functions.

3.1.6 *excluded area, n*—fully enclosed spaces with adequate clear headroom that, for some reason, are not intended for or are not suitable for occupancy by people or equipment, but not spaces that are temporarily unusable due to flood, fire damage, construction, or renovation activity.

3.1.6.1 *Discussion*—Examples of excluded areas are unfinished attic spaces, attic spaces without unobstructed access, damp or flooded basements, and confined spaces requiring permits for entry.

3.1.7 *finished surface, n*—a wall, ceiling, or floor surface, including glass, as prepared for tenant or occupant use, excluding the thickness of any special surfacing materials such as panelling, furring strips, and carpet.

3.1.8 *interstitial area, n*—the area of load-bearing surfaces located above or below occupied building floors that are not available for general occupancy due to inadequate clear headroom that may contain building mechanical or electrical systems predominantly serving adjacent floors or provide access to such systems.

### 4. Significance and Use

4.1 This classification can be used to facilitate comparison of areas that have been measured but does not specify what measurements must be conducted.

4.2 This classification can be used in space programming and forecasting of space requirements.

4.3 This classification can be used to classify areas for internal cost accounting purposes.

<sup>1</sup> This classification is under the jurisdiction of ASTM Committee E-6 on Performance of Buildings and is the direct responsibility of Subcommittee E06.25 on Whole Buildings and Facilities.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.07.

<sup>3</sup> Effective June 21, 1989, is available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

4.4 This classification can be used to compare space use between organizations.

**5. Basis for Classification**

5.1 The basis for classification of floor area measurements for certain functional types of building is contained in Annex A1.

5.2 In the future, additional annexes are expected to be added to this document to classify floor area measurements in other functional types of building and to compare floor area classifications for different purposes or from different countries.

5.3 Task groups of E06.25 exist to develop other annexes to this classification for some other functional types of building and to enable comparison to area measurements from other jurisdictions, including Japan and Europe.

5.4 A method for estimating the effect of building loss features is contained in Classification E 1664.

**6. Report**

6.1 Annex A1 gives guidance for reporting measurements for certain functional types of building for those purposes stated in Section 1.

6.2 When reporting floor area that has been categorized in accordance with the guidance in Annex A1, identify the method that was used and note any exceptions to its methods. Where possible, the extent of variation shall be assessed and stated as an estimate.

**7. Keywords**

7.1 area; building; building floor area; facility; facility management; floor area; measurement; occupant requirements

**ANNEX**

**(Mandatory Information)**

**A1. CLASSIFICATION OF BUILDING FLOOR AREA MEASUREMENTS IN OFFICES, RESEARCH, LABORATORY, AND MANUFACTURING BUILDINGS AND BUILDING-RELATED FACILITIES<sup>4</sup>**

**A1.1 Introduction**

A1.1.1 This annex describes standard methods of measuring facility floor areas in office, research, laboratory, and manufacturing buildings. The purpose is to provide consistent terms and definitions for floor area measurements to facilitate comparison of space measurements among different organizations.

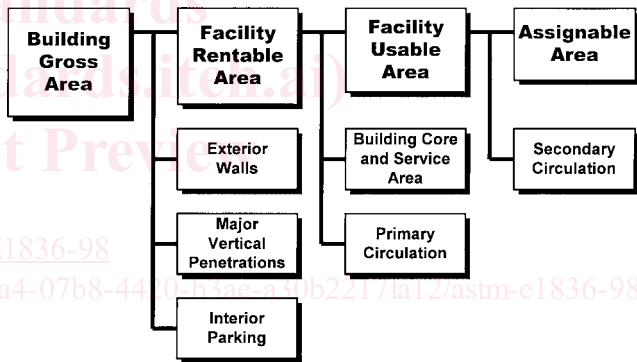
**A1.2 Scope**

A1.2.1 This annex of the classification is applicable to measurement of space in both leased and owner-occupied buildings. The document is applicable to office, research, laboratory, and manufacturing buildings.

A1.2.2 This annex of the classification is intended for use by facility managers and occupants of buildings and building-related facilities. It is suitable for such purposes as strategic facility planning, space management, and internal chargeback to occupant organizations.

A1.2.3 This annex of the classification is not intended for use in lease negotiations with owners of commercial office buildings or related properties. For that purpose, users are referred to the American National Standard published by the American National Standards Institute under the designation ANSI Z65.1 and commonly known as the ANSI-BOMA standard.

A1.2.4 The scope of this annex includes the following categories of floor area measurement. The relationships among them are listed in A1.2.5 and are diagramed in Fig. A1.1.



**FIG. A1.1 Floor Area Measurement Relationships**

A1.2.4.1 *building gross area*, measures all floor areas on all levels of a building. The measurement indicates total constructed space and is useful for building efficiency and construction cost comparisons.

A1.2.4.2 *facility rentable area*, is useful as a consistent basis for comparison with other buildings. The measurement is applicable to both leased buildings and owner-occupied buildings. Facility rentable area as defined in this classification is not necessarily the basis for lease agreements.

A1.2.4.3 *facility usable area*, measures the portion of a building or floor available for occupants. Facility usable area is a measurement for programming, planning, and allocating space.

A1.2.4.4 *assignable area*, measures the portion of a floor or building used to house personnel, furniture, and equipment. Assignable area is useful for detailed programming, planning, allocating, and layout of space.

<sup>4</sup> This acknowledges the cooperation of the International Facility Management Association (IFMA) and its Standards Committee on the development of this standard.

**A1.2.5 Relationships among Floor Area Measurements:**

|                        |   |  |
|------------------------|---|--|
| Facility rentable area | = | Gross area – Exterior walls, major vertical penetrations, and interior parking space |
| Facility usable area   | = | Facility rentable area – Building core and service area and primary circulation      |
| Assignable area        | = | Facility usable area – Secondary circulation   |

**A1.3 Terminology**

**A1.3.1 building projection**—a convector, baseboard heating unit, radiator, or other building element located inside a building adjacent to a wall that prevents the use of that space for furniture, equipment, circulation, or other functions.

**A1.3.2 excluded area**—fully enclosed spaces with adequate clear headroom that, for some reason, are not intended for or are not suitable for occupancy by people or equipment, but not spaces temporarily unusable due to flood, fire damage, construction, or renovation activity.

**A1.3.2.1 DISCUSSION**—Examples of excluded areas are unfinished attic spaces, attic spaces without unobstructed access, damp or flooded basements, and confined spaces requiring permits for entry.

**A1.3.3 finished surface**—a wall, ceiling, or floor surface, including glass, as prepared for tenant or occupant use, excluding the thickness of any special surfacing materials such as panelling, furring strips, and carpet.

**A1.3.4 interstitial area**—the area of load-bearing surfaces located above or below occupied building floors that are not available for general occupancy due to inadequate clear headroom that may contain building mechanical or electrical systems predominantly serving adjacent floors or provide access to such systems.

**A1.4 Floor Area Measurement Guidelines**

**A1.4.1** The following guidelines apply to all space categories (see Fig. A1.2):

**A1.4.1.1 Measurements**—All measurements shall be made

along the plane of the floor to the points where floors and walls intersect.

**A1.4.1.2 Clear Headroom**—Spaces that do not have sufficient clear headroom to conform to local building codes or that have headroom less than that required for occupancy (typically 2.0 to 2.3 m (6.5 to 7.5 ft)) shall not be included in any floor area measurement.

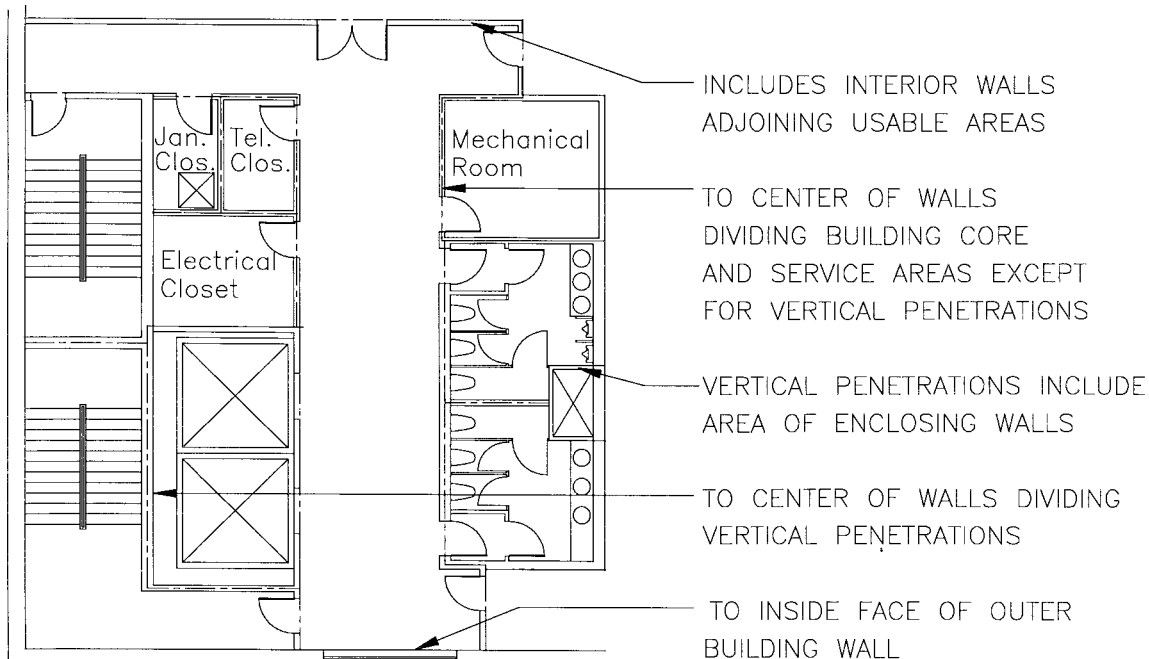
**A1.4.1.3 Floor Area**—This standard includes only areas that are totally enclosed within the building envelope. Climate conditions and construction practices will dictate the degree of weather tightness typical for exterior walls in a local area. Basements, enclosed porches, penthouses, mechanical equipment rooms, lobbies, mezzanines, corridors, interior parking spaces, and enclosed loading docks are included. Spaces outside the exterior walls or without a roof covering are not included in the floor area measurement. Interstitial areas and excluded areas are not included in the floor area measurement.

**A1.4.1.4 Void Areas**—Rooms more than one story in height and having void areas on upper floors, such as atria, light wells, or lobbies, are included in the area measurement of only the lowest floor, not the upper levels. Major vertical penetrations (utility shafts, elevator shafts, and stairs) are not considered void areas and are included in the measurement of building gross area for each floor through which they pass.

**A1.4.1.5 Reporting Exceptions**—If an organization chooses to exclude building columns and projections from the calculation of usable or assignable areas, this practice should be noted when reporting area measurement. If the alternate method of calculating building core and service area as shown in Fig. A1.3 is used, this should also be noted.

**A1.5 Building Gross Area**

**A1.5.1** Building gross area is the sum of the floor areas on all levels of a building that are totally enclosed within the building envelope (see Fig. A1.4). Measure building gross area



**FIG. A1.2 Building Core and Service Areas Using Recommended Area Classification Method**