
Upravljanje objektov in storitev - 6. del: Merjenje površin in prostorov

Facility Management - Part 6: Area and space measurement

Facility Management - Teil 6: Flächen- und Raumbemessung

Facilities Management - Partie 6 : Mesure des surfaces et de l'espace

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 15221-6

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ICS 03.080.10

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English Version

**Facility Management - Part 6: Area and space
measurement**

Facilities Management - Partie 6 : Mesure des surfaces
et de l'espace

Facility Management - Teil 6: Flächen- und
Raumbemessung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 348.

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European foreword

This document (prEN 15221-6:2026) has been prepared by Technical Committee CEN/TC 348 "Facility Management", the secretariat of which is held by SN.

This document is currently submitted to the CEN Enquiry.

This document will supersede [EN 15221-6:2011 \[1\]](#).

In comparison with the previous edition, the following technical modifications have been made:

- terms and definitions have been revised and definition of *wing* ([3.20](#)) is included;
- practical measurement ([4.1](#)) has been added;
- area definitions in [Clause 5](#) have been edited;
- area definitions in [Clause 5](#) have been changed to the reverse order;
- definitions and classification for area and space measurement outside of buildings (Clause 6 in the previous edition) have been transferred into an informative [Annex A](#);
- balconies and terraces;
- concepts of room programming are introduced in [Annex D](#).

This European Standard is one of the EN 15221 series on "Facility Management" which consists of the following parts:

- [EN 15221-6 \[2\]](#): Area and Space Measurement
- [EN 15221-8 \[3\]](#): Principles and processes
- [EN 15221-9 \[4\]](#): Study of area and space measurement standards and guidelines used in Europe

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

Facility management standards

Facility management (FM) ensures the functionality, comfort, safety, performance and efficiency of the built environment by integrating people, place, process, and technology. The European Standards provide a coherent framework for defining, implementing, and improving FM practices across various organizational contexts, aligning with international best practices and evolving organizational or core business needs.

Developed by the European Committee for Standardization (CEN), the EN 15221 series aligns closely with the ISO 41000 family of standards, ensuring consistency in terminology, processes, and methodologies. They are designed to support organizations in optimizing resource use, enhancing support service quality, and delivering value through effective FM. They reflect the collective expertise of professionals, industry stakeholders, and national standardization bodies, ensuring that it is both practical and adaptable to the dynamic nature of the FM sector.

The European standards on facility management (FM) consist of two series/families:

- EN 15221
- EN ISO 41000

For an overview of published standards and ongoing work, see CEN Website: www.cen.eu

These standards address a wide range of FM topics, including terminology, management system, service procurement, quality management, space planning and more.

Their purpose is to standardize practices and provide organizations with tools to align FM strategies with their broader business objectives. By offering a structured approach, the standards serve as a foundation for organizations of all sizes to develop sustainable, resilient, and future-ready facilities that contribute to organizational success, and thus achieve greater performance, efficiency, sustainability, and stakeholder satisfaction.

Introduction to area and space measurement in facility management

In order to support a consistent European approach to facility management, this document provides a constructive framework with clear terms, definitions and principles for measuring floor areas and spaces in buildings, not least a common language amongst all stakeholders in the entire construction industry.

The need for a harmonized European approach to "area and space measurement" is evidenced by the fact that many European countries currently use different rules and definitions for assessing building floor areas. Subsequently, space measurement data from different countries is difficult to interpret and data comparisons are most likely to be inaccurate. It is this comparability of data which is eminently important for a wide range of decision-makers, such as planners and architects, economists and investors, owners and tenants, politicians and administrators, etc.

Recent research by the European Committee of Construction Economists ([CEEC, Code of measurement for cost planning \[5\]¹](https://www.ceecorg.eu/wp-content/uploads/2024/03/CEEC-Code-of-Measurement-for-Cost-Planning-2014-v1.2-04-01-16.pdf)) highlighted the fact that all European countries use similar elements for measuring floor areas in buildings. The way these components are grouped and coded, however, differs vastly between various countries. Subsequently, comparisons between the net internal area of an UK building as measured by [RICS Code of measuring practice — A guide for surveyors and valuer \[6\]²](https://www.rics.org/profession-standards/rics-standards-and-guidance/sector-standards/real-estate-standards/code-of-measuring-practice) with the net enclosed area (Netto-Grundfläche) of a German building as measured by DIN or the net floor

¹ <https://www.ceecorg.eu/wp-content/uploads/2024/03/CEEC-Code-of-Measurement-for-Cost-Planning-2014-v1.2-04-01-16.pdf>

² <https://www.rics.org/profession-standards/rics-standards-and-guidance/sector-standards/real-estate-standards/code-of-measuring-practice>

area (Netto Vloeroppervlakte) of a Dutch building as measured by NEN are highly misleading as the floor areas are measured differently.

In short, the fact that measuring specific floor areas in one and the same building using different national standards result in variations up to 30 % clearly highlights the need for a harmonized European approach to "area and space measurement".

This document does not address areas required solely for maintenance or emergency evacuation.

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1 Scope

This document establishes a common basis for planning and design, area and space management, financial assessment, as well as a tool for benchmarking in the life cycle of the built asset. This document covers area and space measurement for existing owned or leased buildings as well as buildings in state of planning or development.

This document establishes a framework to deal with area and space measurement to promote both the entire life cycle information requirements and the digital technologies used by the industry. In addition, it defines clear terms and definitions as well as methods for measuring horizontal areas and volumes in buildings and/or parts of buildings, independent of their function.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 distance

numerical expression of a one-dimensional figure, measured along the shortest line linking two points

3.2 area

geometric property of a planar surface enclosed by closed curves

3.3 floor area

horizontal area measure in buildings, which may refer to a single room, storey, or the entire building

3.4 gross floor area

total floor area contained within building, including the horizontal area of external walls

Note 1 to entry: All enclosed spaces are included, and deductions are not made for lift shafts, etc.

Note 2 to entry: In this context, “floor” refers to *storey* (3.10).

[SOURCE: ISO 6707-1:2020 [7], 3.7.2.32]

3.5 net floor area

total floor area contained within a building, excluding the horizontal area of external walls

Note 1 to entry: In this context, “floor” refers to *storey* (3.10).

[SOURCE: ISO 6707-1:2020 [7], 3.7.2.33]

3.6

useful floor area

total gross floor area of all enclosed spaces, measured to the internal face of the external walls

Note 1 to entry: The total useful floor area can have a different value than the total floor area in the building.

Note 2 to entry: In this context, “floor” refers to *storey* ([3.10](#)).

Note 3 to entry: In [EN ISO 52000-17:2017 \[8\]](#), 3.1.18 *useful floor area* in the context of energy performance of buildings (EPB) is defined as: area of the floor of a building needed as parameter to quantify specific conditions of use that are expressed per unit of floor area and for the application of the simplifications and the zoning and (re-)allocation rules

[SOURCE: [ISO/CIE TR 3092:2023 \[9\]](#), 3.1]

3.7

volume

protected space enclosed by the building elements

[SOURCE: [ISO 6183:2022 \[10\]](#), 3.11]

3.8

space

area or volume bounded actually or theoretically

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.2.1.1]

3.9

floor

horizontal plane construction that provides the lowest surface in any space in a building

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.3.2.10]

3.10

storey

space between two consecutive floors or between a floor and a roof

Note 1 to entry: In the US, this term does not apply to an attic or space partly or wholly below.

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.2.1.2]

3.11

ceiling

construction covering the underside of a floor or roof and providing the overhead surface of an enclosed space, often to conceal structural members or services

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.3.2.18]

3.12

roof

construction that encloses a building from above

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.3.2.21]

prEN 15221-6 (E)**3.13****wall**

vertical construction that bounds or subdivides a space and usually fulfils a load-bearing or retaining function

Note 1 to entry: It is distinguished between both structural walls and non-structural walls as well as exterior and interior walls (see [Clause B.5](#)):

- a) structural walls support floors or roofs and/or ensure structural integrity;
- b) non-structural walls are intended to divide/separate space only;
- c) exterior walls divide/separate inside rooms from the outside;
- d) interior walls divide/separate inside rooms only.

Combinations of the above are possible (e.g. interior walls can be structural and exterior walls can be non-structural).

3.14**room**

enclosed space within a storey, other than a circulation space

Note 1 to entry: Room shall be accessible by people.

Note 2 to entry: Room is part of a building, entirely or partially bounded by dividing elements and whose floor and/or ceiling forms part of the construction of the building, accessible to people.

Note 3 to entry: In this document, circulation space is also considered a room.

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.2.1.3]

3.15**building**

construction works that has the provision of shelter for its occupants or contents as one of its main purposes, usually partially or totally enclosed and designed to stand permanently in one place

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.1.1.3]

3.16**measurement**

operation that has the object of determining the value of a quantity

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.5.1.22]

3.17**measurement**

value of a quantity that results from the activity of measurement

Note 1 to entry: For disambiguation, the term "practical measurement" is used to refer to the former and "measurement result" to the latter.

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.7.1.5]

3.18**accuracy**

closeness of agreement between measurement [result] and the accepted reference value

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.7.1.7]

3.19**tolerance**

permissible variation of the specified value of a quantity

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.7.1.8]

3.20**wing**

part of a *building* ([3.15](#)) that is subordinate to the main part

[SOURCE: [ISO 6707-1:2020 \[7\]](#), 3.2.2.20]

4 Methods and units of measurement**4.1 Practical measurement**

The measurement result of a planned building shall be derived from a digital model of the building or a part thereof.

NOTE Measured areas are the footprints of digital model objects on a floor plane.

The measurement result of an existing building should be derived from a digital model of the building or part of it. If a sufficiently accurate and reliable model does not exist, it should be created by conducting on-site measurements.

The permitted tolerance for area and volume measurements shall be stringent enough to ensure the intended purpose of the measurement is met. A description of the measurement process, along with an accuracy estimate, shall accompany the measurement result.

Minor incidental features, such as small floor openings, pilasters, or pillars with very small cross-sections, may be omitted. The omission of these features is not considered a measurement error but part of the area concept definition.

If the measurement result is obtained by methods other than a digital model (e.g. manual distance measurements based on a floor plan sketch), all dimensions used in the calculation shall be clearly shown on the floor plan sketch, which shall accompany the measurement result.

4.2 Units

The units of measurement differ according to the type of calculation:

- distances are measures of one dimension and should be expressed in metres (m) or its prefixes such as centimetres (cm) or millimetres (mm);
- areas are measures of two dimensions and should be expressed in square metres (m²);
- volumes are measures of three dimensions and should be expressed in cubic metres (m³).

NOTE Where other measurements are used, this can be transformed by using existing formulae e.g. square feet vs. square metre.

4.3 Distance

For distances, it shall be distinguished between length, width and height. The length shall be measured as linear extent from end to end (measurement of a horizontal distance). The width shall be measured as linear extent from side to side (measurement of a horizontal distance). The height shall be measured as linear extent from top to bottom (measurement of vertical distance).

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For lengths, widths and heights, it is distinguished between gross and net distance:

- The gross length and width shall be measured as the horizontal distance between the outer limiting faces of exterior walls or the horizontal distance between the centres of interior walls.
- The net length and width shall be measured as the horizontal distance between the inner limiting faces of the walls, with incidental structural components excluded.
- The gross height shall be measured as the vertical distance between the top of a finished floor or the adjoining land and the top of the finished floor of a room situated above it or the top of the roof structure.
- The net height shall be measured as the vertical distance between the top of a finished floor or the adjoining land and the bottom of a ceiling or roof situated above it, with incidental structural components excluded.
- The free height shall be measured as the vertical distance between the top of a finished floor or ground level and the underside of the suspended ceiling that is situated above it, with incidental structural components excluded.
- The construction height is the difference between gross height and net height.

For the lowest storey in the building, the gross height shall be measured to the bottom of the floor (up to the maximum of an ordinary floor).

NOTE The minimum passage height can be less than the free height.

Examples are illustrated in [Figure 1](#), [Figure 2](#), and [Figure 3](#).

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