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**Performance standards in building —  
Definition and calculation of area and  
space indicators**

*Normes de performance dans le bâtiment — Définition et calcul des  
indicateurs de surface et de volume*



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ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 59, *Buildings and civil engineering works*, Subcommittee SC 15, *Framework for the description of housing performance*.

This third edition cancels and replaces the second edition (ISO 9836:2011), of which it constitutes a minor revision with the following changes plus other minor editorial modifications:

- in [Figure 1](#), the intra-muros area has been changed;
- in [5.1.7.3](#), ISO 6241:1984, Tables 1 and 2 has been changed to ISO 19208:2016, Table B.1;
- in [5.4](#), ISO 6241:1984, Table 2 has been changed to ISO 19208:2016;
- in Bibliography, references have been added;
- in [5.1.11 g\)](#) and [A.2](#), the decimal point expression has been corrected.

## Introduction

The surface area and volume indicators derived from measuring spaces in buildings can be used to compare aspects of value, such as the proportion of space or volume which can be utilized functionally. As approximate values for planning, they can be a basis for further developments.

Reference to surface area and volume indicators when assessing buildings, which either already exist or which are in the planning stage, indirectly indicates certain economic characteristics of the buildings. Thus, the relationship between the area taken up by the building and the usable area indicates whether the building costs and materials have been used to their best advantage.

In the same way, the relationship between the area of the building envelope and the usable area shows the extent to which basic savings have been made on the envelope and the running costs of the heating and air conditioning systems.

As far as the determination of the economic performance of whole buildings is concerned, surface area and volume indicators contain basic data for calculation and comparison of capital costs and for running costs and maintenance. They give a basis for the minimization of running costs by limiting the amount of space and the cost of individual materials. For example, if the area of the external walls is small compared to the usable area, this would indicate not only relatively low energy costs but also relatively low cleaning and maintenance costs for facades.

NOTE Examples of using building loss factors for a new construction are given in [Annex A](#).



# Performance standards in building — Definition and calculation of area and space indicators

## 1 Scope

This document specifies the definition and calculation of surface area and volume indicators.

In defining area measurement, this document uses three measurement concepts:

- a) the intra-muros and extra-muros concept used in many parts of the world;
- b) the wall centre method of measurement used in many parts of the world;
- c) variations on these methods to comply with certain national laws or for particular types of buildings.

The surface area and volume indicators defined in this document are intended for practical use, as a basis for measuring various aspects of the performance of buildings or as a planning aid. In other words, they should enable judgement to be made on functional, technical and economic aspects of buildings.

This document is intended to be used when establishing

- specifications for the geometric performance of a building and its spaces (e.g. in design, purchasing procedures, etc., or in building regulations where appropriate),
- technical documentation relating to the performance of whole buildings prepared by designers, contractors and manufacturers,
- the amount of floor area that will not be effectively available for the placement of an individual's workplace, furniture, equipment, or for circulation, and
- evaluation, comparison or control of the properties of a building which are connected to its geometric performance.

**NOTE** Although there are a variety of methods of area measurement around the world depending on the country and/or types of buildings, all measuring methods are not necessarily of practical use because of inability to identify real area (e.g. the wall centre method of measurement). Thus, this document specializes in the measurement solely for practical use.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6707-1, *Building and civil engineering — Vocabulary — Part 1: General terms*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6707-1 and the following apply.

ISO and IEC maintain terminological 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>