



NSAI
Standards

Irish Standard
I.S. EN ISO 52000-1:2017

Energy performance of buildings - Overarching EPB assessment - Part 1: General framework and procedures (ISO 52000-1:2017)

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I.S. EN ISO 52000-1:2017

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National Foreword

I.S. EN ISO 52000-1:2017 is the adopted Irish version of the European Document EN ISO 52000-1:2017, Energy performance of buildings - Overarching EPB assessment - Part 1: General framework and procedures (ISO 52000-1:2017)

Annex I of the Energy Performance of Buildings Directive 2010/31/EU (EPBD) as amended by Directive 2018/844/EU (EPBD) outlines requirements for determining Energy Performance of Buildings and methodologies.

In Ireland:

- The national calculation methodology required by the EPBD is described following the annexes of the overarching standards namely I.S. EN ISO 52000-1, I.S. EN ISO 52003-1, I.S. EN ISO 52010-1, I.S. EN ISO 52016-1, and I.S. EN ISO 52018-1.

- The completed annexes are published in the National Calculation Methodologies, namely the Dwelling Energy Assessment Procedure (DEAP) and the Non-domestic Energy Assessment Procedure (NEAP), and are available from the Sustainable Energy Authority of Ireland (SEAI).

For the values specified in Annex A of this Irish Standard, users are therefore referred to the National Calculation Methodologies.

Note: For any standards mandated under the EPBD Directive, which permit the use of national annexes to specify national calculation methodologies, parameters, limits or values, where a national value is specified, the user is directed towards the National Calculation Methodologies, referred to above and relevant Technical Guidance Documents of the Building Regulations.

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 52000-1

July 2017

ICS 91.120.10

Supersedes EN 15603:2008

English Version

**Energy performance of buildings - Overarching EPB
assessment - Part 1: General framework and procedures
(ISO 52000-1:2017)**

Performance énergétique des bâtiments - Évaluation
cadre PEB - Partie 1: Cadre général et modes
opératoires (ISO 52000-1:2017)

Energieeffizienz von Gebäuden - Festlegungen zur
Bewertung der Energieeffizienz von Gebäuden - Teil 1:
Allgemeiner Rahmen und Verfahren (ISO 52000-
1:2017)

This European Standard was approved by CEN on 27 February 2017.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European foreword

This document (EN ISO 52000-1:2017) has been prepared by Technical Committee CEN/TC 371 "Energy Performance of Buildings project group", the secretariat of which is held by NEN, in collaboration with Technical Committee ISO/TC 163 "Thermal performance and energy use in the built environment".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2018 and conflicting national standards shall be withdrawn at the latest by January 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15603:2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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Endorsement notice

The text of ISO 52000-1:2017 has been approved by CEN as EN ISO 52000-1:2017 without any modification.

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INTERNATIONAL STANDARD

**ISO
52000-1**

First edition
2017-06

Energy performance of buildings — Overarching EPB assessment —

Part 1: General framework and procedures

*Performance énergétique des bâtiments — Évaluation cadre PEB —
Partie 1: Cadre général et modes opératoires*



Reference number
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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).

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).

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.

ISO 52000-1 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 371, *Energy Performance of Buildings project group*, in collaboration with ISO Technical Committees TC 163, *Thermal performance and energy use in the built environment*, and TC 205, *Building Environment Design*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 52000 series can be found on the ISO website.

This document cancels and replaces ISO/TR 16344:2012^[3] and ISO 16346:2013^[2].

Introduction

This document is part of a series aimed at the international harmonization of the methodology for assessing the energy performance of buildings. Throughout, this series is referred to as a “set of EPB standards”.

All EPB standards follow specific rules to ensure overall consistency, unambiguity and transparency.

All EPB standards provide a certain flexibility with regard to the methods, the required input data and references to other EPB standards, by the introduction of a normative template in [Annex A](#) and [Annex B](#) with informative default choices.

For the correct use of this document, a normative template is given in [Annex A](#) to specify these choices. Informative default choices are provided in [Annex B](#).

The main target groups for this document are architects, engineers and regulators.

Use by or for regulators: In case the document is used in the context of national or regional legal requirements, mandatory choices may be given at national or regional level for such specific applications. These choices (either the informative default choices from [Annex B](#) or choices adapted to national/regional needs, but in any case following the template of [Annex A](#)) can be made available as national annex or as separate (e.g. legal) document (national data sheet).

NOTE 1 So in this case:

— the regulators will specify the choices;

— the individual user will apply the document to assess the energy performance of a building, and thereby use the choices made by the regulators.

Topics addressed in this document can be subject to public regulation. Public regulation on the same topics can override the default values in [Annex B](#). Public regulation on the same topics can even, for certain applications, override the use of this document. Legal requirements and choices are in general not published in standards but in legal documents. In order to avoid double publications and difficult updating of double documents, a national annex may refer to the legal texts where national choices have been made by public authorities. Different national annexes or national data sheets are possible, for different applications.

It is expected, if the default values, choices and references to other EPB standards in [Annex B](#) are not followed due to national regulations, policy or traditions, that:

- national or regional authorities prepare data sheets containing the choices and national or regional values, according to the model in [Annex A](#). In this case a national annex (e.g. NA) is recommended, containing a reference to these data sheets;
- or, by default, the national standards body will consider the possibility to add or include a national annex in agreement with the template of [Annex A](#), in accordance to the legal documents that give national or regional values and choices.

Further target groups are parties wanting to motivate their assumptions by classifying the building energy performance for a dedicated building stock.

More information is provided in the Technical Report accompanying this document ISO/TR 52000-2[6].

The framework for overall EPB includes:

- a) common terms, definitions and symbols;
- b) building and assessment boundaries;
- c) building partitioning into space categories;

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- d) methodology for calculating the EPB (formulae on energy used, delivered, produced and/or exported at the building site and nearby);
- e) a set of overall formulae and input-output relations, linking the various elements relevant for the assessment of the overall EPB;
- f) general requirements for EPB dealing with partial calculations;
- g) rules for the combination of different spaces into zones;
- h) performance indicators;
- i) methodology for measured energy performance assessment.

[Table 1](#) shows the relative position of this document within the set of EPB standards in the context of the modular structure as set out in ISO 52000-1.

NOTE 2 In ISO/TR 52000-2^[6] the same table can be found, with, for each module, the numbers of the relevant EPB standards and accompanying technical reports that are published or in preparation.

NOTE 3 The modules represent EPB standards, although one EPB standard could cover more than one module and one module could be covered by more than one EPB standard, for instance, a simplified and a detailed method respectively. See also [Tables A.1](#) and [B.1](#).

Table 1 — Position of this document (in casu M1-1 - M1-3, M1-5, M1-7 - M1-10), within the modular structure of the set of EPB standards

| | Overarching | | Building (as such) | | Technical Building Systems | | | | | | | | | |
|---|---|-------------|---|----|------------------------------------|----------|----------|---------------|------------------|--------------------|---------------------|-----------|-----------------------------------|-------------|
| Sub module | Descriptions | | Descriptions | | Descriptions | Heat-ing | Cool-ing | Ven-tila-tion | Hu-midifi-cation | Dehu-midifi-cation | Do-mestic hot water | Light-ing | Build-ing auto-mation and control | PV, wind,.. |
| sub1 | | M1 | | M2 | | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 |
| 1 | General | ISO 52000-1 | General | | General | | | | | | | | | |
| 2 | Common terms and definitions; symbols, units and subscripts | ISO 52000-1 | Building energy needs | | Needs | | | | | | | | a | |
| 3 | Applications | ISO 52000-1 | (Free) Indoor conditions without systems | | Maximum load and power | | | | | | | | | |
| 4 | Ways to express energy performance | | Ways to express energy performance | | Ways to express energy performance | | | | | | | | | |
| 5 | Building categories and building boundaries | ISO 52000-1 | Heat transfer by transmission | | Emission and control | | | | | | | | | |
| 6 | Building occupancy and operating conditions | | Heat transfer by infiltration and ventilation | | Distribution and control | | | | | | | | | |
| 7 | Aggregation of energy services and energy carriers | ISO 52000-1 | Internal heat gains | | Storage and control | | | | | | | | | |
| 8 | Building zoning | ISO 52000-1 | Solar heat gains | | Generation and control | | | | | | | | | |
| NOTE The shaded modules are not applicable. | | | | | | | | | | | | | | |

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Table 1 (continued)

| Overarching | | Building (as such) | Technical Building Systems | | | | | | | | | | | |
|---|--|-----------------------|---|----|--|--------------|--------------|-----------------------|--------------------------|----------------------------|-------------------------------|--------------|---|-----------------|
| Sub module | Descriptions | | Descriptions | | Descriptions | Heat- ing | Cool- ing | Ven- tila- tion | Hu- midifi- cation | Dehu- midifi- cation | Do- mestic hot water | Light ing | Build ing auto mation and control | PV, wind, .. |
| sub1 | | M1 | | M2 | | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 |
| 9 | Calculated energy per- formance | ISO 52000-1 | Building dynamics (thermal mass) | | Load dis- patching and operating conditions | | | | | | | | | |
| 10 | Measured energy per- formance | ISO 52000-1 | Measured energy per- formance | | Measured energy per- formance | | | | | | | | | |
| 11 | Inspection | | Inspection | | Inspection | | | | | | | | | |
| 12 | Ways to ex- press indoor comfort | | | | BMS | | | | | | | | | |
| 13 | External environment conditions | | | | | | | | | | | | | |
| 14 | Economic calculation | | | | | | | | | | | | | |
| NOTE The shaded modules are not applicable. | | | | | | | | | | | | | | |

Energy performance of buildings — Overarching EPB assessment —

Part 1: General framework and procedures

1 Scope

This document establishes a systematic, comprehensive and modular structure for assessing the energy performance of new and existing buildings (EPB) in a holistic way.

It is applicable to the assessment of overall energy use of a building, by measurement or calculation, and the calculation of energy performance in terms of primary energy or other energy-related metrics. It takes into account the specific possibilities and limitations for the different applications, such as building design, new buildings ‘as built’, and existing buildings in the use phase as well as renovation.

NOTE [Table 1](#) in the Introduction shows the relative position of this document within the set of EPB standards in the context of the modular structure as set out in this document.

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 7345:1987, *Thermal insulation — Physical quantities and definitions*

NOTE Default references to EPB standards other than ISO 52000-1 are identified by the EPB module code number and given in [Annex A](#) (normative template in [Table A.1](#)) and [Annex B](#) (informative default choice in [Table B.1](#)).

EXAMPLE EPB module code number: M5-5, or M5-5.1 (if module M5-5 is subdivided), or M5-5/1 (if reference to a specific clause of the documents covering M5-5).

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7345:1987 and the following apply.

[Clause 3](#) includes terms that are not used in this document, but that are needed for overall consistency in the EPB standards.

NOTE 1 An alphabetic list of all terms defined in this document is given in [Annex F](#).

NOTE 2 See ISO/TR 52000-2[6] for explanation on the overarching terms and definitions and how possible conflicts with national or regional (e.g., legal) specifications is avoided.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
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