



**SLOVENSKI STANDARD**  
**oSIST prEN ISO 52003-1:2015**  
**01-oktober-2015**

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**Energetska učinkovitost stavb - Indikatorji, zahteve in certificiranje - 1. del: Splošni vidiki in uporaba za splošno energetska učinkovitost (ISO/DIS 52003-1:2015)**

Energy performance of buildings - Indicators, requirements and certification - Part 1: General aspects and application to the overall energy performance (ISO/DIS 52003-1:2015)

iTeh STANDARD PREVIEW

Energieeffizienz von Gebäuden - Indikatoren, Anforderungen und Ausweiserstellung - Teil 1: Allgemeine Aspekte und Anwendung auf die Gesamtenergieeffizienz (ISO/DIS 52003-1:2015)

SIST EN ISO 52003-1:2017

Performance énergétique des bâtiments - Méthodes d'expression de la performance énergétique globale et de certification énergétique des bâtiments - Partie 1: (ISO/DIS 52003-1:2015)

**Ta slovenski standard je istoveten z: prEN ISO 52003-1**

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**ICS:**

91.120.10      Toplotna izolacija stavb      Thermal insulation

**oSIST prEN ISO 52003-1:2015**      **en**



# DRAFT INTERNATIONAL STANDARD

## ISO/DIS 52003-1

ISO/TC 163

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### Energy performance of buildings — Indicators, requirements and certification —

Part 1:

### General aspects and application to the overall energy performance

*Performance énergétique des bâtiments — Méthodes d'expression de la performance énergétique globale  
et de certification énergétique des bâtiments*

ICS: 91.120.10

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#### ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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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. [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. [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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committees responsible for this document are ISO/TC 163, ISO/TC 205 and CEN/TC 89.

This standard cancels and replaces EN 15217:2007 [1] and ISO 16343:2013 [2] which have been technically revised.

ISO 52003 consists of the following parts, under the general title Energy performance of buildings — Indicators, requirements, ratings and certification

- Part 1: General aspects and application to the overall EPB
- Part 2: (Technical Report) Explanation and justification of ISO 52003-1

## Introduction

This Standard is part of a series of standards aiming at the international harmonisation of the methodology for the assessment of the energy performance of buildings, called "set of EPB standards".

As part of the "set of EPB standards" it complies with the requirements for the set of basic EPB documents (ISO 52000-1 (see Normative references), CEN/TS 16628 and CEN/TS 16629 (see bibliography [3] and [4]) developed under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/480, [5]), and supports essential requirements of EU Directive 2010/31/EC on the energy performance of buildings (EPBD) [6].

This International Standard presents some general concepts on EPB features and indicators. It also presents a coherent set of complementary and alternative ways to express the overall energy performance and energy performance requirements at overarching level (building including the technical building systems).

References are made to other International Standards or to national documents for input data and assessment procedures not provided by this International Standard.

The new texts are structured in accordance with the rules for EPB standards.

The content of ISO 16343 has been reworked significantly, but it has been attempted not to lose any substantial original content, although the original text has sometimes been strongly restructured and rephrased, and new content has been added. In the new text, for the purpose of clarity, requirements and ratings are treated as two autonomous uses of EPB indicators, each in its own right, although in practical application both may be closely integrated into a single, unified regulation.

Informative parts of ISO 16343 (notably annexes) have been transferred to the technical report, ISO/TR 52003-2 [7]. <https://standards.iteh.ai/catalog/standards/sist/56a696bb-6d50-4b7e-a278-6e81e2da3eb7/sist-pr-en-iso-52003-1-2015>

Some of the content of this text will be commonplace to those experienced in the domain. However, it has been decided to document also basic considerations with a view of fully informing interested parties, including novices in the field (eg new staff in ministries, maybe politicians and policy makers, who get involved in setting requirements, etc.) The aim is to contribute to well-informed choices, also at future revisions of the requirements (mix of EPB features&indicators, way to express each of them, actual strictness).

This International Standard is complemented by EPB standard ISO 52018-1, dealing with partial EPB requirements related to thermal energy balance and fabric features. It is also complemented by CEN EPB standards dealing with the same topics for specific technical building systems, servicing specific types of energy use (such as heating, cooling, ventilation, domestic hot water and lighting).

Because of its special subject, the rationale behind the options provided in this EPB standard is provided in the standard itself (where appropriate as normative text, otherwise as notes), with more detailed considerations, examples and justification provided in the accompanying technical report, ISO/TR 52003-2 [7]. For best understanding, the reader is therefore strongly advised to read parts 1 and 2 in parallel, clause by clause.

This standard and its accompanying technical report contain much basic information, which has been included with a view of making the texts more easily accessible to readers who are new to the subject. The Foreword, the Introduction and Notes in an international standard are purely informative and do not contain normative procedures or references.

The main changes compared to ISO/CD 52003-1 are the following:



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- Several paragraphs have been moved to the accompanying technical report (ISO/TR 52003-2, in preparation).
- The normative references to other EPB standards have been moved to Annex A/B (as in draft ISO 52000-1).
- A separate clause on *Rating* has been made (in previous CD version: §§ 8.1, 8.3 and 9.4).
- An autonomous clause on *fixed and variable requirement & reference values* has been made.
- From the standard(s) to be succeeded, a worked out *certificate model* has been re-introduced, as one of the options to choose.
- Editorial improvements.

Anticipated changes on DIS version:

- Continued (parallel) tuning with draft ISO 52000-1 (overarching standard).
- Deal with remaining comments received on CD version (mainly editorial, or comments that concern the whole set of EPB standards or that concern this standard in combination with draft ISO 52000-1 (overarching standard)).

## 1 Scope

The overall and partial EPB indicators, i.e. the quantitative output of EPB assessments, can be used for different purposes:

- 1) Regulations: to enable the establishment of regulations regarding the energy performance of buildings;
- 2) Decisions: to facilitate decisions or actions in the private or public domain, and
- 3) Information and communication: for building designers, owners, operators, users, policy makers and citizens (as sellers or renters, as prospective buyers or tenants).

This standard provides a framework for possible ways to express the energy performance, especially for the purpose of setting EPB requirements at the overarching level of the building including the technical building systems and for energy (performance) certification and labelling.

This standard is complemented by standards dealing with the same topics at the level of the building itself (i.e. mostly without technical systems), of the technical building systems and of building elements (e.g. building fabric and technical building system elements).

Possible ways to express the energy performance for the purpose of setting EPB requirements cover the objectives 1) and 2) above.

This standard provides also a common basis and common considerations for the subsequent EPB standards dealing with the same subject for the building itself (the fabric) and the building elements and for specific technical building systems, servicing specific types of energy use (such as heating, cooling, ventilation, domestic hot water and lighting).

(NOTE For this purpose this standard is supported by the accompanying technical report, ISO/TR 52003-2 [7])

This standard provides a structured and transparent framework for different (non-restrictive) options, enabling direct reference in national regulations, while providing flexibility for regulatory choices.

Table 1 shows the relative position of this standard within the set of EPB standards, namely module M1-4.

**Table 1 — Position of this standard (in casu M1-4) within the modular set of EPB standards**

Submodule	Over-arching	Building (as such)	Technical Building Systems									
	Descriptions	Descriptions	Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic Hot water	Lighting	Building automation & control	PV, wind, ..
sub1	M1	M2		M3	M4	M5	M6	M7	M8	M9	M10	M11
1	General	General	General									
2	Common terms and definitions; symbols, units and subscripts	Building Energy Needs	Needs									
3	Applications	(Free) Indoor Conditions without Systems	Maximum Load and Power									
4	<b>Ways to Express Energy Performance</b>	Ways to Express Energy Performance	Ways to Express Energy Performance									
5	Building Functions and Building Boundaries	Heat Transfer by Transmission	Emission & control									
6	Building Occupancy and Operating Conditions	Heat Transfer by Infiltration and Ventilation	Distribution & control									
7	Aggregation of Energy Services and Energy Carriers	Internal Heat Gains	Storage & control									
8	Building Zoning	Solar Heat Gains	Generation & control									
9	Calculated Energy Performance	Building Dynamics (thermal mass)	Load dispatching and operating conditions									
10	Measured Energy Performance	Measured Energy Performance	Measured Energy Performance									
11	Inspection	Inspection	Inspection									
12	Ways to Express Indoor Comfort		BMS									
13	External Environment Conditions											
14	Economic Calculation											

## 2 Normative references

The following referenced documents are indispensable for the application 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 52000-1, *Energy performance of buildings — Overarching EPB assessment – Part 1: General framework and procedures*<sup>1</sup>

Default references to other EPB standards, identified by the EPB module code number, are given in Table B.1. If alternative references are specified, then the template given in Table A.1 shall be used.

NOTE 1 Example of 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 standard covering M5-5).

NOTE 2 The same module code numbering will be used in other EPB standards. This will facilitate -in a individual country- the making of a consistent set of national annexes for each EPB standard and contribute to the overall consistency and transparency.

## 3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in ISO 7345:1995, ISO 52000-1<sup>2</sup> and the following specific definitions apply. For the readers' convenience the terms of ISO 52000-1 that are used in the underlying standard are repeated here.

NOTE 1 The latter are repeated only if indispensable for the overall understanding of this standard.

NOTE 2 The content of Clause 3 of this draft standard is already as much as possible tuned with draft ISO 52000-1, but comments and discussions on draft ISO 52000-1 and this draft standard may lead to (proposals for) changes. Such changes need to be checked for overall consistency.

NOTE 3 After enquiry the list of terms copied from ISO 52000-1 may be extended, because more of these may be relevant for the underlying standard.

### 3.1 Buildings

#### 3.1.1

##### **assessed building(s) (unit) \***

building(s) or part of the building resp. building unit that is the object of the energy performance assessment

NOTE 1 Comprises all spaces and technical systems which may contribute to or influence the energy performance assessment.

NOTE 2 The assessed building may include one or more building units, if these are not individually object of the energy performance assessment.

NOTE 3 A distinction may be made between e.g. a designed building, new building after construction, existing building in the use phase and existing building after major renovation.

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<sup>1</sup> In preparation.

<sup>2</sup> In preparation.

**3.1.2****building \***

construction as a whole, including the fabric and all technical building systems, where energy is used to condition the indoor environment, to provide domestic hot water and illumination and other services related to the use of the building

NOTE 1 The term refers to the physical building as a whole or to all parts thereof that at least include the spaces and technical building systems that are relevant for the energy performance assessment.

NOTE 2 Building parts can be physically detached, but are on the same building site. For example: a canteen or a guard house or one or more class rooms of a school in a detached building part; or an essential space in a dwelling (e.g. bedroom).

**3.1.3****building element \***

element of the technical building systems or element of the building fabric

**3.1.4****building services \***

services provided by technical building systems and by appliances to provide acceptable indoor environment conditions, domestic hot water, illumination levels and other services related to the use of the building

**3.1.5****building unit \***

a section, floor or apartment within a building which is designed or altered to be used separately

NOTE 1 The building unit can be the assessed object.

NOTE 2 The definition is copied from the EPBD.

EXAMPLE A shop in a shopping mall, an apartment in an apartment building, a rentable office space in an office building

**3.1.6****building (unit) category \***

classification of buildings and/or building units related to their main use or their special status, for the purpose of enabling differentiation of the energy performance assessment procedures and/or energy performance requirements

NOTE 1 In Europe, several articles of the Directive 2010/31/EU of the European Parliament and of the council of 19 May 2010 on the energy performance of buildings (EPBD) make a distinction between building categories.

NOTE 2 The building category, for instance, may determine if energy performance assessment is mandatory (e.g. not for religious or historic buildings) and which are the minimum energy performance requirements (e.g. for new buildings); in some countries measured energy performance is prescribed for specific categories of buildings (e.g. apartment buildings, large public buildings), etcetera.

Another type of categorization is the distinction between new and existing and renovated buildings.

**EXAMPLE**

Minimum list according to EPBD in Europe (in this standard extended with some subcategories, see 5.2.3):

Buildings officially protected as part of a designated environment or because of their special architectural or historical merit, buildings used as places of worship and for religious activities, residential buildings,

- (a) single-family houses of different types;
- (b) apartment blocks;
- (c) offices;
- (d) educational buildings;
- (e) hospitals;
- (f) hotels and restaurants;
- (g) sports facilities;
- (h) wholesale and retail trade services buildings;
- (i) other types of energy-consuming buildings

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NOTE 3 Many buildings or building units of a given (use) category contain spaces of different (use) categories; for instance an office building may contain a restaurant; see definition of space category.

NOTE 4 The allocation of a building category may also have a strong impact on other parts of the building regulations, for instance on safety (e.g. emergency exits, strength of floor) or indoor environmental quality (e.g. minimum ventilation rates)

### 3.1.7 conditions of use \*

conditions for the use of a building space category, related to the services for the energy performance assessment and/or the boundary conditions

EXAMPLE Heating set point, cooling set point, minimum amount of ventilation related to air quality, net domestic hot water needs (e.g. per m<sup>2</sup> floor area or per person), lighting levels, internal heat gains, etc. ; including the distribution over time (operation). Where relevant, the numbers are based on the number of occupants per m<sup>2</sup> per type of building space.

### 3.1.8 EPB standard \*

standard that complies with the requirements given in ISO 52000-1 , CEN/TS 16628 and CEN/TS 16629

NOTE These three basic EPB documents were developed under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/480, [2]), and supports essential requirements of EU Directive 2010/31/EC on the energy performance of buildings (EPBD). Several EPB standards are developed or revised under the same mandate.

### 3.1.9 thermal envelope \*

total of all elements of a building that enclose at least thermally conditioned spaces through which thermal energy is transferred to or from the external environment or to or from thermally unconditioned spaces

Note 1 to entry: The thermal envelope is determined according to criteria given in 7.2.3.

### 3.1.10 thermal envelope area \*

total area of all elements of a building that enclose thermally conditioned spaces through which thermal energy is transferred to or from the external environment or to or from thermally unconditioned spaces

Note 1 to entry: The thermal envelope area may play a role in the ways to express the overall and partial energy performance and energy performance requirements and comparison against benchmarks.

Note 2 to entry: The thermal element area depends on whether internal, overall internal or external dimensions are being used.

Note 3 to entry: The respective areas of the thermal envelope may be weighted with a reduction factor in case of e.g. unheated adjacent spaces and ground floors. For instance a fixed value in a national annex.

### 3.1.11 reference size \*

relevant metric to normalize the overall or partial energy performance and energy performance requirements to the size of the building or building part and for the comparison against benchmarks.

NOTE See procedure in 9.5.1 of ISO 52000-1 and see ISO/TR 52000-2 [x] for the impact and rationale of different choices and the link with the choices made for the EP assessment (such as conditions of use for different building or space categories).

### 3.1.12 reference floor area \*

reference size based on useful floor area