

**SLOVENSKI STANDARD**  
**kSIST-TP FprCEN ISO/TR 52003-2:2017**  
**01-januar-2017**

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**Energetska učinkovitost stavb - Indikatorji, zahteve in certificiranje - 2. del:  
Obrazložitve in utemeljitve za ISO 52003-1 (ISO/DTR 52003-2:2016)**

Energy performance of buildings - Indicators, requirements and certification - Part 2:  
Explanations and justifications for ISO 52003-1 (ISO/DTR 52003-2:2016)

**iTeh STANDARD PREVIEW**  
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Performance énergétique des bâtiments - Indicateurs, exigences et certification - Partie  
2: Explications et justifications pour ISO 52003-1 (ISO/DTR 52003-2:2016)

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**Ta slovenski standard je istoveten z: FprCEN ISO/TR 52003-2**

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91.120.10	Toplotna izolacija stavb	Thermal insulation of buildings

**kSIST-TP FprCEN ISO/TR 52003-2:2017 en**



TECHNICAL  
REPORT

ISO/TR  
52003-2

First edition

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

**Part 2:  
Explanations and justifications for  
ISO 52003-1**

*Performance énergétique des bâtiments — Indicateurs, exigences et  
certification —*

*Partie 2: Explications et justifications pour ISO 52003-1*

*SIST-TP CEN ISO/TR 52003-2:2017*

*<https://standards.iteh.ai/catalog/standards/sist/dbd324ef-2917-42f2-9a2e-ac7bfffda3f4/sist-tp-cen-iso-tr-52003-2-2017>*

Member bodies are requested to consult relevant national interests in ISO/TC 205 before casting their ballot to the e-Balloting application.

**PROOF / ÉPREUVE**

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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](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 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 *Thermal performance and energy use in the built environment*, ISO/TC 205 *Building environment design* and CEN/TC 89 *Thermal performance of buildings and building components*.

Together, ISO 52003-1 and ISO/TR 52003-2 cancel and replace ISO 16343:2013 which has been technically revised.

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

- Part 1: General aspects and application to the overall energy performance; and
- Part 2: Explanation and justification of ISO 52003-1.

## Introduction

### 0.1 Relation between this document and the accompanying International Standard

For proper understanding of the present document, it is necessary to read it in close conjunction, clause by clause, with ISO 52003-1.<sup>[1]</sup> First, the corresponding clause in Part 1 needs to be read; then the complementary information in the same clause in this report can be read. Essential information provided in Part 1 is not repeated in this part. References to a clause refer to the combined content of that clause in both parts 1 and 2. A brief article on the subject can be found in<sup>[15]</sup>.

### 0.2 The set of EPB standards, technical reports and supporting tools

In order to facilitate the necessary overall consistency and coherence, in terminology, approach, input/output relations and formats, for the whole set of EPB-standards, the following documents and tools are available:

- a document with basic principles to be followed in drafting EPB-standards:
  - CEN/TS 16628:2014, Energy Performance of Buildings - Basic Principles for the set of EPB standards<sup>[7]</sup>;
- a document with detailed technical rules to be followed in drafting EPB-standards:
  - CEN/TS 16629:2014, Energy Performance of Buildings - Detailed Technical Rules for the set of EPB-standards<sup>[8]</sup>;
- the detailed technical rules are the basis for the following tools:
  - a common template for each EPB standard, including specific drafting instructions for the relevant clauses;
  - a common template for each technical report that accompanies an EPB standard or a cluster of EPB standards, including specific drafting instructions for the relevant clauses;
  - a common template for the spreadsheet that accompanies each EPB (calculation) standard, to demonstrate the correctness of the EPB calculation procedures.

Each EPB standard follows the basic principles and the detailed technical rules and relates to the overarching EPB standard, ISO 52000-1<sup>[11]</sup>.

One of the main purposes of the revision of the EPB standards has been to enable that laws and regulations directly refer to the EPB standards and make compliance with them compulsory. This requires that the set of EPB standards consists of a systematic, clear, comprehensive and unambiguous set of energy performance procedures. The number of options provided is kept as low as possible, taking into account national and regional differences in climate, culture and building tradition, policy and legal frameworks (subsidiarity principle). For each option, an informative default option is provided ([Annex B](#)).

### 0.3 Rationale behind the EPB Technical Reports

There is a risk that the purpose and limitations of the EPB standards will be misunderstood, unless the background and context to their contents – and the thinking behind them – is explained in some detail to readers of the standards. Consequently, various types of informative contents are recorded and made available for users to properly understand, apply and nationally or regionally implement the EPB standards.

If this explanation would have been attempted in the standards themselves, the result is likely to be confusing and cumbersome, especially if the standards are implemented or referenced in national or regional building codes.



Therefore each EPB standard is accompanied by an informative Technical Report, like this one, where all informative content is collected, to ensure a clear separation between normative and informative contents (see CEN/TS 16629[8]):

- to avoid flooding and confusing the actual normative part with informative content;
- to reduce the page count of the actual standard; and
- to facilitate understanding of the set of EPB standards.

This was also one of the main recommendations from the European CENSE project[13] that laid the foundation for the preparation of the set of EPB standards.

#### **0.4 This document**

This document accompanies ISO 52003-1 [11], which forms part of the set of EPB standards.

The role and the positioning of the accompanying standard in the set of EPB standards is defined in the Introduction.

#### **0.5 Accompanying spreadsheet(s)**

Because in the accompanying document ISO 52003-1 no calculation procedures are defined, an accompanying calculation spreadsheet is not relevant.

#### **0.6 History of this document and the accompanying International Standard**

The first standard on this topic was EN 15217:2007.[3] It was developed as part of Mandate 343 of the EC to CEN to support the EPBD (2003)[4] An upgrade of it was published as ISO 16343:2013.[5] The document has been thoroughly reworked and split in a normative International Standard (Part 1) and the present informative document (Part 2) as part of Mandate 480 of the EC to CEN[6].

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

## Part 2: Explanations and justifications for ISO 52003-1

### 1 Scope

This document refers to ISO 52003-1. It contains information to support the correct understanding and use of ISO 52003-1 and does not contain any normative provisions.

NOTE The relation with other EPB standards, product standards and product policy is shown schematically in [Figure 4](#) of [Clause 6](#).

### 2 Normative references

There are no normative references in this document.

More information on the use of EPB module numbers for normative references between EPB standards is given in ISO/TR 52000-2[12].

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in the accompanying EPB document, ISO 52003-1, 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>

More information on some key EPB terms and definitions is given in ISO/TR 52000-2[12].

### 4 Symbols and abbreviations

#### 4.1 Symbols

For the purposes of this document, the symbols provided in the accompanying EPB document, ISO 52003-1, apply.

More information on key EPB symbols is given in ISO/TR 52000-2[12].

Additional symbols are given in [Table 1](#).

**Table 1 — Symbols and units**

Symbol	Name of quantity	Unit
$A$	area	m <sup>2</sup>
$c$	constant	a)
$f$	factor	-
$f$	shape factor	-
$V$	volume	m <sup>3</sup>
a) varies with the context		

## 4.2 Subscripts

For the purposes of this document, the subscripts as mentioned and given in the accompanying EPB document, ISO 52003-1, apply.

More information on key EPB subscripts is given in ISO/TR 52000-2.

Additional subscripts are given in [Table 2](#).

**Table 2 — Subscripts**

Subscript	Term
c	conditioned
env	envelope
use	useful

## 5 Description of the document

### 5.1 General

[Figure 1](#) shows in a first, simplified step and in a schematic manner, the main uses that can be made of the EPB indicators.

EPB indicators are numeric quantities that are the intermediate or final output of the EPB assessment standards (see also [Figure 4](#) in [Clause 6](#)). They can be the result of either calculations (e.g. a thermal transmittance value) or of measurements (e.g. the air tightness value of the thermal envelope) or a combination of both (e.g. an overall energy performance value that is partly based on a measured air tightness). Ideally, all mathematical operations of a technical variable are defined in the EPB assessment standards and the value as such (and its definition) are directly ready for further use, without the need for further mathematical manipulation.

The EPB indicators can be used in several different ways by public and private actors. A first major use of EPB indicators is to impose regulatory EPB requirements on construction works of all kinds. A second major use is to rate the energetic quality of the considered EPB feature through comparison with benchmarks. The EPB requirements can serve as one of the references for the rating. There can still be other uses, such as the use of a variable as target function for design optimization, e.g. the least life cycle cost.

Selected EPB indicators, ratings, requirements and their (non)compliance (if applicable), and other information (such as recommendations for improvement of the energy performance) can be included in the EPB certificate, and its detailed report.

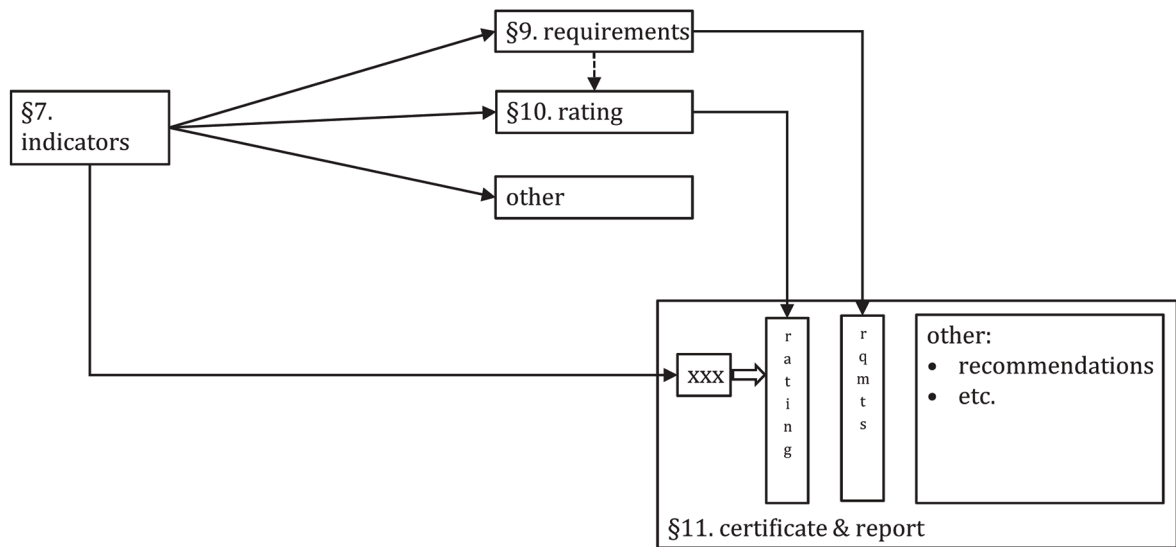


Figure 1 — Simplified schematic overview of the relations between various EPB aspects

Figure 2 illustrates in dotted lines potential additional interactions. In order to achieve equitable requirements or ratings, it can be necessary for many indicators to use in a first instance variable values as requirement or reference. Such variable values are tailored to the characteristics of each individual project. For ease of communication, the primary indicator can be converted in a second instance into a derived indicator by taking its ratio to the variable requirement or reference value. The derived, secondary indicator then again allows the requirement or rating reference to be a constant value, which can greatly facilitate communication. Generally speaking, it seems desirable that all mathematical operations are defined in the actual EPB assessment standards. But for derived indicators that are intrinsically related to the (requirement and rating) policy choices, the last few mathematical calculations inevitably can only be defined in a regulatory context.

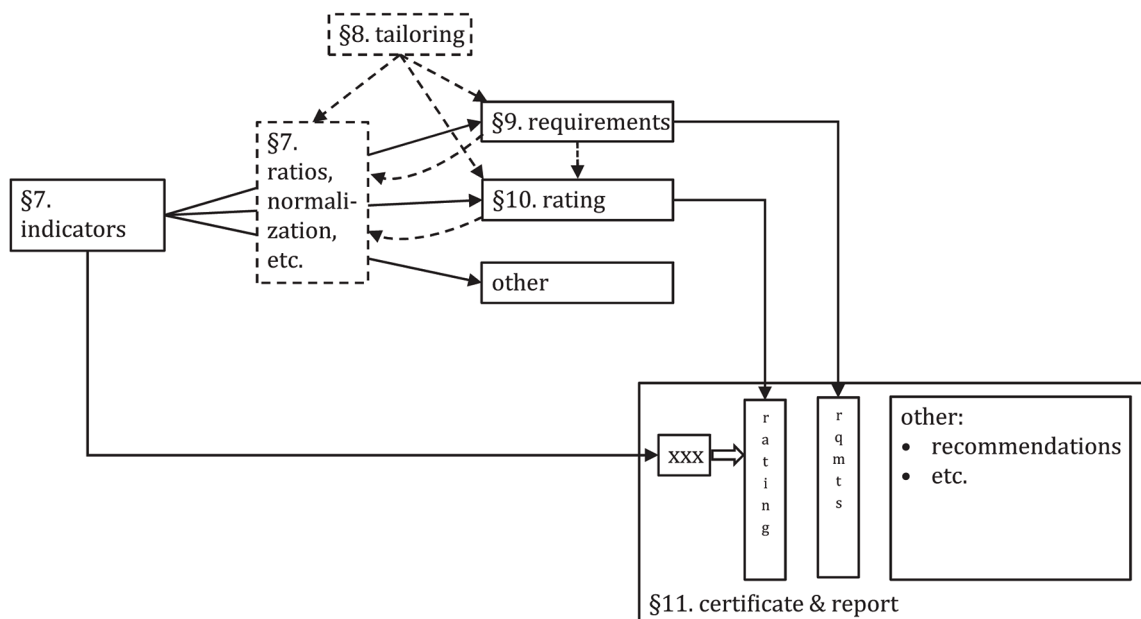


Figure 2 — Full schematic overview of the relations between various EPB aspects