

Teknisk rapport

SIS-CEN ISO/TR 52003-2:2017

Publicerad/Published: 2017-08-25
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 91.120.10

Byggnaders energiprestanda – Indikatorer, krav och certifiering – Del 2 : Förklaring och motivering av ISO 52003-1 (ISO/TR 52003-2:2017)

Energy performance of buildings – Indicators, requirements, ratings and certificates – Part 2: Explanation and justification of ISO 52003-1 (ISO/TR 52003-2:2017)

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-8027985>

Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.



Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00



Denna tekniska rapport är inte en svensk standard. Detta dokument innehåller den engelska språkversionen av CEN ISO/TR 52003-2:2017.

Dokumentet ersätter SS-EN 15217:2007.

This Technical Report is not a Swedish Standard. This document contains the English version of CEN ISO/TR 52003-2:2017.

The document replaces SS-EN 15217:2007.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Upplysningar om sakinnehållet i detta dokument lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om nationell och internationell standard.

Information about the content of this document is available from the SIS, Swedish Standards Institute, telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about national and international standards.

Dokumentet är framtaget av kommittén för Provnings- och beräkningsmetoder, SIS/TK 189/AG 02.

Har du synpunkter på innehållet i det här dokumentet, vill du delta i ett kommande revideringsarbete eller vara med och ta fram standarder inom området? Gå in på www.sis.se - där hittar du mer information.

TECHNICAL REPORT

CEN ISO/TR 52003-2

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

July 2017

ICS 91.120.10

Supersedes EN 15217:2007

English Version

**Energy performance of buildings - Indicators,
requirements, ratings and certificates - Part 2: Explanation
and justification of ISO 52003-1 (ISO/TR 52003-2:2017)**

Performance énergétique des bâtiments - Indicateurs,
exigences et certification - Partie 2: Explications et
justifications pour ISO 52003-1 (ISO/TR 52003-
2:2017)

This Technical Report was approved by CEN on 24 February 2017. It has been drawn up by the Technical Committee CEN/TC 89.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword	v
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviations	1
4.1 Symbols	1
4.2 Subscripts	2
5 Description of the document	2
5.1 General	2
5.2 Selection criteria between possible options	4
5.3 Input and output data	4
6 Relation between EPB features, indicators, requirements, ratings and certificates	4
7 Energy performance features and their indicators	9
7.1 General	9
7.2 Normalization to building size	9
7.3 Energy performances and their indicators	9
7.3.1 Overall energy performances	9
7.3.2 Partial energy performances	9
7.4 Ratios of identical/similar quantities as indicators for energy performances	9
8 Tailoring for requirements and for ratings	10
8.1 Two approaches	10
8.2 Project characteristics for tailoring	12
9 Energy performance requirements	13
9.1 General	13
9.2 Choice of the mix of requirements	14
9.2.1 General	14
9.2.2 New buildings	14
9.2.3 Existing buildings (renovations and extensions)	15
9.3 Constant or variable value requirements	15
9.3.1 Tailoring requirements to individual project characteristics	15
9.3.2 Tightening the requirements over time	17
9.4 Actual strictness	17
9.5 Reporting template for the overall energy performance	18
10 EPB rating	18
10.1 General	18
10.2 EPB rating procedures	18
10.2.1 Reference point - National legal requirements for new buildings	19
10.2.2 Expressions of reference point of the scale	19
10.2.3 Proposal for the shape of the scale	20
10.2.4 Conclusions on Method 2	21
10.3 Reference values	21
11 Energy performance certificate	21
11.1 General	21
11.2 Content of the procedure for a building energy certificate	21
11.3 Content of the energy performance certificate	21
11.3.1 General	21
11.3.2 Default graphical representation model	22
11.4 Recommendations	22

SIS-CEN ISO/TR 52003-2:2017 (E)

12	Quality control	22
13	Compliance check	23
	Annex A (informative) Input and method selection data sheet — Template	24
	Annex B (informative) Input and method selection data sheet — Default choices	25
	Annex C (informative) Illustration of the variable value of the overall primary energy use per floor area for a given set of technical measures	27
	Annex D (informative) Procedure for building energy performance classification	30
	Annex E (informative) Energy label model	31
	Bibliography	34

European foreword

This document (CEN ISO/TR 52003-2:2017) has been prepared by Technical Committee ISO/TC 163 "Thermal performance and energy use in the built environment" in collaboration with Technical Committee CEN/TC 89 "Thermal performance of buildings and building components" the secretariat of which is held by SIS.

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

This document is part of the set of standards and accompanying technical reports on the energy performance of buildings and has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/480, see reference [EF3] below).

Directive 2010/31/EU recasting the Directive 2002/91/EC on energy performance of buildings (EPBD, [EF4]) promotes the improvement of the energy performance of buildings within the European Union, taking into account all types of energy uses (heating, lighting, cooling, air conditioning, ventilation) and outdoor climatic and local conditions, as well as indoor climate requirements and cost effectiveness (Article 1).

The directive requires Member States to adopt measures and tools to achieve the prudent and rational use of energy resources. In order to achieve those goals, the EPBD requires increasing energy efficiency and the enhanced use of renewable energies in both new and existing buildings. One tool for this is the application by Member States of minimum requirements on the energy performance of new buildings and for existing buildings that are subject to major renovation, as well as for minimum performance requirements for the building envelope if energy-relevant parts are replaced or retrofitted. Other tools are energy certification of buildings, inspection of boilers and air-conditioning systems.

The use of European standards increases the accessibility, transparency and objectivity of the energy performance assessment in the Member States facilitating the comparison of best practices and supporting the internal market for construction products. The use of EPB-standards for calculating energy performance, as well as for energy performance certification and the inspection of heating systems and boilers, ventilation and air-conditioning systems will reduce costs compared to developing different standards at national level.

The first mandate to CEN to develop a set of CEN EPBD standards (M/343, [EF2]), to support the first edition of the EPBD [EF1] resulted in the successful publication of all EPBD related CEN standards in 2007-2008.

The mandate M/480 was issued to review the mandate 343 as the recast of the EPBD raised the need to revisit the standards and reformulate and add standards so that they become on the one hand unambiguous and compatible, and on the other hand a clear and explicit overview of the choices,

SIS-CEN ISO/TR 52003-2:2017 (E)

boundary conditions and input data that need to be defined at national or regional level. Such national or regional choices remain necessary, due to differences in climate, culture & building tradition, policy and legal frameworks. Consequently, the set of CEN-EPBD standards published in 2007-2008 had to be improved and expanded on the basis of the recast of the EPBD.

The EPB standards are flexible enough to allow for necessary national and regional differentiation and facilitate Member States implementation and the setting of requirements by the Member States.

Further target groups are users of the voluntary common European Union certification scheme for the energy performance of non-residential buildings (EPBD art.11.9) and any other regional (e.g. Pan European) parties wanting to motivate their assumptions by classifying the building energy performance for a dedicated building stock.

Together, EN ISO 52003-1 and EN ISO/TR 52003-2 supersede EN 15217:2007 [EF5], which was developed during the first EPBD mandate (M/343).

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

References:

- [EF1] EPBD, Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings
- [EF2] Mandate M/343 Mandate to CEN, CENELEC and ETSI for the elaboration and adoption of standards for a methodology calculating the integrated energy performance of buildings and estimating the environmental impact, in accordance with the terms set forth in Directive 2002/91/EC; 30 January 2004
- [EF3] Mandate M/480, Mandate to CEN, CENELEC and ETSI for the elaboration and adoption of standards for a methodology calculating the integrated energy performance of buildings and promoting the energy efficiency of buildings, in accordance with the terms set in the recast of the Directive on the energy performance of buildings (2010/31/EU) of 14th December 2010
- [EF4] EPBD, Recast of the Directive on the energy performance of buildings (2010/31/EU) of 14th December 2010
- [EF5] EN 15217:2007, Energy performance of buildings – Methods for expressing energy performance and for energy certification of buildings

Endorsement notice

The text of ISO/TR 52003-2:2017 has been approved by CEN as CEN ISO/TR 52003-2:2017 without any modification.

Introduction

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. 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. Brief articles on the subject can be found in [14] and [15].

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) 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[6];
- b) 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[7];

The detailed technical rules are the basis for the following tools:

- 1) a common template for each EPB standard, including specific drafting instructions for the relevant clauses;
- 2) 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;
- 3) 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[10].

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](#)).

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.