



NSAI
Standards

Irish Standard
I.S. EN ISO 52018-1:2017

Energy performance of buildings -
Indicators for partial EPB requirements
related to thermal energy balance and
fabric features - Part 1: Overview of
options (ISO 52018-1:2017)

I.S. EN ISO 52018-1:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN ISO 52018-1:2017

Published:

2017-07-19

This document was published under the authority of the NSAI and comes into effect on:

2017-08-06

ICS number:

91.120.10

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN ISO 52018-1:2017 is the adopted Irish version of the European Document EN ISO 52018-1:2017, Energy performance of buildings - Indicators for partial EPB requirements related to thermal energy balance and fabric features - Part 1: Overview of options (ISO 52018-1:2017)

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.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

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

This page is intentionally left blank

EUROPEAN STANDARD

EN ISO 52018-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2017

ICS 91.120.10

English Version

**Energy performance of buildings - Indicators for partial
EPB requirements related to thermal energy balance and
fabric features - Part 1: Overview of options (ISO 52018-
1:2017)**

Performance énergétique des bâtiments - Indicateurs
pour des exigences PEB partielles liées aux
caractéristiques du bilan énergétique thermique et du
bâti - Partie 1: Aperçu des options (ISO 52018-1:2017)

Energieeffizienz von Gebäuden - Indikatoren für EPB-
Teilanforderungen im Hinblick auf die
Wärmeenergiebilanz und Funktionen der Bausubstanz
- Teil 1: Überblick über die Möglichkeiten (ISO 52018-
1:2017)

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

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

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

EN ISO 52018-1:2017 (E)

Contents	Page
European foreword.....	3

European foreword

This document (EN ISO 52018-1:2017) 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 on the energy performance of buildings (the set of EPB standards) 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 [EF1] below), and supports essential requirements of EU Directive 2010/31/EC on the energy performance of buildings (EPBD, [EF2]).

In case this standard 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, in particular for the application within the context of EU Directives transposed into national legal requirements.

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.

References:

[EF1] 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

[EF2] EPBD, Recast of the Directive on the energy performance of buildings (2010/31/EU) of 14th December 2010

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.

Endorsement notice

The text of ISO 52018-1:2017 has been approved by CEN as EN ISO 52018-1:2017 without any modification.

This page is intentionally left blank

INTERNATIONAL STANDARD

ISO
52018-1

First edition
2017-06

Energy performance of buildings — Indicators for partial EPB requirements related to thermal energy balance and fabric features —

Part 1: Overview of options

*Performance énergétique des bâtiments — Indicateurs pour
des exigences PEB partielles liées aux caractéristiques du bilan
énergétique thermique et du bâti —*

Partie 1: Aperçu des options



Reference number
ISO 52018-1:2017(E)

© ISO 2017

ISO 52018-1:2017(E)



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
3.1 Building.....	2
3.2 Indoor and outdoor conditions.....	5
3.3 Technical building systems.....	6
3.4 Energy.....	7
3.5 Energy performance.....	7
3.6 Building heat transfer, heat gains and recoverable system thermal losses.....	8
4 Symbols and subscripts	10
4.1 Symbols.....	10
4.2 Subscripts.....	10
5 Description of this document	11
5.1 General.....	11
5.2 Brief overview of this document.....	12
5.3 Selection criteria between the possible options.....	12
5.4 Input and output data.....	12
6 Mix of EPB features with requirements	13
7 Summer thermal comfort	13
8 Winter thermal comfort	14
9 Energy need for heating or variants	14
10 Energy need for cooling, or variants	15
11 Combination of “needs”	15
12 Overall thermal insulation of the thermal envelope	15
13 Thermal insulation of individual elements of the thermal envelope	15
14 Thermal bridges	16
15 Window energy performances	17
16 Airtightness of the thermal envelope	17
17 Solar control	18
18 Other requirements	18
19 Quality control	18
20 Compliance check	18
Annex A (normative) Input and method selection data sheet — Template	20
Annex B (informative) Input and method selection data sheet — Default choices	29
Annex C (normative) Regional references in line with ISO Global Relevance Policy	42
Bibliography	43

ISO 52018-1:2017(E)

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 52018-1 was prepared by ISO Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 2, *Calculation methods*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 89, *Thermal performance of buildings and building components*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 52018 series can be found on the ISO website.

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 (ISO/TR 52018-2)^[Z] accompanying this document.

The subset of EPB standards prepared under the responsibility of ISO/TC 163/SC 2 cover *inter alia*:

- calculation procedures on the overall energy use and energy performance of buildings;
- calculation procedures on the indoor temperature in buildings (e.g. in case of no space heating or cooling);
- indicators for partial EPB requirements related to thermal energy balance and fabric features;

ISO 52018-1:2017(E)

- calculation methods covering the performance and thermal, hygrothermal, solar and visual characteristics of specific parts of the building and specific building elements and components, such as opaque envelope elements, ground floor, windows and facades.

ISO/TC 163/SC 2 cooperates with other technical committees for the details on, for example, appliances, technical building systems and indoor environment.

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

- a) Requirements: To set public or private requirements regarding the energy performance of buildings.
- b) Decisions: To facilitate decisions or actions in the private or public domain.
- c) Information and communication: For building designers, owners, operators, users, policymakers and citizens (as sellers or renters, as prospective buyers or tenants).

ISO 52003-1 and ISO 52003-2 discuss in a general manner the post-processing of the outputs of the EPB standards. They describe the concepts of EPB features and EPB indicators and deal with the principles of requirements, ratings and certificates. They also briefly deal in a more practical manner with the overall EPB requirements.

This document deals on a practical level with the requirements related to the fabric and related to the thermal balance of the building. Thermal balance aspects concern both the heating and cooling needs and the free floating temperatures, especially with respect to overheating or too cold indoor temperatures.

Most of the EPB features falling within this scope are succinctly enumerated and for each of them, many possible indicators are listed. [Annex A](#) provides standardized tables to report the choices that are made by regulators. [Annex B](#) gives motivated default choices.

As ISO 52003-1, this document does not provide any EPB assessment method (calculation, measurement of inspection). Instead, they refer to other EPB and non-EPB standards for the determination of EPB indicators.

ISO/TR 52018-2 is the technical report corresponding to this document. It provides extensive background information to help with making well-considered choices. For best understanding, the reader is advised to read this document and ISO/TR 52018-2 in parallel, clause by clause.

EPB indicators that can possibly be used for setting requirements to technical building systems are in principle covered in the corresponding EPB documents (which are until now mostly CEN standards).

[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, 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 [Clause 2](#) and [Tables A.1](#) and [B.1](#).

Table 1 — Position of this document (*in casu* M2–4) within the modular structure of the set of EPB standards

Sub-module	Overarching		Building (as such)		Technical Building Systems									
	Descriptions		Descriptions		Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic hot water	Lighting	Building automation and 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								a	
3	Applications		(Free) indoor conditions without systems		Maximum load and power									
4	Ways to express energy performance		Ways to express energy performance	ISO 52018-1	Ways to express energy performance									
5	Building categories and building boundaries		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		Internal heat gains		Storage and control									
8	Building zoning		Solar heat gains		Generation and 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													

^a The shaded modules are not applicable.

Energy performance of buildings — Indicators for partial EPB requirements related to thermal energy balance and fabric features —

Part 1: Overview of options

1 Scope

The set of EPB assessment standards produces a great number of overall and partial EPB indicators as outputs, which can be used for different purposes. This document deals with the use as requirement of partial EPB indicators related to the fabric and related to the thermal balance of the building. Thermal balance aspects concern both the heating and cooling needs and the free floating temperatures, especially with respect to overheating or too cold indoor temperatures. This document can support both private parties and public regulators (and all stakeholders involved in the regulatory process) with the “post-processing” of these outputs.

This document provides standardized tables for reporting, in a structured and transparent manner, the choices that are to be made with respect to the partial EPB requirements covered by this document. The tables are non-restrictive, thus allowing for full regulatory flexibility.

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 ISO 52000-1.

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.

NOTE 1 In addition, [Annex C](#) contains specific parallel routes in referencing standards, in order to take into account existing national and/or regional regulations and/or legal environments while maintaining global relevance.

NOTE 2 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) and [Annex B](#) (informative default choice).

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 standard covering M5-5).

ISO 7345, *Thermal insulation — Physical quantities and definitions*

ISO 9050, *Glass in building — Determination of light transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance and related glazing factors*

ISO 9972:2015, *Thermal performance of buildings — Determination of air permeability of buildings — Fan pressurization method*

ISO 10291, *Glass in building — Determination of steady-state U values (thermal transmittance) of multiple glazing — Guarded hot plate method*

ISO 10292, *Glass in building — Calculation of steady-state U values (thermal transmittance) of multiple glazing*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-