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Energy performance of buildings — Thermal, solar and daylight properties of building components and elements —

Part 3: Detailed calculation method of the solar and daylight characteristics for solar protection devices combined with glazing

*Performance énergétique des bâtiments — Propriétés thermiques,
solaires et lumineuses des composants et éléments du bâtiment —*

*Partie 3: Méthode de calcul détaillée des caractéristiques solaires et
en lumière du jour pour les dispositifs de protection solaire combinés
à des vitrages*



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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols and subscripts	3
4.1 Symbols.....	3
4.2 Subscripts.....	3
5 Description of the method	4
5.1 Output of the method.....	4
5.2 General description.....	4
6 Calculation method	4
6.1 Output data.....	4
6.2 Calculation time intervals.....	5
6.3 Input data.....	5
6.3.1 Solid layers.....	5
6.3.2 Gas spaces.....	6
6.4 Calculation procedure.....	6
6.4.1 General.....	6
6.4.2 Applicable time interval.....	7
6.4.3 Solar radiation and light.....	7
6.4.4 Heat transfer.....	9
6.4.5 Energy balance.....	14
6.4.6 Boundary Conditions.....	14
7 Report	15
7.1 Contents of report.....	15
7.2 Drawing.....	16
7.3 Values used in the calculation.....	16
7.4 Presentation of results (see Table 4).....	16
Annex A (normative) Input and method selection data sheet — Template	18
Annex B (informative) Input and method selection data sheet — Default choices	20
Annex C (normative) Regional references in line with ISO Global Relevance Policy	22
Annex D (normative) Determination of equivalent solar and light optical characteristics for louvres or venetian blinds	23
Annex E (normative) Stack effect	27
Annex F (normative) Physical properties of gases	30
Bibliography	31

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 52022-3 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 89, *Thermal performance of buildings and building components*, in collaboration with ISO Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 2, *Calculation methods*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of parts in the ISO 52022 series can be found on the ISO website.

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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 this 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 this [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](#) of this document. 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 52022-2).

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 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 M2-8) 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		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										

^a The shaded modules are not applicable.

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Table 1 (continued)

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
8	Building zoning		Solar heat gains	ISO 52022-3	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.