Energy performance of buildings - Determination and reporting of Primary Energy Factors (PEF) and CO2 emission coefficient - General Principles, Module M1-7

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NATIONAL FOREWORD

See Eesti standard EVS-EN 17423:2020 sisaldab Euroopa standardi EN 17423:2020 ingliskeelset teksti.	This Estonian standard EVS-EN 17423:2020 consists of the English text of the European standard EN 17423:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 11.11.2020.	Date of Availability of the European standard is 11.11.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Energy performance of buildings - Determination and reporting of Primary Energy Factors (PEF) and CO2 emission coefficient - General Principles, Module M1-7

Performance énergétique des bâtiments - Détermination et déclaration des facteurs d'énergie primaire (PEF) et du coefficient d'émission de CO2 - Principes généraux, Module M1-7

Energieeffizienz von Gebäuden - Bestimmung und Berichterstattung von Primärenergiefaktoren (PEF) und CO2-Emissionsfaktoren

This European Standard was approved by CEN on 4 October 2020.

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

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European foreword

This document (EN 17423:2020) has been prepared by Technical Committee CEN/TC 371 "Energy Performance of Buildings project group", the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by May 2021, and conflicting national standards shall be withdrawn at the latest by May 2021.

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.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document belongs to a series of standards aiming at international harmonization of the methodology for the assessment of the energy performance of buildings.

For the correct use of this document, a normative template is given in Annex A to report the choices.

The target group of this document are all the users of the set of standards related to the assessment of the energy performance of buildings and especially national standardization experts or building authorities who are in charge of defining the PEFs and CO_2 emission coefficients.

In view of the complexity of the issue, the need for contextual knowledge and practicality of use, it is useful to mention necessary comments and explanations directly in the standard, and not to prepare a separate CEN/TR (Technical Report). For the same reasons, parts taken from other standards are appropriate to have in this document.

The document can be applied for different time intervals (annual, monthly, hourly).

This document is a new standard.

1 Scope

This document provides a transparent framework for reporting on the choices related to the procedure to determine primary energy factors (PEFs) and CO_2 emission coefficients for energy delivered to and exported from the buildings as described in EN ISO 52000-1.

This document specifies the choices to be made to calculate the PEF(s) and CO_2 emission coefficients related to different energy carriers. PEFs and CO_2 emission coefficients for exported energy can be different from those chosen for delivered energy.

This document is primarily intended for supporting and complementing EN ISO 52000-1, as the latter requires values for the PEFs and CO_2 emission coefficients to complete the EPB calculation. But it can also be used for other applications.

NOTE The CO_2 emission coefficients allow calculating greenhouse gas emissions. According to the choices made, the CO_2 emission coefficients represent only CO_2 emissions or also other greenhouse gases.

Table 1 shows the position (marked by "X") of this document within the modular structure as set out in EN ISO 52000-1.

The modules represent EPB standards, although one EPB standard may cover more than one module and one module may be covered by more than one EPB standard, for instance a simplified and a detailed method respectively.

Table 1 — Position of this document (M1–7), within the modular structure as set out in EN ISO 52000-1

		Overarching	Building (as such)		Technical Building Systems										
Submodule		**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									
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									

		Overarching	Building (as such)		Technical Building Systems										
Submodule		**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**
7		Aggregation of Energy Services and Energy Carriers	**X**	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													
The shaded modules are not applicable.															

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.

EN 15316-4-5, *Energy performance of buildings - Method for calculation of system energy requirements and system efficiencies - Part 4-5: District heating and cooling, Module M3-8-5, M4-8-5, M8-8-5, M11-8-5*

EN ISO 7345, *Thermal performance of buildings and building components - Physical quantities and definitions (ISO 7345)*

EN ISO 52000-1:2017, *Energy performance of buildings - Overarching EPB assessment - Part 1: General framework and procedures (ISO 52000-1:2017)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 7345, EN ISO 52000-1 and the following 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 https://www.iso.org/obp

3.1
primary energy
energy that has not been subjected to any conversion or transformation process

Note 1 to entry: Primary energy may be related to non-renewable energy and renewable energy. If both are taken into account, it is called “total primary energy”.

[SOURCE: EN ISO 52000-1:2017, 3.4.29, modified note – “includes” is replaced by “may be related to”]

3.2
energy carrier
substance or phenomenon that can be used to produce mechanical work, electricity or thermal energy or to operate chemical or physical processes

[SOURCE: EN ISO 52000-1:2017, 3.4.9, modified – “or heat” has been replaced by “electricity or thermal energy”.]

3.3
primary energy factor
ratio of the primary energy to the energy delivered to or exported from the assessment boundary

Note 1 to entry: primary energy factor can refer to the total primary energy or to the renewable, or non-renewable primary energy. To be more precise it should be specified (e.g. non-renewable primary energy factor).

3.3.1
non-renewable primary energy factor for delivered energy carrier
non-renewable primary energy for a given energy carrier, including the delivered energy and the considered non-renewable energy overheads of delivery to the points of use, divided by the delivered energy

[SOURCE: EN ISO 52000-1:2017, 3.5.17 modified – the term is completed by “for delivered energy carrier” and in the definition “non-renewable” is added before “energy overhead”]