SLOVENSKI STANDARD
SIST EN 16798-7:2018

01-julij-2018

Nadomešča:
SIST EN 15242:2007

Energijske lastnosti stavb - Prezračevanje stavb - 7. del: Metode za izračun in določanje količine zraka v stavbah, vključno z infiltracijo - Modul M5-5

Energy performance of buildings - Ventilation for buildings - Part 7: Calculation methods for the determination of air flow rates in buildings including infiltration (Modules M5-5)

Energetische Bewertung von Gebäuden - Lüftung von Gebäuden - Teil 7: Berechnungsmethoden zur Bestimmung der Luftvolumenströme in Gebäuden einschließlich Infiltration (Modul M5 5)

Performance énergétique des bâtiments - Ventilation des bâtiments - Partie 7 : Méthodes de calcul pour la détermination des débits d'air dans les bâtiments y compris les infiltrations (Modules M5 5)

Ta slovenski standard je istoveten z: **EN 16798-7:2017**

ICS:

91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning systems

SIST EN 16798-7:2018 **en,fr,de**

EUROPEAN STANDARD

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Supersedes EN 15242:2007

English Version

Energy performance of buildings - Ventilation for buildings - Part 7: Calculation methods for the determination of air flow rates in buildings including infiltration (Modules M5-5)

Performance énergétique des bâtiments - Ventilation des bâtiments - Partie 7 : Méthodes de calcul pour la détermination des débits d'air dans les bâtiments y compris les infiltrations (Modules M5-5)

Energieeffizienz von Gebäuden - Lüftung von Gebäuden - Teil 7: Berechnungsmethoden zur Bestimmung der Luftvolumenströme in Gebäuden einschließlich Infiltration (Modul M5-5)

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

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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.

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

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European foreword

This document (EN 16798-7:2017) has been prepared by Technical Committee CEN/TC 156 "Ventilation for buildings", the secretariat of which is held by BSI.

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 December 2017, and conflicting national standards shall be withdrawn at the latest by December 2017.

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 standard has been produced to meet the requirements of Directive 2010/31/EU 19 May 2010 on the energy performance of buildings (recast), referred to as "recast EPDB".

This document supersedes EN 15242:2007.

This document was produced to meet the requirements of Directive 2002/91/EC 16 December 2002 on energy performance of buildings referred to as "EPBD".

The revision for inclusion in the second mandate package was performed by CEN/ TC 156/ WG 21.

The revision includes the following changes:

— rearrangement of content versus EN 15242:2007, in order to better fit in the modular structure given in EN ISO 52000-1. This document is restricted to emission and control of the ventilation air flow rates (M5-5);

— clarification of possibility to use 2 methods to calculate the airflow rates: method 1 based on detailed building characteristics; and method 2 using a statistical approach complying with specific rules;

— in method 1, addition of several options for the calculation of the airflow rates through windows, including cross-ventilation;

— in method 1, calculation of the airflow rates using mass balance only;

— formatting according to the new rules set in prCEN/TS 16629; and

— consideration of ISO/TC 205 work performed in the meantime.

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

For the convenience of Standards users CEN/TC 156, together with responsible Working Group Conveners, have prepared a simple table below relating, where appropriate, the relationship between the 'EPBD' and 'recast EPBD' standard numbers prepared by Technical Committee CEN/TC 156 "Ventilation for buildings".

EPBD EN Number	Recast EPBD EN Number	Title
EN 15251	EN 16798–1	Energy performance of buildings – Ventilation for buildings - Part 1: Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics (Module M1-6)
N/A	CEN/TR 16798–2	Energy performance of buildings – Ventilation for buildings - Part 2: Interpretation of the requirements in EN 16798-1 - Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics (Module M1-6)
EN 13779	EN 16798–3	Energy performance of buildings – Ventilation for buildings - Part 3: For non-residential buildings – Performance requirements for ventilation and room-conditioning systems (Modules M5-1, M5-4)
N/A	CEN/TR 16798–4	Energy performance of buildings – Ventilation for buildings - Part 4: Interpretation of the requirements in EN 16798- 3 - For non-residential buildings – Performance requirements for ventilation and room-conditioning systems(Modules M5-1, M5-4)
EN 15241	EN 16798–5–1	Energy performance of buildings — Ventilation for buildings – Part 5-1: Calculation methods for energy requirements of ventilation and air conditioning systems (Modules M5-6, M5-8, M6-5, M6-8, M7-5, M7-8) — Method 1: Distribution and generation
EN 15241	EN 16798–5–2	Energy performance of buildings – Ventilation for buildings - Part 5-2: Calculation methods for energy requirements of ventilation systems (Modules M5-6, M5-8, M6-5, M6-8, M7-5, M7-8) - Method 2: Distribution and generation
N/A	CEN/TR 16798–6	Energy performance of buildings - Ventilation for buildings – Part 6: Interpretation of the requirements in EN 16798-5 -1 and EN 16798-5-2 – Calculation methods for energy requirements of ventilation and air conditioning systems (Modules M5-6, M5-8, M 6-5, M6-8 , M7-5, M7-8)
EN 15242	EN 16798–7	Energy performance of buildings - Ventilation for buildings - Part 7: Calculation methods for the determination of air flow rates in buildings including infiltration (Modules M5-5)

EPBD EN Number	Recast EPBD EN Number	Title
N/A	CEN/TR 16798–8	Energy performance of buildings – Ventilation for buildings – Part 8: Interpretation of the requirements in EN 16798-7 – Calculation methods for the determination of air flow rates in buildings including infiltration – (Modules M5-5)
EN 15243	EN 16798–9	Energy performance of buildings – Ventilation for buildings - Part 9: Calculation methods for energy requirements of cooling systems (Modules M4-1, M4-4, M4-9) - General
N/A	CEN/TR 16798–10	Energy performance of buildings – Ventilation for buildings – Part 10: Interpretation of the requirements in EN 16798-9 – Calculation methods for energy requirements of cooling systems (Module M4-1,M4-4, M4-9) – General
N/A	EN 16798–13	Energy performance of buildings – Ventilation for buildings - Part 13: - Calculation of cooling systems (Module M4-8) – Generation
N/A	CEN/TR 16798–14	Energy performance of buildings – Ventilation for buildings - Part 14: Interpretation of the requirements in EN 16798-13 – Calculation of cooling systems (Module M4-8) – Generation
N/A	EN 16798–15	Energy performance of buildings – Ventilation for buildings – Part 15: Calculation of cooling systems (Module M4-7) – Storage
N/A	CEN/TR 16798–16	Energy performance of buildings – Ventilation for buildings – Part 16: Interpretation of the requirements in EN 16798-15 – Calculation of cooling systems (Module M4-8) – Storage
EN 15239, and EN 15240	EN 16798–17	Energy performance of buildings – Ventilation for buildings - Part 17: Guidelines for inspection of ventilation and air- conditioning systems (Module M4-11, M5-11, M6-11, M7-11)
N/A	CEN/TR 16798–18	Energy performance of buildings – Ventilation for buildings – Part 18: Interpretation of the requirements in EN 16798-17 – Guidelines for inspection of ventilation and air-conditioning systems (Module M4-11, M5-11, M6-11, M7-11)

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, 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.

Introduction

This standard is part of a series of standards aiming at international harmonization of the methodology for the assessment of the energy performance of buildings, called “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 standard a normative template is given in Annex A to specify these choices. Informative default choices are provided in Annex B.

The main target groups of this standard are all the users of the set of EPB standards (e.g. architects, engineers, regulators, programmers).

Use by or for regulators: In case the 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. 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 So in this case:

— the regulators will **specify** the choices;

— the individual user will apply the standard to assess the energy performance of a building, and thereby **use** the choices made by the regulators,.

Topics addressed in this standard can be subject to public regulation. Public regulation on the same topics can override the default values in Annex B of this standard. Public regulation on the same topics can even, for certain applications, override the use of this standard. 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 the national annex (e.g. NA) refers to this text;

— 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 standard (CEN/TR 16798-8 [2], under preparation), including examples aiming to check the quality and usability of the standard.

CEN/TC 156 deals with ventilation and air conditioning systems in buildings. Subjects covered by CEN/TC 156 are:

- energy performance calculation for ventilation, air conditioning and cooling systems;
- inspection of ventilation and air conditioning systems; and
- installation and commissioning of ventilation and air conditioning systems.

1 Scope

This European Standard describes the methods to calculate the ventilation air flow rates for buildings to be used for energy calculations evaluation, heating and cooling loads.

This European Standard applies to buildings with one or more of the following characteristics:

— mechanical ventilation systems (mechanical exhaust, mechanical supply or balanced system);

— passive duct ventilation systems for residential and low-rise non-residential buildings;

— combustion appliances;

— window openings (manual or automatic operation); and

— kitchens where cooking is for immediate use (including restaurants).

This European Standard is applicable to hybrid systems combining mechanical and passive duct ventilation systems in residential and low-rise non-residential buildings.

This European Standard applies to buildings with a building height of less than 100 m and rooms where vertical air temperature difference is smaller than 15 K.

The results provided by the standard are:

— the air flow rates entering or leaving a ventilation zone; and

— the air flow rates required to be distributed by the mechanical ventilation system, if present.

This European Standard is not applicable to:

— buildings with kitchens where cooking is not for immediate use; and

— buildings with industry process ventilation.

The definition of ventilation and airtightness requirements (as indoor air quality, heating and cooling, safety, fire protection, etc.) is not covered by this document. The definition of window opening scenarios is not covered by this document.

Table 1 shows the relative position of this standard within the set of EPB standards in the context of the modular structure as set out in prENISO 52000-1.

NOTE 1 In prENISO/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 2 The modules represent EPB standards, although one EPB standard might cover more than one module and one module might 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 standard (in casu M5–1, M5–5, M5–6, M5–8) within the modular structure of the set of EPB standards

	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, ..
sub 1	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			EN 16798–7						
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											

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

prEN ISO 52000-1:2015, *Energy performance of buildings — Overarching EPB assessment – Part 1: General framework and procedures*[1]

NOTE 1 Default references to other EPB standards other than prEN ISO 52000-1:2015 are identified by the EPB module code number and given in Annex A (normative template) and Annex B (informative default choice).

NOTE 2 Example of 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).

NOTE 3 The same module code numbering will be used in other EPB standards. This will facilitate -in a individual country- the making of a consistent set of national annexes for each EPB standard and contribute to the overall consistency and transparency.

EN 12792:2003, *Ventilation for buildings - Symbols, terminology and graphical symbols*

EN 13141-1, *Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 1: Externally and internally mounted air transfer devices*

EN 13141-2, *Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 2: Exhaust and supply air terminal devices*

EN 13141-5, *Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 5: Cowls and roof outlet terminal devices*

ISO 7345:1987, *Thermal insulation — Physical quantities and definitions*

[1] In preparation.