HOONETE ENERGIATÕHUSUS. HOONETE VENTILATSIOON. OSA 3: MITTEELUHOONETE VENTILATSIOON. ÜLDNÕUDED VENTILATSIOONI- JA RUUMIÕHU KONDITSIONEERIMISE SÜSTEEMIDELE (MOODULID M5-1, M5-4)

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)

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 16798-3:2025 sisaldab Euroopa standardi EN 16798-3:2025 ingliskeelset teksti.	This Estonian standard EVS-EN 16798-3:2025 consists of the English text of the European standard EN 16798-3:2025.
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 and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.04.2025.	Date of Availability of the European standard is 30.04.2025.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

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

ICS 91.120.10, 91.140.30

EUROPEAN STANDARD

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EN 16798-3

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English Version

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)

Performance énergétique des bâtiments - Ventilation des bâtiments - Partie 3 : Pour bâtiments non résidentiels - Exigences de performances pour les systèmes de ventilation et de climatisation (Modules M5-1, M5-4)

Energetische Bewertung von Gebäuden - Lüftung von Gebäuden - Teil 3: Lüftung von Nichtwohngebäuden - Leistungsanforderungen an Lüftungs- und Klimaanlagen und Raumkühlsysteme (Module M5-1, M5-4)

This European Standard was approved by CEN on 3 February 2025.

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.

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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 16798-3:2025) 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 October 2025, and conflicting national standards shall be withdrawn at the latest by October 2025.

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 supersedes EN 16798-3:2017.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

This document includes the following significant technical changes with respect to EN 16798-3:2017:

— new structure to clarify designing and calculation aspects;

— update of filtration aspects;

— update of heat recovery aspects and leakages in these systems;

— update of aspects of energy performance;

— update of definitions of systems;

— update of SFP definitions and links to Regulation (EU) No 327/2011;

— addition of an informative Annex C for additional design aspects, which has been shifted from CEN/TR 16798-4;

— the document allows a normative national annex.

EN 16798-3:2017 was produced to meet the requirements of Directive 2002/91/EC 16 December 2002 on energy performance of buildings referred to as “EPBD”.

This document 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”.

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 ‘EPBD’ standard numbers prepared by Technical Committee CEN/TC 156 “Ventilation for buildings”.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, Türkiye and the United Kingdom.

Recast EPBD EN Number	Title
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)*
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 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)*
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 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 16798-5-2	*Energy performance of buildings — Ventilation for buildings — Part 5-2: Calculation methods for energy requirements of ventilation systems (Modules M5-6.2, M5-8.2) — Method 2: Distribution and generation*
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, M6-5, M6-8, M7-5, M7-8)*
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 (Module M5-5)*
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 — (Module M5-5)*
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*
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*

Recast EPBD EN Number	Title
EN 16798-13	*Energy performance of buildings — Ventilation for buildings — Part 13: Calculation of cooling systems (Module M4-8) — Generation*
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*
EN 16798-15	*Energy performance of buildings — Ventilation for buildings — Part 15: Calculation of cooling systems (Module M4-7) — Storage*
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 M4-7) — Storage*
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)*
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)*

Introduction

This document is part of a series of standards aiming at European harmonization of the methodology for the assessment of the energy performance of buildings, called “set of EPB standards”.

The set of EPB standards follow specific rules to ensure overall consistency, unambiguity and transparency.

The set of 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 template for national default choices in Annex A and with informative default choices in Annex B.

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 of this document are all the users of the set of EPB standards (e.g. architects, engineers, regulators).

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 or 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 specify the choices;
- the individual user applies 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 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 with 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.

This document also provides specifications especially for designers, installers, manufacturers, building owners and users, on fan assisted ventilation (see Figure 1), air-conditioning and room-conditioning systems in order to achieve a comfortable and healthy indoor environment in all seasons with acceptable installation and running costs. This document focuses on the system-aspects for typical applications and covers the following:

— aspects important to achieve and maintain a good energy performance in the systems without any negative impact on the quality of the indoor environment;

— definitions of design and performances data.

More information is provided in the Technical Report accompanying this document (CEN/TR 16798-4).

For the designing use of this document, an informative default Annex providing additional design parameters is given with Annex C. CEN Members are free to use Annex C or supplement this document with their national design parameters in a national foreword.

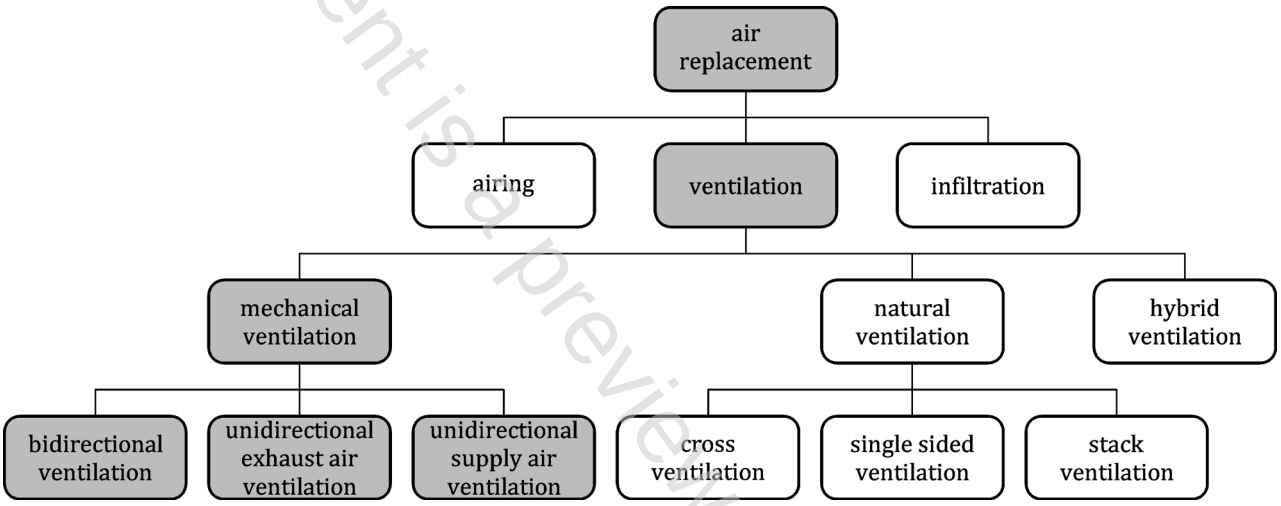

Figure 1 — Generic concept relation of air replacement

1 Scope

This document applies to the design, energy performance of buildings and implementation of ventilation, air conditioning and room conditioning systems for non-residential buildings subject to human occupancy, excluding applications like industrial processes. It focuses on the definitions of the various parameters that are relevant for such systems.

The guidance for design given in this document and accompanying CEN/TR 16798-4 are mainly applicable to mechanical supply and/or exhaust ventilation systems. Natural ventilation systems or natural parts of hybrid ventilation systems are not covered by this document.

Applications for residential ventilation are not covered in this document. Performance of ventilation systems in residential buildings is covered in EN 15665 and CEN/TR 14788.

The classification uses different categories. For some values, examples are given and, for requirements, typical ranges with default values are presented. The default values are given in Annex B and a template for national specification is given in Annex A. It is important that the classification is always appropriate to the type of building and its intended use, and that the basis of the classification is explained if the examples given in this document are not used.

NOTE 1 Different standards can express the categories for the same parameters in a different way, and also the category symbols can be different.

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 EN ISO 52000-1.

NOTE 2 In CEN 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 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 Table A.1 and Table B.1.

Table 1 — Position of this standard (in case M5-1, M5-4), within the modular structure of the set of EPB standards

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	sub1	M2	sub1		M3	M4	M5	M6	M7	M8	M9	M10	M11
1	General	1	General	1	General			EN 16798-3						
2	Common terms and definitions; symbols, units and subscripts	2	Building Energy Needs	2	Needs									
3	Applications	3	(Free) Indoor Conditions without Systems	3	Maximum Load and Power									
4	Ways to Express Energy Performance	4	Ways to Express Energy Performance	4	Ways to Express Energy Performance			EN 16798-3						
5	Building Functions and Building Boundaries	5	Heat Transfer by Transmission	5	Emission and control									
6	Building Occupancy and Operating Conditions	6	Heat Transfer by Infiltration and Ventilation	6	Distribution and control									

7	Aggregation of Energy Services and Energy Carriers		**7**	Internal Heat Gains		**7**	Storage and control										
8	Building Partitioning		**8**	Solar Heat Gains		**8**	Generation and control										
9	Calculated Energy Performance		**9**	Building Dynamics (thermal mass)		**9**	Load dispatching and operating conditions										
10	Measured Energy Performance		**10**	Measured Energy Performance		**10**	Measured Energy Performance										
11	Inspection		**11**	Inspection		**11**	Inspection										
12	Ways to Express Indoor Comfort					**12**	BMS										
13	External Environment Conditions																
14	Economic Calculation																
NOTE 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.

NOTE 1 Default references to EPB standards other than EN ISO 52000-1 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).

EN 308, *Heat exchangers — Test procedures for establishing performance of air to air heat recovery components*

CEN/TS 16628, *Energy Performance of Buildings — Basic Principles for the set of EPB standards*

CEN/TS 16629, *Energy Performance of Buildings — Detailed Technical Rules for the set of EPB-standards*

EN 1822-1, *High efficiency air filters (EPA, HEPA and ULPA) — Part 1: Classification, performance testing, marking*

EN 1886, *Ventilation for buildings — Air handling units — Mechanical performance*

EN 12599:2012, *Ventilation for buildings — Test procedures and measurement methods to hand over air conditioning and ventilation systems*

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

EN 13053, *Ventilation for buildings — Air handling units — Rating and performance for units, components and sections*

EN ISO 7345:2018, *Thermal performance of buildings and building components — Physical quantities and definitions (ISO 7345:2018)*

EN ISO 16890 (all parts), *Air filters for general ventilation (ISO 16890 (all parts))*

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

EN ISO 10121-3, *Test methods for assessing the performance of gas-phase air cleaning media and devices for general ventilation — Part 3: Classification system for GPACDs applied to treatment of outdoor air (ISO 10121-3)*