Energy performance of buildings - Building management system - Part 1: Module M10-12 (ISO 52127-1: 2021)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 52127-1:2021 sisaldab Euroopa standardi EN ISO 52127-1:2021 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 52127-1:2021 consists of the English text of the European standard EN ISO 52127-1:2021.
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 17.02.2021.	Date of Availability of the European standard is 17.02.2021.
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.

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EUROPEAN STANDARD

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Energy performance of buildings - Building management system - Part 1: Module M10-12 (ISO 52127-1: 2021)

Performance énergétique des bâtiments - Système de gestion technique des bâtiments - Partie 1: Module M10-12 (ISO 52127-1: 2021)

Energieeffizienz von Gebäuden - Gebäudemanagementsystem - Teil 1: Modul M10-12 (ISO 52127-1:2021)

This European Standard was approved by CEN on 18 November 2020.

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 ISO 52127-1:2021) has been prepared by Technical Committee ISO/TC 205 "Building environment design" in collaboration with Technical Committee CEN/TC 247 “Building Automation, Controls and Building Management” the secretariat of which is held by SNV.

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 August 2021, and conflicting national standards shall be withdrawn at the latest by August 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.

This document supersedes EN 16947-1:2017.

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, 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.

Endorsement notice

The text of ISO 52127-1:2021 has been approved by CEN as EN ISO 52127-1:2021 without any modification.

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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).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 205, *Building environment design*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 247, *Building Automation, Controls and Building Management,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 52127 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

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

As part of the “EPB set of standards”, it complies with the requirements for the set of basic EPB documents ISO 52000-1 (see Normative references), CEN/TS 16628 and CEN/TS 16629 (see References [4] and [5]) developed under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/480), and supports essential requirements of EU Directive 2010/31/EU on the energy performance of buildings (EPBD).

This document is clearly identified in the modular structure developed to ensure a transparent and coherent EPB standard set in ISO 52000-1. BAC (building automation and control) is identified in the modular structure as technical building system M10. However, other standards issued by ISO TC 205 deal with control accuracy, control functions and control strategies using standards communications protocol (these last standards do not belong to the EPB standards set).

To avoid a duplication of calculation due to the BAC (avoid double impact), no calculations are done in BAC EPB standard set, but in each underlying standard of EPB set of standards (from M1 to M9 in the modular structure), an identifier, developed and presented in the M10 covered by ISO 52120-1, is used where appropriate. The way of interaction is described in detail in ISO/TR 52000-2 accompanying the over-arching standard. As a consequence, the Annex A and Annex B concept as Excel sheets with the calculation formulas used in the EPB standards are not applicable for this document.

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

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 ISO/TR 52127-2[3], the Technical Report accompanying this document.

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 1 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 2 The modules represent EPB standards, although one EPB standard can cover more than one module and one module can be covered by more than one EPB standard, for instance a simplified and a detailed method respectively.

Table 1 — Position of this document (in casu M10–12), within the modular structure of the set of EPB standards

	Over-arching	Building (as such)	Technical building system									
Sub module	**Descriptions**	**Descriptions**	**Descriptions**	**Heating**	**Cooling**	**Ventilation**	**Humidification**	**Dehumidification**	**Domestic hot waters**	**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	Application	(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 functions 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 partitioning	Solar heat gains	Generation and control									

NOTE The shaded modules are not applicable.

Table 1 *(continued)*

	Over-arching	Building (as such)	Technical building system									
Sub module	**Descriptions**	**Descriptions**	**Descriptions**	**Heating**	**Cooling**	**Ventilation**	**Humidification**	**Dehumidification**	**Domestic hot waters**	**Lighting**	**Building automation and control**	**PV, wind...**
sub1	**M1**	**M2**		**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**
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								x	
13	External environment conditions											
14[a]	Economic calculation											

NOTE The shaded modules are not applicable.

Energy performance of buildings — Building management system —

Part 1:
Module M10-12

1 Scope

This document specifies operational activities, overall alarming, fault detection and diagnostics, reporting, monitoring, energy management functions, functional interlocks and optimizations to set and maintain energy performance of buildings.

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.

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

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

ISO 52120-1:—[1)], *Energy performance of buildings — Contribution of building automation and controls and building management — Part 1: Modules M10-4,5,6,7,8,9,10*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7345 and ISO 52000-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
building management system
BMS
products, software, and engineering services for automatic controls (including interlocks), monitoring and optimization, human intervention, and management to achieve energy-efficient, economical, and safe operation of building services equipment

Note 1 to entry: Building services is divided in technical, infrastructural and financial building services and energy management is part of *technical building management* (3.2).

Note 2 to entry: Building energy management system is part of a BMS.

1) Under preparation. Stage at the time of publication ISO/DIS 52120-1:2021.