INTERNATIONAL STANDARD

ISO 52120-1

First edition
2021-12

Corrected version
2022-09

Energy performance of buildings — Contribution of building automation, controls and building management —

Part 1: General framework and procedures

Performance énergétique des bâtiments — Contribution de l'automatisation, de la régulation et de la gestion technique des bâtiments —

Partie 1: Cadre général et procédures

Reference number
ISO 52120-1:2021(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

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 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 52120 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.

This corrected version of ISO 52120-1:2021 incorporates the following corrections:

— Figure C.12 has been replaced.

Introduction

This document belongs to the family of standards aimed at international harmonization of the methodology for the assessment of the energy performance of buildings. Throughout, this group of standards is referred to as a set of called “EPB set of standards”.

All EPB standards follow specific rules to ensure overall consistency, unambiguity and transparency. This document is clearly identified in the modular structure developed to ensure a transparent and coherent set of EPB standards, as set out in ISO 52000-1, the overarching EPB standard. BAC (building automation and control) is identified in the modular structure as technical building system M10. However, other International 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 set of EPB standards).

To avoid a duplication of calculation due to the BAC (avoid double impact), no calculation is done in a BAC EPB standard set, but in each underlying standard of the set of EPB standards (from M1 to M9 in the modular structure), an identifier developed and present in the M10 covered by this document is used where appropriate. This way of interaction is described in detail in ISO/TR 52000-2, the Technical Report accompanying ISO 52000-1. As consequence, the concept of a normative template for specific (national) choices in Annex A, and Annex B with informative default choices, as commonly used in the set of EPB standards is not applicable for this document.

The main target groups of this document are all the users of the set of EPB set of 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 the Technical Report accompanying this document (ISO/TR 52120-2[5]).

NOTE 1 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 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. See also Clause 2 and Tables A.1 and B.1.

Table 1 — Position of this document (in casu M10–4,5,6,7,8,9,10), within the modular structure of the set of EPB standards

	Over-arching	Building (as such)	Technical building system									
Submodule	Descriptions	Descriptions	Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic hot waters	Lighting	Building automation and control	PV, wind, etc.
sub1	M1	M2		M3	M4	M5	M6	M7	M8	M9	M10	M11
1	General	General	General									

[a] The shaded modules are not applicable.

Table 1 *(continued)*

	Over-arching	Building (as such)	Technical building system									
Submodule	Descriptions	Descriptions	Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic hot waters	Lighting	Building automation and control	PV, wind, etc.
sub1	M1	M2		M3	M4	M5	M6	M7	M8	M9	M10	M11
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								x	
5	Building functions and building boundaries	Heat transfer by transmission	Emission and control								x	
6	Building occupancy and operating conditions	Heat transfer by infiltration and ventilation	Distribution and control								x	
7	Aggregation of energy services and energy carriers	Internal heat gains	Storage and control								x	
8	Building partitioning	Solar heat gains	Generation and control								x	
9	Calculated energy performance	Building dynamics (thermal mass)	Load dispatching and operating conditions								x	
10	Measured energy performance	Measured energy performance	Measured energy performance								x	
11	Inspection	Inspection	Inspection									
12	Ways to express indoor comfort		BMS									
13	External environment conditions											
14[a]	Economic calculation											

[a] The shaded modules are not applicable.

Energy performance of buildings — Contribution of building automation, controls and building management —

Part 1: General framework and procedures

1 Scope

This document specifies:

— a structured list of control, building automation and technical building management functions which contribute to the energy performance of buildings; functions have been categorized and structured according to building disciplines and building automation and control (BAC);

— a method to define minimum requirements or any specification regarding the control, building automation and technical building management functions contributing to energy efficiency of a building to be implemented in building of different complexities;

— a factor-based method to get a first estimation of the effect of these functions on typical buildings types and use profiles;

— detailed methods to assess the effect of these functions on a given building.

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 50001:2018, *Energy management systems — Requirements with guidance for use*

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 7345:2018, ISO 52000-1:2017 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 https://www.electropedia.org/