

<b>TNI</b>	<b>Energetická hospodárnosť budov Výpočet potreby tepla na vykurovanie a chladenie, vnútorné teploty a citeľné a latentné tepelné zaťaženie Časť 4: Vysvetlenie a zdôvodnenie ISO 52016-3 (ISO/TR 52016-4: 2024)</b>	<b>TNI CEN ISO/TR 52016-4</b>  73 0704
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Energy performance of buildings - Energy needs for heating and cooling, internal temperatures and sensible and latent heat loads  
- Part 4: Explanation and justification of ISO 52016-3 (ISO/TR 52016-4:2024)

Táto technická normalizačná informácia obsahuje anglickú verziu CEN ISO/TR 52016-4:2024,  
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Performance énergétique des bâtiments - Besoins d'énergie pour le chauffage et le refroidissement, les températures intérieures et les chaleurs sensible et latente - Partie 4: Explication et justification de l'ISO 52016-3 (ISO/TR 52016-4:2024)

Energetische Bewertung von Gebäuden - Energiebedarf für Heizung und Kühlung, Innentemperaturen sowie fühlbare und latente Heizlasten - Teil 5: Berechnungsverfahren - Erklärung und Begründung zu ISO 52016-3 (ISO/TR 52016-4:2024)

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**CEN ISO/TR 52016-4:2024 (E)**

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## **European foreword**

This document (CEN ISO/TR 52016-4:2024) has been prepared by Technical Committee ISO/TC 163 "Thermal performance and energy use in the built environment" in collaboration with Technical Committee CEN/TC 89 "Thermal performance of buildings and building components" the secretariat of which is held by SIS.

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# Technical Report

**ISO/TR 52016-4**

## **Energy performance of buildings — Energy needs for heating and cooling, internal temperatures and sensible and latent heat loads —**

Part 4:

### **Explanation and justification of ISO 52016-3**

*Performance énergétique des bâtiments — Besoins d'énergie  
pour le chauffage et le refroidissement, les températures  
intérieures et les chaleurs sensible et latente —*

*Partie 4: Explication et justification de l'ISO 52016-3*

**First edition  
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## ISO/TR 52016-4:2024(en)



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**ISO/TR 52016-4:2024(en)****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 document 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](http://www.iso.org/directives)).

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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](http://www.iso.org/iso/foreword.html).

This document was prepared by ISO Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 2, *Calculation methods* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 89, *Thermal performance of buildings and building components*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all the parts in the ISO 52016 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](http://www.iso.org/members.html).

## ISO/TR 52016-4:2024(en)

# Introduction

### 0.1 Set of EPB standards and supporting tools

This document gives guidance to a set of international standards that is used to collectively assess the overall energy performance of buildings (EPB). Throughout this document, this group of standards is referred to as the “set of EPB standards”.

All EPB standards follow specific rules to ensure overall consistency, unambiguity and transparency (see ISO 52000-1, CEN/TS 16628 and CEN/TS 16629).

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.

One of the main purposes of the set of EPB standards is to enable laws and regulations to directly refer to the EPB standards and make compliance with them compulsory. This requires that the set of EPB standards consists of a systematic, clear, comprehensive and unambiguous set of energy performance procedures. The number of options provided is kept as low as possible, taking into account national and regional differences in climate, culture and building tradition, policy and legal frameworks (subsidiarity principle). For each option, an informative default option is provided (see [Annex B](#)).

### 0.2 Rationale behind the set of EPB technical reports

There is a risk that the purpose and limitations of the EPB standards will be misunderstood, unless the background and context to their contents, and the thinking behind them, is explained in some detail to readers of the standards. Consequently, various types of informative contents are recorded and made available for users to properly understand, apply and nationally or regionally implement the set of EPB standards.

If this explanation were attempted in the standards themselves, the result is likely to be confusing, especially if the standards are implemented or referenced in national or regional building codes.

Therefore, each EPB standard is accompanied by an informative technical report, e.g. this document, where all informative content is collected, to ensure a clear separation between normative and informative content (see CEN/TS 16629 for a more detailed explanation):

- to underscore the difference between the normative and informative content;
- to reduce the page count of the actual standard;
- to facilitate understanding of the set of EPB standards.

### 0.3 This document

This document gives guidance on ISO 52016-3. The role and the positioning of ISO 52016-3 in the set of EPB standards is defined in the introduction of ISO 52016-3. A brief article on the subject can be found in the REHVA Journal [\[21\]](#).

To fully understand this document, it is intended to be read in close conjunction, clause by clause, with ISO 52016-3. Essential information provided in ISO 52016-3 is not repeated in this document. References to a clause can refer to the combined content of that clause in both ISO 52016-3 and this document.

### 0.4 Accompanying spreadsheet

An extensive spreadsheet [\[35\]](#) has been prepared to test and demonstrate ISO 52016-1. For the purpose of testing and demonstrating ISO 52016-3, this spreadsheet has been extended with an (optional) sheet to cover adaptive building envelope elements with different states and different control scenarios according to ISO 52016-3.

Examples of calculations with adaptive building envelope elements are found in this document.

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### 0.5 Background of this document and ISO 52016-3

ISO 52016-3 and the supporting technical report (this document) have been developed to respond to a strong need to include adaptive building envelope elements in the assessment of the energy performance of buildings. This inclusion aims to create a level playing field for conventional and promising techniques.

More extensive background information and history of the whole set of EPB standards is given in the introduction to ISO/TR 52000-2, the technical report accompanying the overarching EPB standard. Up-to-date information on the set of EPB standards can be found in the "public material" section of the ISO/TC 163 page on the ISO website.<sup>1)</sup>

### 0.6 Application area of ISO 52016-3

ISO 52016-3 specifies procedures for the calculation of the energy needs for heating and cooling, internal temperatures and sensible and latent heat loads of a building according to ISO 52016-1, with additions or modifications that are needed to incorporate adaptive building envelope elements in the calculation.

The main use of ISO 52016-3 is the assessment of the energy performance of buildings (energy performance labels and certificates), including comparison between buildings and for checking compliance with minimum energy performance criteria.

ISO 52016-3 is applicable to buildings at the design stage, to new buildings after construction and to existing buildings in the use phase.

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1) <https://www.iso.org/committee/53476.html>.



# Energy performance of buildings — Energy needs for heating and cooling, internal temperatures and sensible and latent heat loads —

## Part 4: Explanation and justification of ISO 52016-3

### 1 Scope

This document provides explanation and justification to support the correct understanding and use of ISO 52016-3.

### 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 7345, *Thermal performance of buildings and building components — Physical quantities and definitions*

ISO 9488, *Solar energy — Vocabulary*

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

ISO 52016-1, *Energy performance of buildings — Energy needs for heating and cooling, internal temperatures and sensible and latent heat loads — Part 1: Calculation procedures*

ISO 52016-3:2023, *Energy performance of buildings — Energy needs for heating and cooling, internal temperatures and sensible and latent heat loads — Part 3: Calculation procedures regarding adaptive building envelope elements*

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