



**SLOVENSKI STANDARD**  
**oSIST prEN 15603:2013**  
**01-julij-2013**

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**Energijske lastnosti stavb - Krovni standard za EPBD**

Energy performance of buildings - Overarching standard EPBD

Energetische Bewertung von Gebäuden - Rahmennorm zur Europäischen  
Gebäuderichtlinie

Performance énergétique des bâtiments - Norme cadre DPEB

**Ta slovenski standard je istoveten z: prEN 15603**

**ICS:**

91.120.10      Toplotna izolacija stavb      Thermal insulation

**oSIST prEN 15603:2013**

**en,fr,de**



EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 15603**

May 2013

ICS 91.120.10

Will supersede EN 15603:2008

English Version

## Energy performance of buildings - Overarching standard EPBD

Performance énergétique des bâtiments - Norme cadre  
DPEB

Energetische Bewertung von Gebäuden - Rahmennorm zur  
Europäischen Gebäuderichtlinie

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 371.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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## Foreword

This document (prEN 15603:2013) has been prepared by Technical Committee CEN/TC 371 “Energy Performance of Buildings project group”, the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15603:2008.

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

This document forms part of a series of standards aimed at European harmonisation of the methodology for the calculation of the energy performance of buildings.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 52000-1:2018](https://standards.iteh.ai/catalog/standards/sist/03aaeb28-03db-408d-811b-673e10151095/sist-en-iso-52000-1-2018)

<https://standards.iteh.ai/catalog/standards/sist/03aaeb28-03db-408d-811b-673e10151095/sist-en-iso-52000-1-2018>

## Introduction

Energy assessments of buildings are carried out for various purposes, such as:

- a) judging compliance with building regulations expressed in terms of a limitation on energy use or a related quantity;
- b) increasing transparency in commercial operations through the energy certification and/or display of a level of energy
- c) monitoring of the energy efficiency of the building and its technical building systems;
- d) helping in planning retrofit measures, through prediction of energy savings which would result from various actions.

This standard specifies a general framework for the assessment of overall energy use of a building, and the calculation of energy ratings in terms of primary energy or other energy related metrics. Separate standards provide methodologies that may be used to calculate the energy use of services within a building (heating, cooling, hot water, ventilation and lighting) and produce results that are used here in combination to show overall energy use.

This assessment is not limited to the building alone, but takes into account the wider environmental impact of the energy supply chain.

This standard replaces EN 15603:2008 and parts of other EN or EN-ISO standards published in 2007-2008 under the mandate M/343 on the EPBD. This revision was required as a result of the EPBD recast (2010/31/EU). The set of standards developed under mandate M/343 will be revised to become consistent with this overarching standard under mandate M/480. For many of these standards the revisions are mainly editorial plus changes to make the procedures unambiguous and software proof and to rationalize the choices.

More information is provided in the Technical Report accompanying this standard (CEN/TR OA, under preparation [1]).

To provide flexibility to the EU Member States in the application of the set of CEN standards, clearly identified options are given, with a rationale for the choices.

In order to progress on harmonization, reproducibility and transparency default CEN options are provided at relevant positions in the standards.

At national level these default CEN options may be replaced by a National Annex, following the models provided in the relevant standards.



## 1 Scope

This standard provides a systematic, comprehensive and modular overall structure on the integrated energy performance of buildings, in order to ensure consistency among all CEN standards required to calculate the energy performance of buildings according to the EPBD (2010/31/EU).

This standard handles the framework of the overall energy performance of a building, covering *inter alia*:

- a) common terms, definitions and symbols;
- b) building and system boundaries;
- c) building partitioning;
- d) methodology for calculating the energy performance of a building (set of overall formulae on energy used, delivered, produced and/or exported at the building site and near-by);
- e) set of overall formulae and input-output relations, linking the various elements relevant for the assessment of the overall energy performance of buildings which are treated in separate standards;
- f) general requirements to standards dealing with partial calculations;
- g) general rules in setting out alternative calculation routes according to the calculation scope and requirements;
- h) rules for the combination of different partitioning;
- i) performance indicators;
- j) methodology for measured energy performance assessment.

## 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.

CEN/TS BP, *Energy Performance of Buildings – Basic principles for the set of EPBD standards (in preparation)*

CEN/TS DTR, *Energy Performance of Buildings – Detailed technical rules for the set of EPBD standards (in preparation)*

EN 15241, *Ventilation for buildings – Calculation methods for energy losses due to ventilation and infiltration in commercial buildings*

EN 15243, *Ventilation for buildings – Calculation of room temperatures and of load and energy for buildings with room conditioning systems*

EN 15316, *Heating systems in buildings – Method for calculation of system energy requirements and system efficiencies*

EN ISO 7345:1995, *Thermal insulation – Physical quantities and definitions*

EN ISO 13790, *Energy performance of buildings – Calculation of energy use for space heating and cooling*

EN ISO 15927, *Hygrothermal performance of buildings – Calculation and presentation of climatic data*

ISO 13600:1997, *Technical energy systems – Basic concepts*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 7345:1995 and the following apply.

Given the scope of this overarching standard, these definitions are applicable to all standards that are necessary to assess the energy performance of buildings.

NOTE 1 The terms and definitions are adopted from CEN/TR 15615:2008 and correspond with the terms and definitions in EN 15603:2008.

NOTE 2 An alphabetic list of all terms defined in this clause is given in Annex D.

#### 3.1 Buildings

##### 3.1.1

##### **building**

construction as a whole, including its envelope and all technical building systems, for which energy is used to condition the indoor climate, to provide domestic hot water and illumination and other services related to the use of the building

Note 1 to entry: The term can refer to the building as a whole or to parts thereof that have been designed or altered to be used separately.

##### 3.1.2

##### **building automation and control**

products, software, and engineering services for automatic controls, monitoring and optimization, human intervention, and management to achieve energy-efficient, economical, and safe operation of building services equipment

##### 3.1.3

##### **building category**

classification of buildings and/or building units and/or building spaces related to the use

##### 3.1.4

##### **building element**

technical building system or an element of the building envelope

##### 3.1.5

##### **building services**

services provided by technical building systems and by appliances to provide acceptable indoor climate conditions, domestic hot water, illumination levels and other services related to the use of the building

##### 3.1.6

##### **building unit**

section, floor or apartment within a building which is designed or altered to be used separately

**3.1.7****conditioned area**

floor area of conditioned spaces excluding non-habitable cellars or non-habitable parts of a space, including the floor area on all storeys if more than one

Note 1 to entry: Internal, overall internal or external dimensions can be used. This leads to different areas for the same building.

Note 2 to entry: Some services, such as lighting or ventilation, might be provided to areas not included in this definition (e.g. a car park).

Note 3 to entry: The precise definition of the conditioned area is given by national authorities.

Note 4 to entry: Conditioned area can be taken as the useful area mentioned in the Articles 5, 6 and 7 of the EPBD <sup>1)</sup> unless it is otherwise defined in national regulations.

**3.1.8****conditioned space**

ventilated and/or, heated and/or cooled and/or lighted space for human occupancy

Note 1 to entry: The heated and/or cooled spaces are used to define the thermal envelope.

**3.1.9****conditioned zone**

part of a conditioned space with a given set-point temperature or set-point temperatures, throughout which there is the same occupancy pattern and the internal temperature which is controlled by a single heating system, cooling system and/or ventilation system

**3.1.10****cooled space**

room or enclosure which for the purposes of a calculation is assumed to be cooled to a given set-point temperature or set point temperatures

**3.1.11****dehumidification**

process of removing water vapour from air

**3.1.12****domestic hot water heating**

process of heat supply to raise the temperature of the cold water to the intended delivery temperature

**3.1.13.1****existing building**

<for calculated energy rating> building that is erected

**3.1.13.2****existing building**

<for measured energy rating> building for which actual data necessary to assess the energy use are known or can be measured

**3.1.14****external dimension**

dimension measured on the exterior of a building

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1) Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings

**prEN 15603:2013 (E)****3.1.15****heated space**

room or enclosure which for the purposes of a calculation is assumed to be heated to a given set-point temperature or set point temperatures

**3.1.16****humidification**

process of adding water vapour to air to increase humidity

**3.1.17****internal dimension**

dimension measured from wall to wall and floor to ceiling inside a room of a building

**3.1.18****lighting**

process of supplying illumination

**3.1.19.1****new building**

<for calculated energy rating> building at design stage or under construction

**3.1.19.2****new building**

<for measured energy rating> building recently constructed without reliable records of energy use

**3.1.20****occupied zone**

part of a conditioned zone in which persons normally reside and where requirements as to the indoor environment are to be satisfied

Note 1 to entry: The definition of the occupied zone depends on the geometry and the use of the room and is specified case by case. Usually the term “occupied zone” is used only for areas designed for human occupancy and is defined as a volume of air that is confined by specified horizontal and vertical planes. The vertical planes are usually parallel with the walls of the room. Usually there is also a limit placed on the height of the occupied zone. 8

**3.1.21****other services**

services supplied by energy consuming appliances

**3.1.22****overall internal dimension**

dimension measured on the interior of a building, ignoring internal partitions

**3.1.23****space cooling**

process of heat extraction for thermal comfort

**3.1.24****space heating**

process of heat supply for thermal comfort

**3.1.25****technical building sub-system**

part of a technical building system that performs a specific function (e.g. heat generation, heat distribution, heat emission)

**3.1.26****technical building system**

technical equipment for heating, cooling, ventilation, domestic hot water, lighting and electricity production

Note 1 to entry: A technical building system can refer to one or to several building services (e.g. heating system, heating and DHW system).

Note 2 to entry: A technical building system is composed of different subsystems.

Note 3 to entry: Electricity production can include cogeneration and photovoltaic systems.

**3.1.27****thermal envelope area**

total of the area of all elements of a building that enclose conditioned spaces through which thermal energy is transferred to or from the external environment or to or from unconditioned spaces

Note 1 to entry: Thermal element area depends on whether internal, overall internal or external dimensions are being used.

Note 2 to entry: The respective areas of the building envelope may be weighted with a (nationally fixed) reduction factor in case of e.g. unheated adjacent spaces and ground floors.

**3.1.28****unconditioned space**

room or enclosure which is not part of a conditioned space

**3.1.29****ventilation**

process of supplying or removing air by natural or mechanical means to or from a space

Note 1 to entry: Such air is not required to have been conditioned.

**3.2 Technical building systems****3.2.1****air conditioning system**

combination of all components required to provide a form of air treatment in which temperature is controlled, possibly in combination with the control of ventilation, humidity and air cleanliness

**3.2.2****auxiliary energy**

electrical energy used by technical building systems for heating, cooling, ventilation, lighting and/or domestic water to support energy transformation to satisfy energy needs

Note 1 to entry: This includes energy for fans, pumps, electronics, etc. Electrical energy input to the a ventilation system for air transport and heat recovery is not considered as auxiliary energy, but as energy use for ventilation

Note 2 to entry: In EN ISO 9488, *Solar energy – Vocabulary*, the energy used for pumps and valves is called "parasitic energy".

**3.2.3****cogeneration**

simultaneous generation in one process of thermal energy and electrical or mechanical energy

Note 1 to entry: Also known as combined heat and power (CHP).

**3.2.4****demand controlled ventilation**

ventilation system in which the room airflow rate is governed by an automatic control depending on occupancy and an indoor air quality indicator (CO<sub>2</sub>, H<sub>2</sub>O, or pollutant)

**prEN 15603:2013 (E)****3.2.5****heat recovery**

heat generated by a technical building system or linked to a building use (e.g. domestic hot water) which is utilised directly in a related system to lower the heat input and which would otherwise be wasted (e.g. preheating of the combustion air by a flue gas heat exchanger)

**3.2.6****part load operation**

operational state of a technical system (e.g. heat pump), where the actual load is below the actual output capacity of the device

**3.2.7****recoverable system thermal loss**

part of a system thermal loss which can be recovered to lower either the energy need for heating or cooling or the energy use of the heating or cooling system

Note 1 to entry: This depends on the calculation approach chosen to calculate the recovered gains and losses (holistic or simplified approach).

**3.2.8****recovered system thermal loss**

part of the recoverable system thermal loss which has been recovered to lower either the energy need for heating or cooling or the energy use of the heating or cooling system

Note 1 to entry: This depends on the calculation approach chosen to calculate the recovered gains and losses (holistic or simplified approach).

**3.2.9****room conditioning system**

system capable of maintaining comfort conditions in a room within a defined range.

Note 1 to entry: Such systems comprise air conditioning and surface based radiative systems.

**3.2.10****system thermal loss**

thermal loss from a technical building system for heating, cooling, domestic hot water, humidification, dehumidification or ventilation that does not contribute to the useful output of the system

Note 1 to entry: A system loss can become an internal heat gain for the building if it is recoverable

Note 2 to entry: Thermal energy recovered directly in the subsystem is not considered as a system thermal loss but as heat recovery and directly treated in the related system standard.

Note 3 to entry: Heat dissipated by the lighting system or by other services (e.g. appliances of computer equipment) is not part of the system thermal losses, but part of the internal heat gains.

**3.2.11****ventilation heat recovery**

heat recovered from the exhaust air to reduce the ventilation heat transfer

**3.3 Inspection of technical building systems****3.3.1****commissioning**

sequence of events to enable the functioning of a building and its heating, ventilation, room conditioning (HVAC) system and lighting in accordance with the design parameters

**3.3.2****design criteria**

set of descriptions based on a particular environmental element such as indoor air quality, satisfactory lighting, thermal and acoustical comfort, energy efficiency and associated system controls to be used for assessing plant operation

**3.3.3****design documentation**

written description of the essential design elements of a plant

**3.3.4****energy inspection**

examination of heating, room conditioning systems and/or lighting in a building

**3.3.5****inspector**

person having appropriate training or practical experience in energy inspection of heating, room conditioning systems and/or lighting and associated regulations for energy

**3.3.6****room conditioning system control**

measures taken to enable operation of a system in accordance with the design criteria

Note 1 to entry: It can be a part of the building automation and control system.

**3.4 Energy****3.4.1****assessment boundary**

boundary where the energy balance of delivered and exported energy is defined

**3.4.2****building site “on site”**

building and the premises on which the building is located

**3.4.3****CO<sub>2</sub> emission coefficient**

given energy carrier, quantity of CO<sub>2</sub> emitted to the atmosphere per unit of delivered energy

Note 1 to entry: The CO<sub>2</sub> emission coefficient can also include the equivalent emissions of other greenhouse gases (e.g. methane).

**3.4.4****delivered energy**

energy, expressed per energy carrier, supplied to the technical building systems through the system boundary, to satisfy the uses taken into account (heating, cooling, ventilation, domestic hot water, lighting, appliances etc.) or to produce electricity

Note 1 to entry: For active solar and wind energy systems the incident solar radiation on solar panels or on solar collectors or the kinetic energy of wind is not part of the energy balance of the building. It is decided at national level whether or not renewable energy produced on site is part of the delivered energy.

Note 2 to entry: Delivered energy can be calculated for defined energy uses or it can be measured.

Note 3 to entry: Lighting fitted to the outside of the building envelope is not part of the EP uses (assessment).