



BSI Standards Publication

Energy performance of buildings - Method for calculation of system energy requirements and system efficiencies

Part 6-2: Explanation and justification of EN 15316-2, Module M3-5, M4-5

National foreword

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**Energy performance of buildings - Method for calculation
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Part 6-2: Explanation and justification of EN 15316-2,
Module M3-5, M4-5**

Performance énergétique des bâtiments - Méthode de
calcul des besoins énergétiques et des rendements des
systèmes - Partie 6-2 : Explication et justification de
l'EN 15316-2, Module M3-5, M4-5

Energetische Bewertung von Gebäuden - Verfahren zur
Berechnung der Energieanforderungen und
Nutzungsgrade der Anlagen - Teil 6-2: Begleitende TR
zur EN 15316-2 (Raumluftsysteme (Heizen und
Kühlen))

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Contents

Page

European foreword.....	4
Introduction	5
1 Scope	7
2 Normative references.....	7
3 Terms and definitions	8
4 Symbols and abbreviations	8
4.1 Symbols.....	8
4.2 Subscripts.....	9
5 Description of the method	9
5.1 Output of the method.....	9
5.2 General description of the method.....	9
5.2.1 General.....	9
5.2.2 non-uniform space temperature distribution.....	10
5.2.3 Heat loss of embedded surface heating devices due to additional transmission to the outside.....	10
5.2.4 Control of the indoor temperature	11
5.2.5 Effects of room automatisation.....	11
5.2.6 Combined outside temperature for cool emission systems	12
6 Calculation Method.....	12
6.1 Output data.....	12
6.2 Calculation time steps	12
6.3 Input data.....	13
6.3.1 Source of data	13
6.3.2 Product data (technical data).....	13
6.3.3 Configuration and system design data	15
6.3.4 Operating or boundary conditions	15
6.4 Monthly and yearly calculation procedure.....	16
6.4.1 Applicable calculation interval.....	16
6.4.2 Operating conditions calculation	16
6.4.3 Energy calculation (additional heating / cooling losses)	16
6.4.4 Auxiliary energy calculation	20
6.5 Hourly calculation procedure.....	21
6.5.1 Applicable calculation interval	21
6.5.2 Operating conditions calculation	21
6.5.3 Energy calculation (additional heating / cooling losses)	21
7 Quality control	25
8 Compliance check.....	25
Annex A (informative) Template for choices, input data and references (Additional heating and cooling losses / auxiliary energy).....	26
A.1 Introduction	26
A.2 Temperature variation for free heating surfaces (radiators), room heights ≤ 4 m (heating case)	27

A.3	Temperature Variation for component integrated heating surfaces (panel heaters) (room heights ≤ 4 m, heating case)	29
A.4	Temperature variation for air heating systems; room heights ≤ 4 m (heating case)	31
A.5	Temperature Variation for electrical heating (room heights ≤ 4 m, heating case)	32
A.6	Temperature Variation air heating (ventilation systems, room heights ≤ 4 m, heating case).....	33
A.7	Temperature variation for room spaces with heights > 4 m (large indoor space buildings, heating case).....	35
A.8	Temperature variation for room heaters fired by solid fuel.....	36
A.9	Temperature variation for water based cooling systems; room heights ≤ 4 m (cooling case)	37
A.10	Auxiliary Energy.....	38
A.11	Additional Information.....	39
Annex B (informative)	Default choices, input data and references (additional heating and cooling losses / auxiliary energy).....	41
B.1	Introduction.....	41
B.2	Temperature variation for free heating surfaces (radiators); room heights ≤ 4 m (heating case).....	42
B.3	Temperature Variation for component integrated heating surfaces (panel heaters) (room heights ≤ 4 m, heating case)	44
B.4	Temperature variation for air heating systems; room heights ≤ 4 m (heating case)	46
B.5	Temperature Variation for electrical heating (room heights ≤ 4 m, heating case)	47
B.6	Temperature Variation air heating (ventilation systems, room heights ≤ 4 m, heating case).....	48
B.7	Temperature variation for room spaces with heights > 4 m (large indoor space buildings, heating case).....	48
B.8	Temperature variation for room heaters fired by solid fuel.....	51
B.9	Temperature variation for water based cooling systems; room heights ≤ 4 m (cooling case)	52
B.10	Auxiliary Energy.....	53
B.11	Additional Information.....	54
Bibliography	56

European foreword

This document (CEN/TR 15316-6-2:2017) has been prepared by Technical Committee CEN/TC 228 “Heating systems and water based cooling systems in buildings”, the secretariat of which is held by DIN.

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

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Introduction

This standard is part of a set of standards developed to support EPBD directive implementation, hereafter called “EPB standards”.

EPB standards deal with energy performance calculation and other related aspects (like system sizing) to provide the building services considered in the EPBD directive.

CEN/TC 228 deals with heating systems in buildings. Subjects covered by CEN/TC 228 are:

- a) energy performance calculation for heating systems;
- b) inspection of heating systems;
- c) design of heating systems;
- d) installation and commissioning of heating systems.

The set of EPB standards, technical reports and supporting tools

In order to facilitate the necessary overall consistency and coherence, in terminology, approach, input/output relations and formats, for the whole set of EPB-standards, the following documents and tools are available:

- a) a document with basic principles to be followed in drafting EPB-standards: CEN/TS 16628:2014, Energy Performance of Buildings - Basic Principles for the set of EPB standards [14];
- b) a document with detailed technical rules to be followed in drafting EPB-standards; CEN/TS 16629:2014, Energy Performance of Buildings - Detailed Technical Rules for the set of EPB-standards [15];
- c) the detailed technical rules are the basis for the following tools:
 - 1) a common template for each EPB-standard, including specific drafting instructions for the relevant clauses;
 - 2) a common template for each technical report that accompanies an EPB standard or a cluster of EPB standards, including specific drafting instructions for the relevant clauses;
 - 3) a common template for the spreadsheet that accompanies each EPB standard, to demonstrate the correctness of the EPB calculation procedures.

Each EPB-standards follows the basic principles and the detailed technical rules and relates to the overarching EPB-standard, EN ISO 52000-1 [16].

One of the main purposes of the revision of the EPB-standards is to enable that laws and regulations 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 (Annex B).

Rationale behind the 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 EPB standards.

If this explanation would have been attempted in the standards themselves, the result is likely to be confusing and cumbersome, 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, like this one, where all informative content is collected, to ensure a clear separation between normative and informative contents (see CEN/TS 16629 [15]):

- to avoid flooding and confusing the actual normative part with informative content;
- to reduce the page count of the actual standard; and
- to facilitate understanding of the set of EPB standards.

This was also one of the main recommendations from the European CEN project [18] that laid the foundation for the preparation of the set of EPB standards.

1 Scope

This Technical Report refers to standard EN 15316-2.

It contains information to support the correct understanding and use of EN 15316-2.

The scope of this specific part is to standardize the required inputs, the outputs and the links (structure) of the calculation method in order to achieve a common European calculation method.

This standard covers energy performance calculation of heating systems and water based cooling space emission sub-systems.

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.

EN 215, *Thermostatic radiator valves - Requirements and test methods*

EN 416-2, *Single burner gas-fired overhead radiant tube heaters for non-domestic use - Part 2: Rational use of energy*

EN 419-2, *Non-domestic gas-fired overhead luminous radiant heaters - Part 2: Rational use of energy*

EN 442 (all parts), *Radiators and convectors – Part 2: Test methods and rating*

EN 1264 (all parts), *Water based surface embedded heating and cooling systems*

EN 14037 (all parts), *Free hanging heating and cooling surfaces for water with a temperature below 120°C*

EN 14337, *Heating Systems in buildings - Design and installation of direct electrical room heating systems*

EN 15316-1, *Energy performance of buildings - Method for calculation of system energy requirements and system efficiencies - Part 1: General and Energy performance expression, Module M3-1, M3-4, M3-9, M8-1, M8-4*

EN 15316-2, *Energy performance of buildings - Method for calculation of system energy requirements and system efficiencies - Part 2: Space emission systems (heating and cooling), Module M3-5, M4-5*

EN 15500, *Control for heating, ventilating and air-conditioning applications - Electronic individual zone control equipment*

EN 16400 (all parts), *Fan assisted radiators, convectors and trench convectors - Part 1: Technical specifications and requirements*

EN 60240-1, *Characteristics of electric infra-red emitters for industrial heating - Part 1: Short wave infra-red emitters (IEC 60240-1)*

EN ISO 7345:1995, *Thermal insulation - Physical quantities and definitions (ISO 7345:1987)*

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