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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

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National foreword

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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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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.

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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 CENSE 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 16430 (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)*