

Teknisk rapport

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Energy performance of buildings- Method for calculation of system energy requirements and system efficiencies – Part 6-1: Explanation and justification of EN 15316-1, Module M3-1, M3-4, M3-9, M8-1, M8-4

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TECHNICAL REPORT

CEN/TR 15316-6-1

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

April 2017

ICS 27.160; 91.120.10; 91.140.10

English Version

**Energy performance of buildings- Method for calculation
of system energy requirements and system efficiencies -
Part 6-1: Explanation and justification of EN 15316-1,
Module M3-1, M3-4, M3-9, M8-1, M8-4**

Performance énergétique des bâtiments - Méthode de
calcul des besoins énergétiques et des rendements des
systèmes - Partie 1 : Explication et justification de l'EN
15316-1, Module M3-1, M3-4, M3-9, M8-1, M8-4

Heizungsanlagen und Wasserbasierte Kühlanlagen in
Gebäuden - Verfahren zur Berechnung der
Energieanforderungen und Nutzungsgrade der
Anlagen - Teil 6-1: Begleitende TR zur EN 15316-1
(Allgemeines und Darstellung der Energieeffizienz)

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (CEN/TR 15316-6-1:2017) 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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This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Introduction

The CENSE project, the discussions between CEN and the Concerted action highlighted the high page count of the entire package due to a lot of “textbook” information. This resulted in flooding and confusing the normative text.

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 [1];
- 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 [2];
- 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, prEN ISO 52000-1:2015.

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):

- to avoid flooding and confusing the actual normative part with informative content,

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- 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 [1] that laid the foundation for the preparation of the set of EPB standards.

Figure 1 shows the relative position of the related standard within the EPB package of standards and the position of all the other EPB standards under the responsibility of CEN/TC 228.

Overarching		Building (as such)		Technical Building Systems										
	Descriptions		Descriptions		Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic Hot water	Lighting	Building automation and control	Electricity production
sub1		M1	sub 1	M2	sub1	M3	M4	M5	M6	M7	M8	M9	M10	M11
1	General		1	General	1	EN 15316-1					EN 15316-1			
2	Common terms and definitions; symbols, units and subscripts		2	Building Energy Needs	2						EN 12831-3			
3	Applications		3	(Free) Indoor Conditions without Systems	3	EN 12831-1					EN 12831-3			
4	Ways to Express Energy Performance		4	Ways to Express Energy Performance	4	EN 15316-1					EN 15316-1			
5	Building Functions and Building Boundaries		5	Heat Transfer by Transmission	5	EN 15316-2	EN 15316-2							
6	Building Occupancy and Operating Conditions		6	Heat Transfer by Infiltration and Ventilation	6	EN 15316-3	EN 15316-3				EN 15316-3			
7	Aggregation of Energy Services and Energy Carriers		7	Internal Heat Gains	7	EN 15316-5					EN 15316-5 EN 15316-4-3			

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Overarching		Building (as such)		Technical Building Systems											
	Descriptions		Descriptions		Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic Hot water	Lighting	Building automation and control	Electricity production	
sub1		M1	sub 1	M2	sub1	M3	M4	M5	M6	M7	M8	M9	M10	M11	
8	Building Partitioning		8	Solar Heat Gains	8	Generation									
					8-1	Combustion boilers	EN 15316-4-1				EN 15316-4-1				
					8-2	Heat pumps	EN 15316-4-2	EN 15316-4-2			EN 15316-4-2				
					8-3	Thermal solar Photovoltaics	EN 15316-4-3				EN 15316-4-3			EN 15316-4-3	
					8-4	On-site cogeneration	EN 15316-4-4				EN 15316-4-4			EN 15316-4-4	
					8-5	District heating and cooling	EN 15316-4-5	EN 15316-4-5			EN 15316-4-5			EN 15316-4-5	
					8-6	Direct electrical heater	EN 15316-4-9				EN 15316-4-9				
					8-7	Wind turbines								EN 15316-4-10	
					8-8	Radiant heating, stoves	EN 15316-4-8								