



BSI Standards Publication

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

Part 6-4: Explanation and justification of EN 15316-4-1, Module M3-8-1, M8-8-1

National foreword

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**Energy performance of buildings - Method for calculation
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Part 6-4: Explanation and justification of EN 15316-4-1
Module M3-8-1, M8-8-1**

Performance énergétique des bâtiments - Méthode de calcul des besoins énergétiques et des rendements des systèmes - Partie 6-4 : Explication et justification de l'EN 15316-4-1, Module M3-8-1, M8-8-1

Heizungsanlagen und Wasserbasierte Kühlanlagen in Gebäuden - Verfahren zur Berechnung der Energieanforderungen und Nutzungsgrade der Anlagen - Teil 6-4: Begleitender TR zur EN 15316-4-1 (Wärmeerzeugung für die Raumheizung und Trinkwarmwasser, Verbrennungssysteme (Heizungskessel, Biomasse))

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Contents

Page

European foreword.....	4
Introduction	5
1 Scope	7
2 Normative references	7
3 Terms and definitions	7
3.1 Terms.....	7
3.2 Symbols.....	7
3.3 Abbreviations and indices	7
4 Description of the method	7
4.1 Output of the method.....	7
4.1.1 Description	7
4.1.2 Example	8
4.2 General description of the method	9
4.3 Input data.....	9
4.3.1 Description	9
4.3.2 Example	13
4.4 Boundaries between distribution and generation sub-system.....	13
4.5 Default values.....	15
4.5.1 Default values for generator efficiency at full load and intermediate load as a function of the generator power output.....	15
4.5.2 Default value for the stand-by heat losses $f_{gen,ls;P0}$ as a function of the generator power output.....	16
4.5.3 Auxiliary energy	16
4.6 Product values.....	17
4.7 Measured values.....	17
4.7.1 Boiler efficiencies from measured values.....	17
4.7.2 Measured total thermal losses, power input and calculated gains.....	18
4.7.3 Additional default data and calculation for condensing boilers.....	18
4.7.4 Thermal losses through the chimney with the burner on at full load $f_{ch,on}$	20
4.7.5 Thermal losses through the generator envelope $f_{gen,env}$	20
4.7.6 Thermal losses through the chimney with the burner off $f_{ch,off}$	21
4.8 Boiler rated output.....	21
5 Generation sub-system basic energy balance.....	21
5.1 Heat balance.....	21
5.2 Expenditure factor.....	22
5.3 Fuel heat input	23
5.3.1 Description	23
5.3.2 Example	23
5.4 Generator auxiliary energy	24
5.4.1 Description	24
5.4.2 Example	24
5.5 Generator losses.....	24
5.5.1 Generator loss	24
5.5.2 Generator thermal loss at specific load ratio $\beta_{H;gen}$ and power output PP_x	24
5.5.3 Generator thermal loss calculation at full load.....	25

5.5.4	Generator thermal loss calculation at intermediate load.....	27
5.5.5	Generator thermal loss calculation at 0 % load	28
5.5.6	Correction factor by additional tests.....	29
5.6	Recoverable thermal losses	29
5.6.1	general.....	29
5.6.2	Generator thermal losses through the jacket (generator envelope).....	30
5.6.3	Recoverable thermal losses out of auxiliary energy.....	30
5.7	Recovered auxiliary energy	31
5.7.1	Description.....	31
5.7.2	Example.....	31
5.8	Auxiliary energy.....	32
5.8.1	Description.....	32
5.8.2	Example.....	32
5.9	Generator thermal output	33
5.10	Heating time and load factor	33
5.11	Direct heated DHW heaters	34
5.11.1	Instantaneous electrical water heater.....	34
5.11.2	Instantaneous gas water heater	34
5.11.3	Gas-fired domestic storage water heaters.....	34
5.12	Method for domestic hot water appliance, tested with 21 hours tapping cycles.....	37
Annex A (informative) Additional formulas and default values for parametering the boiler efficiency method		
		39
A.1	Information on the method.....	39
A.2	Conversion of the energy content of energy carriers	45
A.3	Deviation from default values.....	45
A.4	Fuel constants for flue gas measurement depending on Siegert constants	45
A.5	Default values for calculation of thermal losses through the chimney with the burner off.....	47
A.6	Additional default data and calculation for condensing boilers	48
A.7	Additional default data for generator output and losses.....	49
A.8	Additional default data and calculation for water heaters.....	49
Annex B (informative) Additional formulas and default values for parametering the boiler efficiency method		
		50
B.1	Information on the method.....	50
B.2	Conversion of the energy content of energy carriers.....	57
B.3	Deviation from default values	57
B.4	Fuel constants for flue gas measurement depending on Siegert constants	57
B.5	Default values for calculation of thermal losses through the chimney with the burner off.....	59
B.6	Additional default data and calculation for condensing boilers	59
B.7	Additional default data for generator output and losses.....	61
B.8	Additional default data and calculation for water heaters.....	62
Annex C (informative) General part default values and information - Boundary condition for DHW.....		
		63
Bibliography		
		64

European foreword

This document (CEN/TR 15316-6-4:2017) 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 document informs about EN 15316-4-1 as a part of a series of standards aimed at European harmonization of the methodology for the calculation of the energy performance of buildings.

A huge amount of informative contents needs indeed to be recorded and made available for users to properly understand, apply and nationally adapt the EPB standards.

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/TR 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, EN ISO 52000-1 [3].

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 [2]):

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

EN 15316-4-1 is intended to replace EN 15316-4-1:2008 and includes Domestic hot water system generation (former EN 15316-3-3) and biomass boilers (former EN 15316-4-7:2008) in this standard 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 the overarching standard under mandate M/480.

The typology method has been removed, the boiler cycling method has been added for existing boilers to get the input parameters for the case specific boiler efficiency method.

Other generation systems are covered in other sub modules of part M3-8 (see Figure 1).

1 Scope

This Technical Report refers to EN 15316-4-1.

It contains information to support the correct understanding, use and national adaption of standard EN 15316-4-1.

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 89, *Gas-fired storage water heaters for the production of domestic hot water*

EN 13203-2, *Gas-fired domestic appliances producing hot water - Part 2: Assessment of energy consumption*

EN 15316-4-1:2017, *Energy performance of buildings - Method for calculation of system energy requirements and system efficiencies - Part 4-1: Space heating and DHW generation systems, combustion systems (boilers, biomass), Module M3-8-1, M8-8-1*

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

EN ISO 52000-1:2017, *Energy performance of buildings - Overarching EPB assessment - Part 1: General framework and procedures (ISO 52000-1:2017)*

3 Terms and definitions, symbols, abbreviations and indices

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 52000-1:2017 and EN 15316-4-1:2017 apply.

3.2 Symbols

For the purposes of this document, the symbols and indices given in EN ISO 52000-1:2017 and the symbols and units given in EN 15316-4-1:2017 apply.

3.3 Abbreviations and indices

For the purposes of this document, the abbreviations and indices given in EN ISO 52000-1:2017 and the indices given in EN 15316-4-1:2017 apply.

4 Description of the method

4.1 Output of the method

4.1.1 Description

The calculation of the values takes place basically for the zones defined in EN ISO 13790.

If a number of parts of systems are contained in the various process domains then the values are to be added together for further analysis.