BS EN 12831-3:2017

BSI Standards Publication

Energy performance of buildings — Method for calculation of the design heat load

Part 3: Domestic hot water systems heat load and characterisation of needs, Module M8-2, M8-3

bsi.

National foreword

This British Standard is the UK implementation of EN 12831-3:2017. It supersedes BS EN 15316-3-1:2007, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RHE/24, Heating systems and water based cooling systems in buildings.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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English Version

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Performance énergétique des bâtiments - Méthode de calcul des déperditions calorifiques de base - Partie 3 : Charge thermique des systèmes de production d'eau chaude sanitaire et caractérisation des besoins, Module M8-2, M8-3

Energetische Bewertung von Gebäuden - Verfahren zur Berechnung der Energieanforderungen und Nutzungsgrade der Anlagen - Teil 3: Dimensionierung von Trinkwassererwärmungsanlagen und Bedarfsbestimmung, Modul M8-2, M8-3

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European foreword

This document (EN 12831-3:2017) 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 European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2018, and conflicting national standards shall be withdrawn at the latest by January 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15316-3-1:2007.

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

The changes made to the previous edition are minor editorial corrections:

a) minor improvement readability of Figure 4;

b) correction of an incorrect term in Formula (14);

c) correction of an incorrect symbol in Figure 14.

EN 12831, *Energy performance of buildings — Method for the calculation of the design heat load*, is composed with the following parts:

— *Part 1: Space heating load, Module M3-3*;

— *Part 2: Explanation and justification of EN 12831-1, Module M3-3* [CEN/TR];

— *Part 3: Domestic hot water systems heat load and characterisation of needs, Module M8-2, M8-3*;

— *Part 4: Explanation and justification of EN 12831-3, Module M8-2, M8-3* [CEN/TR].

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

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

— energy performance calculation for heating systems;

— inspection of heating systems;

— design of heating systems;

— installation and commissioning of heating systems.

This European Standard was developed to cover hourly and minutely time-steps.

This European Standard is part of a series of standards aiming at international harmonization of the methodology for the assessment of the energy performance of buildings, called "set of EPB standards".

All EPB standards follow specific rules to ensure overall consistency, unambiguity and transparency.

All EPB standards provide a certain flexibility with regard to the methods, the required input data and references to other EPB standards, by the introduction of a normative template in Annex A and Annex B with informative default choices.

For the correct use of this standard a normative template is given in Annex A to specify these choices. Informative default choices are provided in Annex B.

Use by or for regulators: In case the standard is used in the context of national or regional legal requirements, mandatory choices may be given at national or regional level for such specific applications. These choices (either the informative default choices from Annex B or choices adapted to national / regional needs, but in any case following the template of this Annex A) can be made available as national annex or as separate (e.g. legal) document (national data sheet).

NOTE So in this case:

— the regulators will **specify** the choices;

— the individual user will apply the standard to assess the energy performance of a building, and thereby **use** the choices made by the regulators.

Topics addressed in this standard can be subject to public regulation. Public regulation on the same topics can override the default values in Annex B of this standard. Public regulation on the same topics can even, for certain applications, override the use of this standard. Legal requirements and choices are in general not published in standards but in legal documents. In order to avoid double publications and difficult updating of double documents, a national annex may refer to the legal texts where national choices have been made by public authorities. Different national annexes or national data sheets are possible, for different applications.

It is expected, if the default values, choices and references to other EPB standards in Annex B are not followed due to national regulations, policy or traditions, that:

— national or regional authorities prepare data sheets containing the choices and national or regional values, according to the model in Annex A. In this case the national annex (e.g. NA) refers to this text;

— or, by default, the national standards body will consider the possibility to add or include a national annex in agreement with the template of Annex A, in accordance to the legal documents that give national or regional values and choices.

Further target groups are parties wanting to motivate their assumptions by classifying the building energy performance for a dedicated building stock.

More information is provided in the Technical Report accompanying this standard (EN 12831-4).

1 Scope

This European Standard describes a method to calculate the power and the storage volume required for the dimensioning of domestic hot water systems (DHW). The applicability ranges from direct water heaters (no storage volume and a comparatively large effective heating power) to larger storage systems with a comparatively small heating power and large storage volumes.

This European Standard is applicable to the following water storage systems:

— storage systems characterized by a minimal mixing zone, (such as stratified charging storage tanks or storage tanks with external heat exchangers): these systems are nominated in this standard as “charging storage systems”;

— storage tank water heaters and warm water storage tanks with a pronounced mixing zone (such as DHW storage tanks with internal heat exchangers), nominated in this standard as “mixed storage systems”;

and for different uses.

The Scope also includes standardization methods for determining the energy need for domestic hot water. This European Standard covers the domestic hot water needs in buildings.

The calculation of the energy needs for DHW-Systems applies to residential and non-residential buildings, a building or a zone of a building.

Figure 1 shows the relative position of this standard within the set of EPB standards in the context of the modular structure as set out in EN ISO 52000-1.

NOTE 1 In CEN ISO/TR 52000-2 the same table can be found, with, for each module, the numbers of the relevant EPB standards and accompanying technical reports that are published or in preparation.

NOTE 2 The modules represent EPB standards, although one EPB standard may cover more than one module and one module may be covered by more than one EPB standard, for instance a simplified and a detailed method respectively. See also Clause 2 and Tables A.1 and B.1.

Table 1 shows the relative position of this standard within the EPB package of standards.