

## **ПІДТВЕРДЖУВАЛЬНЕ ПОВІДОМЛЕННЯ**

**Державне підприємство  
«Український науково-дослідний і навчальний центр  
проблем стандартизації, сертифікації та якості»  
(ДП «УкрНДНЦ»)**

**Наказ від 13.12.2017 № 414**

**EN 12831-1:2017**

**Energy performance of buildings —  
Method for calculation of the design heat load —  
Part 1: Space heating load, Module M3-3**

прийнято як національний стандарт  
методом підтвердження за позначенням

**ДСТУ EN 12831-1:2017  
(EN 12831-1:2017, IDT)**

**Енергоефективність будівель.  
Метод розрахунку проектного теплового навантаження.  
Частина 1. Теплове навантаження, Модуль М3-3**

З наданням чинності від 2017–12–15

EUROPEAN STANDARD

EN 12831-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2017

ICS 91.140.10

Supersedes EN 12831:2003

English Version

## Energy performance of buildings - Method for calculation of the design heat load - Part 1: Space heating load, Module M3-3

Performance énergétique des bâtiments - Méthode de  
calcul de la charge thermique nominale - Partie 1 :  
Charge de chauffage des locaux, module M3-3

Energetische Bewertung von Gebäuden - Verfahren zur  
Berechnung der Norm-Heizlast - Teil 1: Raumheizlast,  
Modul M3-3

This European Standard was approved by CEN on 27 February 2017.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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

<b>Contents</b>	<b>Page</b>
<b>European foreword</b> .....	<b>5</b>
<b>Introduction</b> .....	<b>6</b>
<b>1 Scope</b> .....	<b>8</b>
<b>2 Normative references</b> .....	<b>12</b>
<b>3 Terms and definitions</b> .....	<b>12</b>
<b>4 Symbols and abbreviations</b> .....	<b>15</b>
<b>4.1 Symbols</b> .....	<b>15</b>
<b>4.2 Subscripts</b> .....	<b>16</b>
<b>5 Description of the methods</b> .....	<b>19</b>
<b>6 Standard method – Heat load of rooms, building entities and buildings</b> .....	<b>20</b>
<b>6.1 Output data</b> .....	<b>20</b>
<b>6.2 Input data</b> .....	<b>21</b>
<b>6.3 Calculation procedure</b> .....	<b>27</b>
<b>6.3.1 Design heat load</b> .....	<b>27</b>
<b>6.3.2 Design transmission heat losses of a heated space (i)</b> .....	<b>29</b>
<b>6.3.3 Design ventilation heat loss</b> .....	<b>33</b>
<b>6.3.4 Additional heating-up power in intermittently heated spaces</b> .....	<b>41</b>
<b>6.3.5 Time constant</b> .....	<b>42</b>
<b>6.3.6 Heat transfer coefficients without temperature adjustment</b> .....	<b>43</b>
<b>6.3.7 External design temperature (climatic data)</b> .....	<b>44</b>
<b>6.3.8 Influence of the heat emission system in high rooms (ceiling height <math>\geq 4</math> m)</b> .....	<b>46</b>
<b>7 Simplified method for the calculation of the design heat load of a heated space (single rooms)</b> .....	<b>48</b>
<b>7.1 Output data</b> .....	<b>48</b>
<b>7.2 Input data</b> .....	<b>48</b>
<b>7.3 Calculation procedure</b> .....	<b>49</b>
<b>7.3.1 Design heat load of a heated space</b> .....	<b>49</b>
<b>7.3.2 Design transmission heat loss of a heated space</b> .....	<b>50</b>
<b>7.3.3 Design ventilation heat loss of a heated space</b> .....	<b>50</b>
<b>8 Simplified method for the calculation of the building design heat load</b> .....	<b>51</b>
<b>8.1 Output data</b> .....	<b>51</b>
<b>8.2 Input data</b> .....	<b>51</b>
<b>8.3 Calculation procedure</b> .....	<b>52</b>
<b>8.3.1 Building design heat load</b> .....	<b>52</b>
<b>8.3.2 Building design transmission heat loss</b> .....	<b>53</b>
<b>8.3.3 Design ventilation heat loss of a building</b> .....	<b>53</b>
<b>9 Compliance check</b> .....	<b>54</b>
<b>9.1 General</b> .....	<b>54</b>
<b>9.2 Dimensioning of heat emission systems</b> .....	<b>54</b>
<b>9.3 Dimensioning of heat generators</b> .....	<b>54</b>
<b>Annex A (normative) Input data, structure for default values</b> .....	<b>55</b>
<b>A.1 General</b> .....	<b>55</b>
<b>A.2 Input data for the standard method (6)</b> .....	<b>55</b>