

## **Hoonete ventilatsioon. Hoonete energiakasutus. Juhised õhu konditsioneerimise süsteemide kontrollimiseks**

Ventilation for buildings - Energy performance of buildings - Guidelines for inspection of air-conditioning systems

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 15240:2007 sisaldab Euroopa standardi EN 15240:2007 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 21.06.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 15240:2007 consists of the English text of the European standard EN 15240:2007.</p> <p>This document is endorsed on 21.06.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This European Standard describes the common methodology for inspection of air conditioning systems in buildings for space cooling and or heating from an energy consumption standpoint. The inspection can consider for instance the following points to assess the energy performance and proper sizing of the system: - System conformity to the original and subsequent design modifications, actual requirements and the present state of the building. - Correct system functioning. - Function and settings of various controls. - Function and fitting of the various components. - Power input and the resulting energy output.</p>	<p><b>Scope:</b></p> <p>This European Standard describes the common methodology for inspection of air conditioning systems in buildings for space cooling and or heating from an energy consumption standpoint. The inspection can consider for instance the following points to assess the energy performance and proper sizing of the system: - System conformity to the original and subsequent design modifications, actual requirements and the present state of the building. - Correct system functioning. - Function and settings of various controls. - Function and fitting of the various components. - Power input and the resulting energy output.</p>
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English Version

Ventilation for buildings - Energy performance of buildings -  
Guidelines for inspection of air-conditioning systems

Ventilation des bâtiments - Performance énergétique des  
bâtiments - Lignes directrices pour l'inspection des  
systèmes de climatisation

Lüftung von Gebäuden - Gesamtenergieeffizienz von  
Gebäuden - Leitlinien für die Inspektion von Klimaanlage

This European Standard was approved by CEN on 26 March 2007.

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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 Management Centre has the same status as the official versions.

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# Contents

Page

<b>Foreword</b> .....	<b>3</b>
<b>Introduction</b> .....	<b>4</b>
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Terms and definitions</b> .....	<b>5</b>
<b>4 Inspection procedure</b> .....	<b>6</b>
<b>4.1 General</b> .....	<b>6</b>
<b>4.2 Pre-inspection and document collection</b> .....	<b>7</b>
<b>4.2.1 Documents</b> .....	<b>7</b>
<b>4.2.2 Building and system survey</b> .....	<b>8</b>
<b>4.2.3 Advice in case of outdated, incomplete or missing documentation</b> .....	<b>8</b>
<b>4.3 Methodology</b> .....	<b>8</b>
<b>4.3.1 General</b> .....	<b>8</b>
<b>4.3.2 Inspection of the refrigeration equipment</b> .....	<b>9</b>
<b>4.3.3 Inspection of pumps and chilled water pipe work</b> .....	<b>9</b>
<b>4.3.4 Inspection of effectiveness of outdoor heat rejection</b> .....	<b>9</b>
<b>4.3.5 Inspection of the effectiveness of heat exchange to the refrigeration system (indoor units of split and distributed systems)</b> .....	<b>9</b>
<b>4.3.6 Inspection of air delivery systems in treated spaces</b> .....	<b>9</b>
<b>4.3.7 Inspection of air delivery systems at air handling units and the associated ductwork</b> .....	<b>10</b>
<b>4.3.8 Inspection of air inlets to the system</b> .....	<b>10</b>
<b>4.3.9 Inspection of the building system controls and control parameters</b> .....	<b>10</b>
<b>4.3.10 Metering</b> .....	<b>10</b>
<b>4.4 Reporting</b> .....	<b>11</b>
<b>5 Advice on alternative solutions and improvements</b> .....	<b>11</b>
<b>Annex A (informative) Examples for the indication of subsystems of air conditioning systems</b> .....	<b>12</b>
<b>A.1 General</b> .....	<b>12</b>
<b>A.2 Indication for subsystems</b> .....	<b>12</b>
<b>A.3 Examples for classification of complete air conditioning systems</b> .....	<b>13</b>
<b>Annex B (informative) Examples of inspection classes of air conditioning systems</b> .....	<b>14</b>
<b>Annex C (informative) Features affecting the frequency and duration of inspection</b> .....	<b>15</b>
<b>Annex D (informative) Checklist of pre-inspection information</b> .....	<b>16</b>
<b>Annex E (informative) Recommendations for the extent of the inspection</b> .....	<b>17</b>
<b>E.1 General</b> .....	<b>17</b>
<b>E.2 List of items for inspection in each class (C, B, A)</b> .....	<b>17</b>
<b>Annex F (informative) Examples of checklists indicating observations and appropriate actions or advice</b> .....	<b>24</b>
<b>Annex G (informative) Inspection report, example of contents</b> .....	<b>30</b>
<b>Annex H (informative) Energy impacts of air conditioning, justification of inspection and improvements</b> .....	<b>32</b>
<b>H.1 General</b> .....	<b>32</b>
<b>H.2 Reduce cooling needs of the building</b> .....	<b>32</b>
<b>H.3 Improve the system efficiency</b> .....	<b>33</b>
<b>Bibliography</b> .....	<b>36</b>

## Foreword

This document (EN 15240:2007) has been prepared by Technical Committee CEN/TC 156 "Ventilation for buildings", the secretariat of which is held by BSI.

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 October 2007, and conflicting national standards shall be withdrawn at the latest by October 2007.

This standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/343), and supports essential requirements of EU Directive 2002/91/EC on the energy performance of buildings (EPBD). It forms part of a series of standards aimed at European harmonisation of the methodology for the calculation of the energy performance of buildings. An overview of the whole set of standards is given in CEN/TR 15615, Explanation of the general relationship between various CEN standards and the Energy Performance of Buildings Directive (EPBD) ("Umbrella document").

Attention is drawn to the need for observance of the relevant EU Directives transposed into national legal requirements. Existing national regulations with or without reference to national standards, may restrict for the time being the implementation of the European Standards mentioned in this report.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## Introduction

Article 9 of the Energy Performance of Buildings Directive (abbreviated as EPBD) requires the introduction of “measures to establish a regular inspection of air conditioning systems of an effective rated output of more than 12 kW”. The inspection is to include “an assessment of the air conditioning efficiency and the sizing compared to the cooling requirements of the building”. Advice is also to be provided to the users on “possible improvement or replacement of the air-conditioning system and on alternative solutions”. Therefore, it is not the intention to have a full audit of the air conditioning system but a correct assessment of its functioning and main impacts on energy consumption, and as a result determine any recommendations on improvement. The target groups of this standard are national regulators as well as the building services sector including professional building owners, and persons and organisations responsible for inspections.

Article 2 of the EPBD defines an “air conditioning system” as “a combination of all components required to provide a form of air treatment in which temperature is controlled or can be lowered, possibly in combination with the control of ventilation, humidity and air cleanliness.”

The inspection described here is therefore intended to include all types of comfort cooling and air conditioning systems that provide a total cooling output for the building above the specified 12 kW which is in turn taken to mean the rated cooling capacity of the included air conditioning systems. The total cooling output of 12 kW is associated to a building or a zone of a building according to national regulations. The term “air conditioning system” is used to represent any of the systems described below, which may heat and cool, and includes the associated water and air distribution and exhaust systems that form a necessary part of the system. It also includes the controls that are intended to regulate the use of these systems. It excludes mechanical ventilation systems that provide no mechanical cooling and components that, although they may be co-located in air conditioning systems, are dedicated to providing heating duty only. EN 15239 gives details for inspection of ventilation systems, and of the associated air distribution and exhaust systems and thus provides complementary information to this standard. prEN 15378 specifies procedures and methods for the inspection of boilers and heating systems, according to Article 8 of the EPBD.

The possibility to introduce classes is given in this standard in order to leave Member States freedom to choose between different objectives and extent of inspection, within a harmonised framework.

Air conditioning systems can be described according to the list of systems and subsystems presented in Annex A. Inspection classes can also be specified on national level. Examples of inspection classes are introduced in Annex B.

## 1 Scope

This European Standard describes the common methodology for inspection of air conditioning systems in buildings for space cooling and or heating from an energy consumption standpoint. The inspection can consider for instance the following points to assess the energy performance and proper sizing of the system:

- System conformity to the original and subsequent design modifications, actual requirements and the present state of the building.
- Correct system functioning.
- Function and settings of various controls.
- Function and fitting of the various components.
- Power input and the resulting energy output.

It is not intended that a full audit of the air conditioning system is carried out, but a correct assessment of its functioning and main impacts on energy consumption, and as a result determine any recommendations on improvement of the system or use of alternative solutions. National regulations and guidelines targeting energy efficiency and in line with the main objectives of this standard are also applicable.

NOTE Provision of adequate ventilation and system balancing are dealt with in EN 15239.

The qualification of the persons or organisation responsible for inspections is not covered by this standard, but the requirements for inspections are covered.

The frequency of the mandatory inspection is defined on national level. Features affecting the frequency and duration of inspection are introduced in Annex C.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12792:2003, *Ventilation for buildings — Symbols, terminology and graphical symbols*

EN 14511-1:2004, *Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling — Part 1: Terms and definitions*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12792:2003 and EN 14511-1:2004 and the following apply.

### 3.1

#### **air conditioning system**

combination of all components required to provide a form of air treatment in which temperature is controlled, possibly in combination with the control of ventilation, humidity and air cleanliness