

Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 2: Exhaust and supply air terminal devices

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13141-2:2004 sisaldab Euroopa standardi EN 13141-2:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.05.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13141-2:2004 consists of the English text of the European standard EN 13141-2:2004.</p> <p>This document is endorsed on 18.05.2004 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>Käsitlusala: This European Standard specifies laboratory methods for testing exhaust and supply air terminal devices operating under pressure differences.</p>	<p>Scope: This European Standard specifies laboratory methods for testing exhaust and supply air terminal devices operating under pressure differences.</p>
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ICS 91.140.30

Võtmesõnad:

EUROPEAN STANDARD

EN 13141-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2004

ICS 91.140.30

English version

Ventilation for buildings - Performance testing of
components/products for residential ventilation - Part 2: Exhaust
and supply air terminal devices

Ventilation des Bâtiments - Essais des performances des
composants/produits pour la ventilation des logements -
Partie 2: Bouches d'air d'évacuation et d'alimentation

Lüftung von Gebäuden - Leistungsprüfungen von
Bauteilen/Produkten für die Lüftung von Wohnungen - Teil
2: Abluft- und Zuluftdurchlässe

This European Standard was approved by CEN on 22 October 2003.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Contents

	page
Foreword.....	3
1 Scope	5
2 Normative references	5
3 Terms and definitions.....	6
4 Performance testing of aerodynamic characteristics.....	6
4.1 Flowrate/pressure	6
4.2 Air diffusion characteristics for supply air terminal devices.....	9
5 Performance testing of acoustic characteristics.....	9
5.1 Noise production for components of systems	9
5.2 Insertion loss of component of systems.....	12
5.3 Sound insulation characteristics of a pair of air terminal devices.....	16
Bibliography	20

Foreword

This document (EN 13141-2:2004) 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 July 2004, and conflicting national standards shall be withdrawn at the latest by July 2004.

This standard is one of a series of standard on residential ventilation. The performance characteristics of the components/products for residential ventilation are given in EN 13142.

The position of this standard in the field of the mechanical building services is shown in Figure 1.

This document includes a bibliography.

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

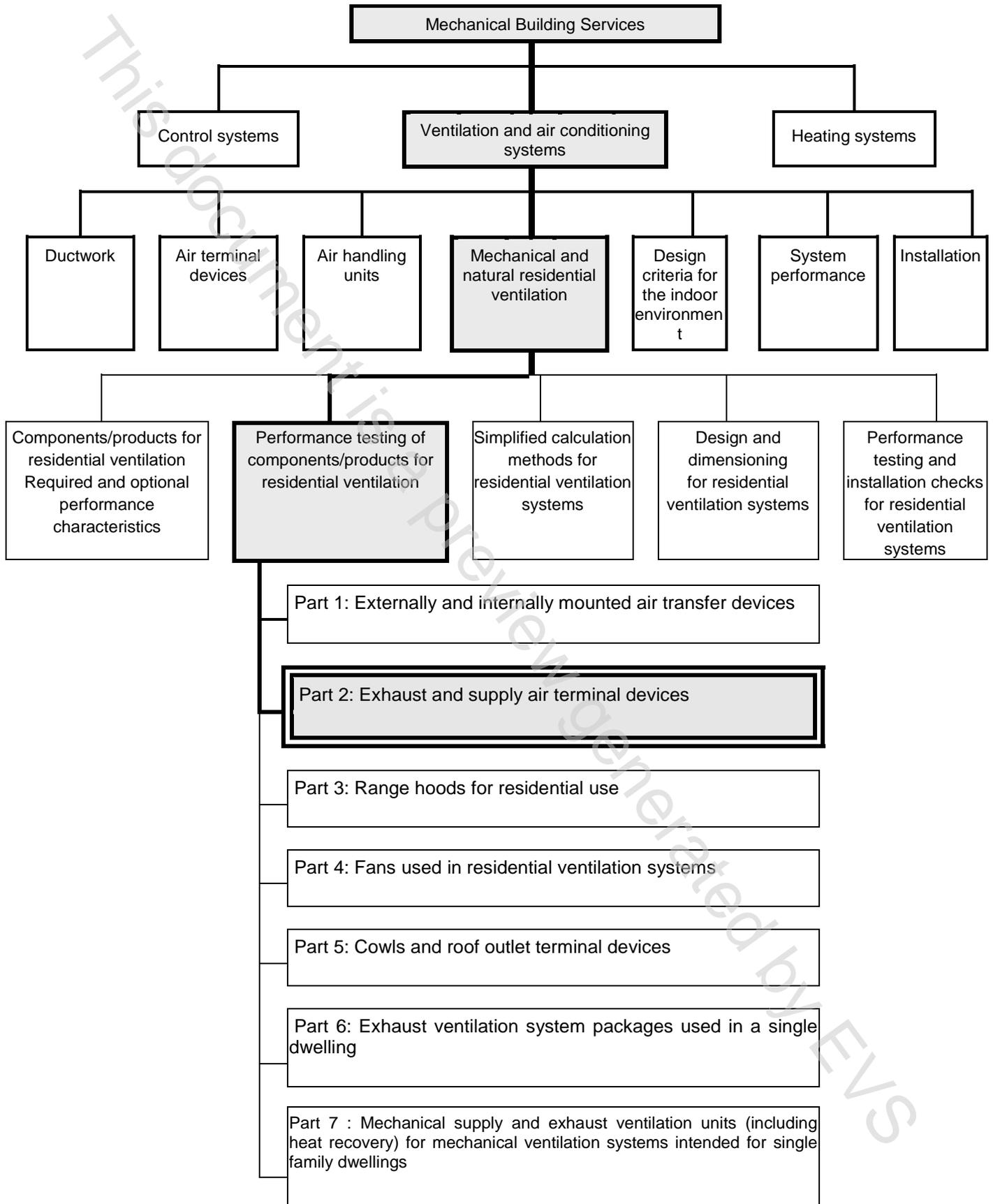


Figure 1 — Position of EN 13141-2 in the field of the mechanical building services

1 Scope

This European Standard specifies laboratory methods for testing exhaust and supply air terminal devices operating under pressure differences.

It applies to devices used in mechanical and natural powered residential ventilation systems, of the following types:

- device with a manually adjustable opening or;
- device with a fixed opening or;
- pressure difference controlled device.

It describes tests intended to characterize:

- flow rate/pressure;
- air diffusion characteristics (for supply air terminal devices);
- noise production for components of systems;
- insertion loss of component of systems;
- sound insulation.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed here after. For dated references, subsequent amendment to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 12238, *Ventilation for buildings – Air terminal devices – Aerodynamic testing and rating for mixed flow application.*

EN 12792, *Ventilation for buildings – Symbols, terminology and graphical symbols.*

EN 13141-1:2003, *Ventilation for buildings – Performance testing of components/products for residential ventilation - Part 1: Externally and internally mounted air transfer devices.*

EN 13182, *Ventilation for buildings – Instrumentation requirements for air velocity measurements in ventilated spaces.*

EN 20140-10, *Acoustics – Measurement of sound insulation in buildings and of building elements – Part 10: Laboratory measurement of airborne sound insulation of small building elements (ISO 140-10:1991).*

EN ISO 140-1, *Acoustics – Measurement of sound insulation in buildings and of building elements – Part 1: Requirements for laboratory test facilities with suppressed flanking transmission (ISO 141-1:1997).*

EN ISO 140-3, *Acoustics – Measurement of sound insulation in buildings and of building elements – Part 3: Laboratory measurements of airborne sound insulation of building elements (ISO 140-3:1995).*

EN ISO 3741, *Acoustics - Determination of sound power levels of noise sources using sound pressure – Precision methods for reverberation rooms (ISO 3741:1999).*

EN ISO 5135, *Acoustics– Determination of sound power levels of noise from air-terminal devices, air-terminal units, dampers and valves by measurement in a reverberation room (ISO 5135:1997).*

EN ISO 5167-1, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 1: General principles and requirements (ISO 5167-1:2003)*.

ISO 5221, *Air distribution and air diffusion – Rules to methods of measuring air flow rate in an air handling duct*.

ISO 7235:1991, *Acoustics – Measurement procedures for ducted silencers – Insertion loss, flow noise and total pressure loss*.

ISO 11691, *Acoustics – Measurement of insertion loss of ducted silencers without flow – Laboratory survey method*.

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 12792 and the following apply.

3.1 insertion loss

reduction in sound pressure level in the reverberation room due to the mounting of the air terminal device

3.2 test duct

straight, rigid hard-walled duct of constant cross section between sound source and air terminal device

3.3 reverberation room

room specially designed to facilitate the production of approximately diffuse sound fields

3.4 background noise

sound pressure level at the indicating instrument when the signal to be measured is not present

4 Performance testing of aerodynamic characteristics

4.1 Flow rate/pressure

4.1.1 Principle

This test consists of measuring several volume flow rates induced through a device by the applied static pressure difference to define the flow rate/pressure characteristic curve in the operating range specified by the manufacturer. In the case of manually adjustable devices this test shall be carried out at maximum and minimum opening conditions specified by the manufacturer.

Some exhaust ATD are of the bi-function type, i.e. they are designed to work under both natural and mechanical ventilation system. In that case the manufacturer may have to specify 2 operational ranges, and the device shall be tested for each of them according the standard procedure.

4.1.2 Test installation, conditions and uncertainty of measurement

4.1.2.1 Test installation and conditions

The device to be tested shall be installed in accordance with Figure 2.

The test installation shown in Figure 2 comprises: