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Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 6: Exhaust ventilation system packages used in a single dwelling

Lüftung von Gebäuden - Leistungsprüfung von Bauteilen/Produkten für die Lüftung von Wohnungen - Teil 6: Baueinheiten für Abluftanlagen für eine einzelne Wohnungen

Ventilation des bâtiments - Essais des performances des composants/produits pour la ventilation des logements - Partie 6: Kits pour systemes de ventilation par extraction pour logement individuel

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Ta slovenski standard je istoveten z: EN 13141-6:2004

ICS:

91.140.30 Ú!^: !æ^çæ} ã Á|ã æ\ã Ventilation and air-conditioning
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SIST EN 13141-6:2004

en

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English version

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Lüftung von Gebäuden - Leistungsprüfung von
Bauteilen/Produkten für die Lüftung von Wohnungen - Teil
6: Baueinheiten für Abluftanlagen für eine einzelne
Wohnungen

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.



EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 13141-6:2004) 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.

The standard is one of a series of standards 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 standards for the mechanical building services is shown in Figure 1.

Annex A is informative.

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.

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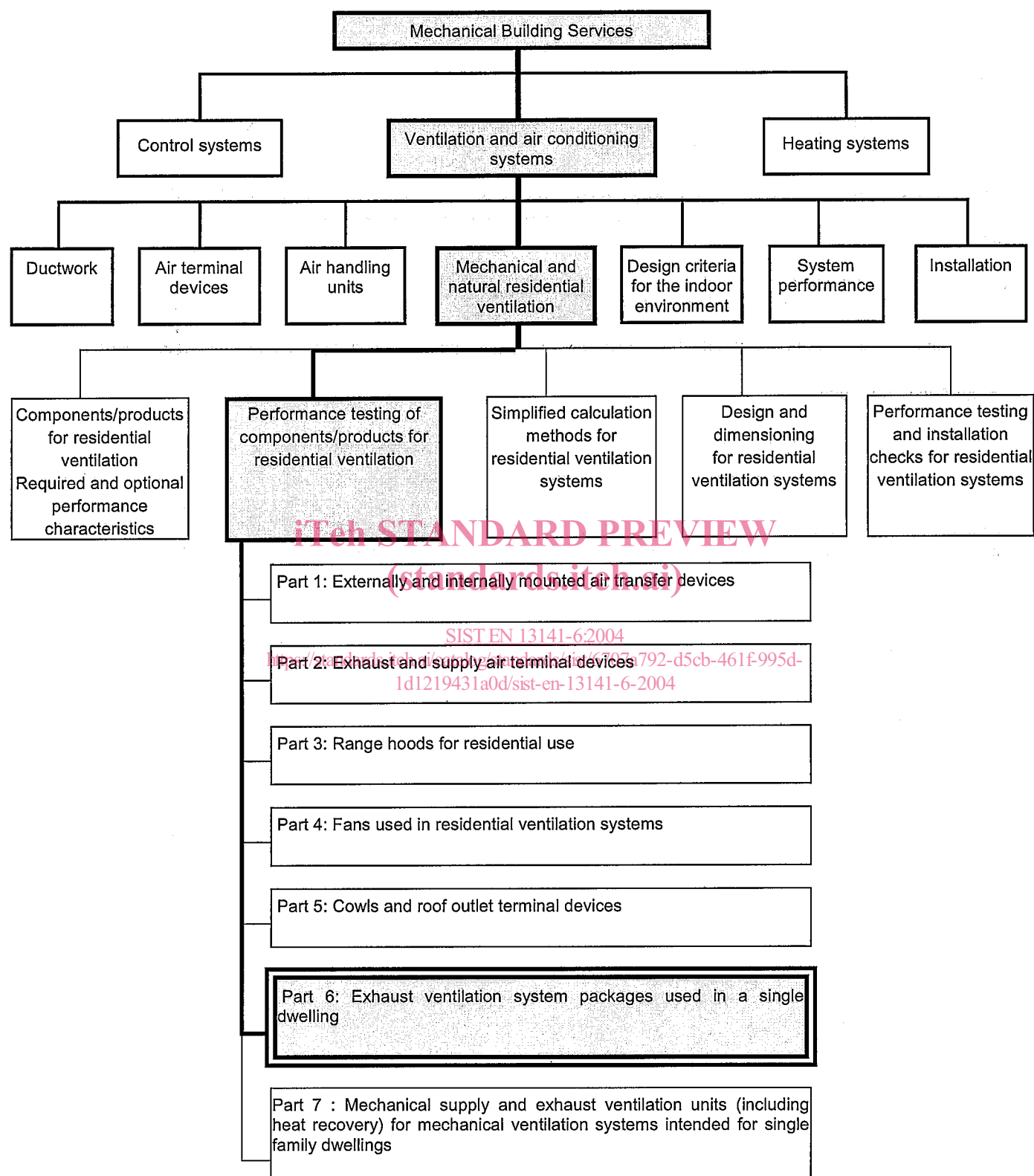


Figure 1 — Position of EN 13141-6 in the field of the mechanical building services

Introduction

This European standard provides test methods for a system package to help the designer, and avoid the necessity of testing each component separately.

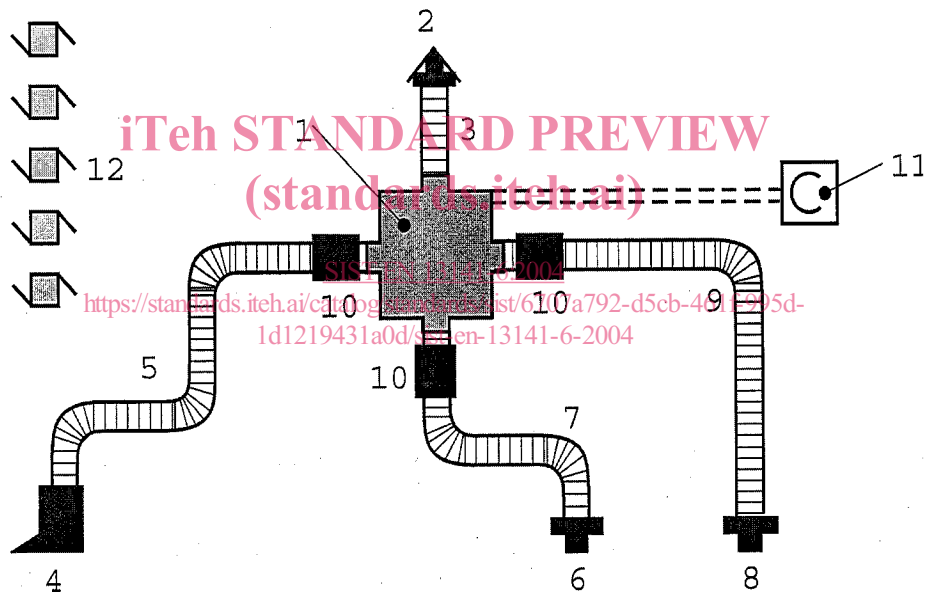
If however a component of the package is not physically linked to the others (e.g. externally/internally mounted air transfer devices), then it is assumed to have been tested according to the test method related to this component.

1 Scope

This European standard specifies laboratory methods for measuring the aerodynamic and acoustic performance characteristics and energy consumption of assembled exhaust ventilation system packages for a single dwelling.

The object of this standard is to provide tested characteristics for a system package in worst case conditions so that the user be confident that better values will be achieved on site when the system package is installed in accordance with the manufacturer's instruction and within these limits of the test conditions.

An example of a typical exhaust package is given in Figure 2.



Key

- | | | | |
|---|---|----|--|
| 1 | Fan | 7 | Duct for exhaust 6 |
| 2 | Roof/wall outlet | 8 | Exhaust air terminal device (toilets) |
| 3 | Duct for roof/outlet | 9 | Duct for exhaust 8 |
| 4 | Static extraction range hood or exhaust air terminal device (kitchen) | 10 | Sound attenuators |
| 5 | Duct for range hood | 11 | Controls |
| 6 | Exhaust air terminal device (bathroom) | 12 | Set of externally mounted air transfer devices |

Figure 2 — Example of system package: Exhaust ventilation system package

NOTE The "components to be linked" are presented here assembled, but are normally sold disassembled in a single packaging.

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

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

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

ISO 5801, *Industrial fans – Performance testing using standardized airways*.

3 Terms and definitions

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

3.1
ventilation system package (for a single dwelling)
combination of compatible components which are tested, delivered and installed as specified by the manufacturer to complete a residential ventilation system when sold as a single product

NOTE It may exclude minor parts such as tapes, sealants and screws.

3.2
exhaust ventilation system package
system package comprising all components necessary to complete at least the exhaust part of a ventilation system in a dwelling

3.3
test-voltage
voltage to be used for supplying the components during the testing

3.4
fan unit
casing incorporating a fan and provided with spigots

4 Performance testing of aerodynamic characteristics

4.1 General

The following aerodynamic characteristics shall be determined:

- air volume flow rate q_v for each exhaust air terminal device;
- total air volume flow rate q_{vt} measured downstream the fan.

NOTE Where a range hood is incorporated into the system, the total air volume flow rate is the sum of the exhaust terminal device and range hood air flow rates).

Where the system package allows a range of air flow rates, the rate being varied by means of a control device. The aerodynamic characteristics shall be determined for both minimum and maximum levels and any other intermediate levels that may be requested by the manufacturer.

The air flows shall be determined for the conventional configuration specified in 4.2, giving the least favourable extract condition for aerodynamics.

4.2 Test installation and conditions

4.2.1 Test installation

Tests shall be carried out with all the components which are directly linked, assembled in the configuration specified below according to the information provided for the package:

- the maximum number of spigots that may be used within the system;
- the maximum number of branches that may be used from one spigot;
- the maximum number of exhaust air terminal devices that may be used within the system.

4.2.2 Installation of duct connecting roof/wall outlet terminal to the fan unit

If the system package exhausts the air directly outside, the fan exhaust shall be connected to the roof/wall outlet terminal by the following ducting:

straight duct 0,5 m long + 45° elbow + straight duct 2 m long (see Figure 3)

NOTE This will allow to have the same mounting whichever position of the exhaust spigot (horizontal or vertical).

Where the system package exhausts the air via a collecting duct, the fan exhaust shall be connected by a tight straight duct 2 m long to a device which can vary the pressure loss.

4.2.3 Installation of the Fan unit

Where the fan unit has many spigots, tests shall be carried out using the maximum number that may be requested by the manufacturer or supplier of the package.