SLOVENSKI STANDARD
SIST EN 13141-5:2005

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Prezraļevanje stavb - Preskuġanje lastnosti stanovanjskih prezraļevalnih komponent/izdelkov - 5. del: Prezraļevalne kape in streġni iztoki na strehah

Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 5: Cowls and roof outlet terminal devices

Lüftung von Gebäuden - Leistungsprüfung von Bauteilen/Produkten für die Lüftung von Wohnungen - Teil 5: Hauben und Dach-Fortluftdurchlässe

Ventilation des bâtiments - Essais des performances des composants/produits pour la ventilation des logements - Partie 5 : Extracteurs statiques et dispositifs de sortie en toiture

Ta slovenski standard je istoveten z: **EN 13141-5:2004**

ICS:

91.140.30	Prezraļevalni in klimatski sistemi	Ventilation and air-conditioning

SIST EN 13141-5:2005 **en**

EUROPEAN STANDARD

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English version

Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 5: Cowls and roof outlet terminal devices

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This European Standard was approved by CEN on 9 July 2004.

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Contents

Foreword

This document (EN 13141-5:2004) 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of an identical text or by endorsement, at the latest by April 2005, and conflicting national standards shall be withdrawn at the latest by April 2005.

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.

Introduction

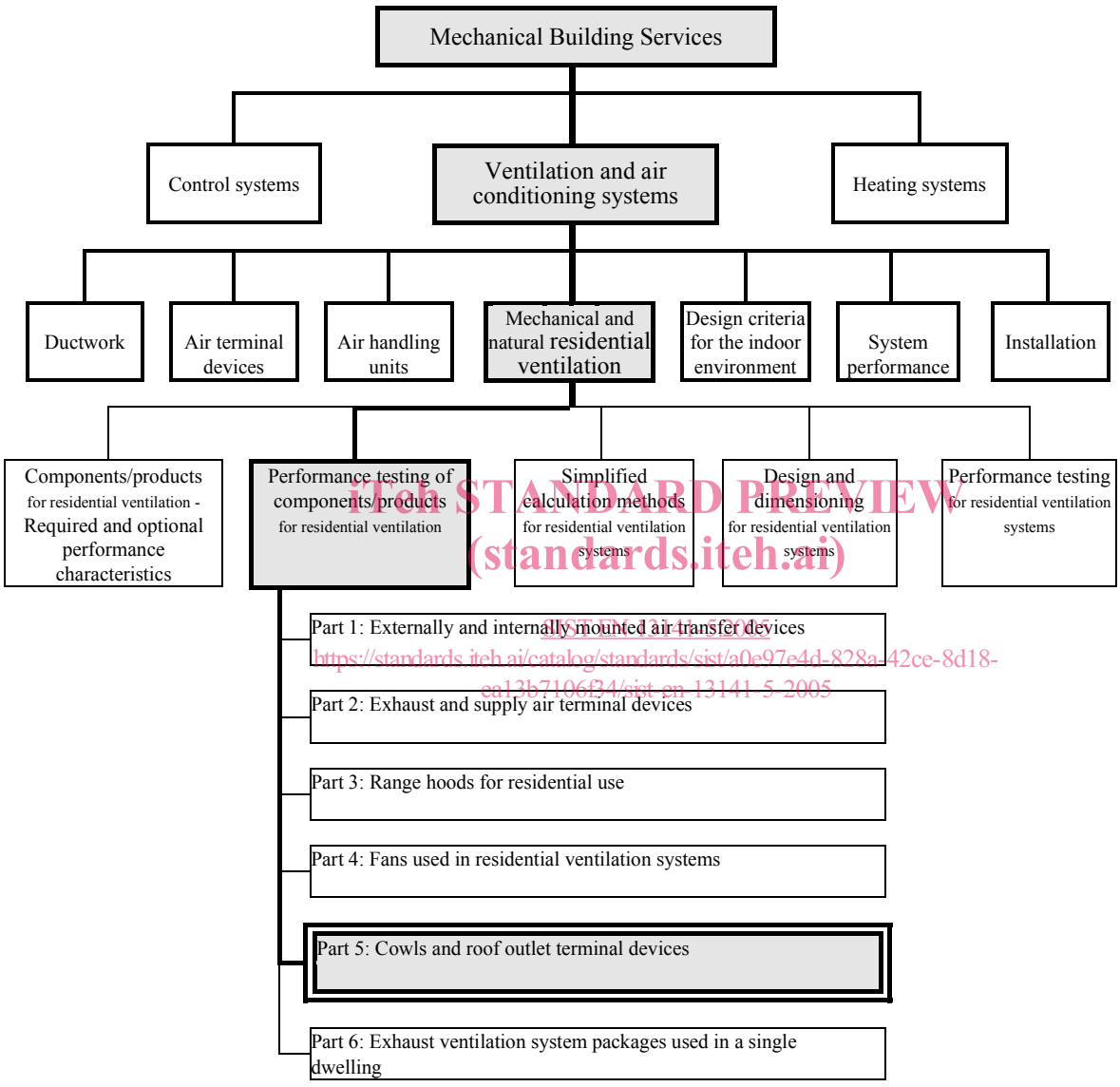


Figure 1 - Position of EN 13141-5 in the field of the mechanical building services

1 Scope

This document specifies methods for measuring the aerodynamic and acoustic characteristics of cowls and roof outlets used in both natural and mechanical ventilation. Only those cowls and roof outlets fitted onto ducts which project above the roof surface are covered by the present standard.

Regarding the assisted cowls, only the fan assisted cowls are covered by the present standard, other types (such as injection assisted cowls) being too recent to be adequately considered for the time being.

The performance testing of the "assistance" provided by the auxiliary fan of an assisted cowl is excluded for the scope of this standard.

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 1506:1997, *Ventilation for buildings - Sheet metal air ducts and fittings with circular cross-section – Dimensions*.

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

EN 13141-4:2004, *Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 4: Fans used in residential ventilation systems*.

ISO 5801, *Industrial Fans - Performance testing using standardized airways*.

3 Terms and definitions

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

3.1
cowl
air terminal device with or without moving component, intended to be fitted on top of an exhaust duct, with aim, by creating negative pressure depending of the wind speed, to avoid reverse flow and to increase the extracted flow rate in presence of wind

3.2
assisted cowl
cowl fitted with an auxiliary device using other energy source than wind to compensate for lack of suction effect

3.3
fan assisted cowl
assisted cowl where the auxiliary device is a fan

3.4
roof outlet
air terminal device used for mechanical ventilation systems

3.5
pressure factor
measure of the suction effect due to the wind. Ratio of the measured pressure difference to the dynamic pressure of the wind at a given vertical wind approach angle

3.6
test-voltage
voltage to be used for supplying the motorised cowl during the testing

4 Performance testing of aerodynamic characteristics

4.1 Pressure drop

4.1.1 Test installation

The pressure drop characteristics of the cowl or roof outlet shall be tested in a test installation such as is shown in Figure 2 but without the wind tunnel. The test installation shall comprise the following :

— an adjustable air supply incorporating an air flow rate measuring device with an uncertainty in accordance with 4.1.2 (e.g. orifice plate or venturi tube conforming with EN ISO 5167-1, or other flow meter such as a rotameter). The air supply passes via an airtight duct;

— means to stabilize the flow and pressure upstream the test duct, for example an airtight plenum chamber (side length at least 4 times the smallest diameter of the test duct) containing flow settling screens at the air entry zone and a smooth outlet;

— an airtight test circular duct to carry the cowl or roof outlet under test, of diameter *D* chosen according to EN 1506:1997, Table 1 to suit this cowl or roof outlet and of length :

$L = 6D$.

4.1.2 Test procedure

When testing a fan assisted cowl, the auxiliary fan shall be switched-off.

The test shall be carried out by varying the air flow rate through the cowl or roof outlet to give static pressure differences between the test duct and the room in which the test is carried out, of 5 Pa, 10 Pa, 20 Pa and 50 Pa.

The parameters to be measured are:

— air volume flow rate through the cowl or roof outlet;

— total pressure difference between the test duct and the room in which the test is carried out. The pressure tapping in the test duct shall be 3*D* upstream of the cowl or roof outlet under test (*D* being the smallest diameter of the test duct). The total pressure in the duct is calculated by measuring the static pressure and the averaged air velocity in the duct (the volume flow rate divided by the duct area)

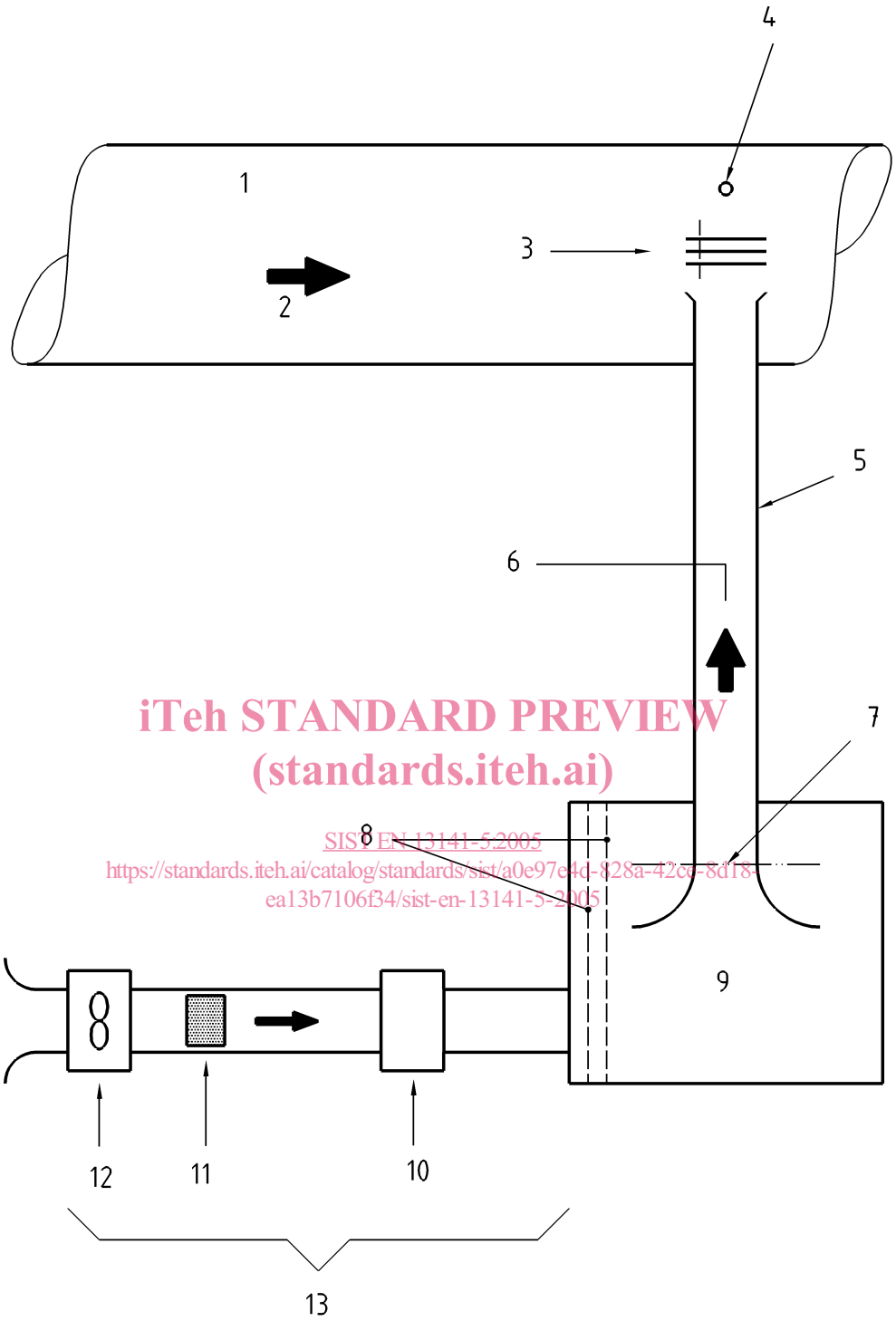
The uncertainty of the air flow measurement shall be lower than :

0,3 + 0,03 x (measured value), in dm^3/s.

The uncertainty of the pressure measurement shall be lower than :

0,5 + 0,03 × (measured value), in Pa.

The environmental conditions existing during the tests such as temperature, air pressure shall be recorded.



Key

1	Wind tunnel	7	Sealed for preliminary suction test	12	Fan with flow rate adjusting device
2	Wind velocity	8	Flow setting screens	13	Air supply
3	Cowl	9	Plenum chamber		
4	Pressure sensor in the wind	10	Flow measuring device		
5	Test duct	11	Flow straightener		
6	Static pressure measurement device				

Figure 2 - Typical example of a test installation