



# SLOVENSKI STANDARD SIST EN 13141-10:2008

01-september-2008

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Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 10: Hygrometric air outlet

Lüftung von Gebäuden - Leistungsprüfung von Bauteilen/Produkten für die Lüftung von Wohnungen - teil 10: Hygrometrische Abluftdurchlässe

Ventilation des bâtiments - Essais de performance des composants/produits pour la ventilation des logements - Partie 10 : Bouche d'air d'évacuation hygroréglable

**Ta slovenski standard je istoveten z: EN 13141-10:2008**

**ICS:**

91.140.30 Ú|^: |æ^çæ} ã Á|ã æ\ã Ventilation and air-conditioning  
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**SIST EN 13141-10:2008 en,fr**

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EUROPEAN STANDARD

EN 13141-10

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2008

ICS 91.140.30

English Version

Ventilation for buildings - Performance testing of  
components/products for residential ventilation - Part 10:  
Humidity controlled extract air terminal device

Ventilation des bâtiments - Essais de performance des  
composants/produits pour la ventilation des logements -  
Partie 10 : Bouche d'extraction d'air hygroréglable

Lüftung von Gebäuden - Leistungsprüfungen von  
Bauteilen/Produkten für die Lüftung von Wohnungen - Teil  
10: Feuchtegeregelte Abluftdurchlässe

This European Standard was approved by CEN on 11 April 2008.

CEN members are bound to comply with the CEN/GENELEC 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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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.

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COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This document (EN 13141-10:2008) 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 November 2008, and conflicting national standards shall be withdrawn at the latest by November 2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document 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 document in the field of the mechanical building services is shown in Figure 1.

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 the United Kingdom.

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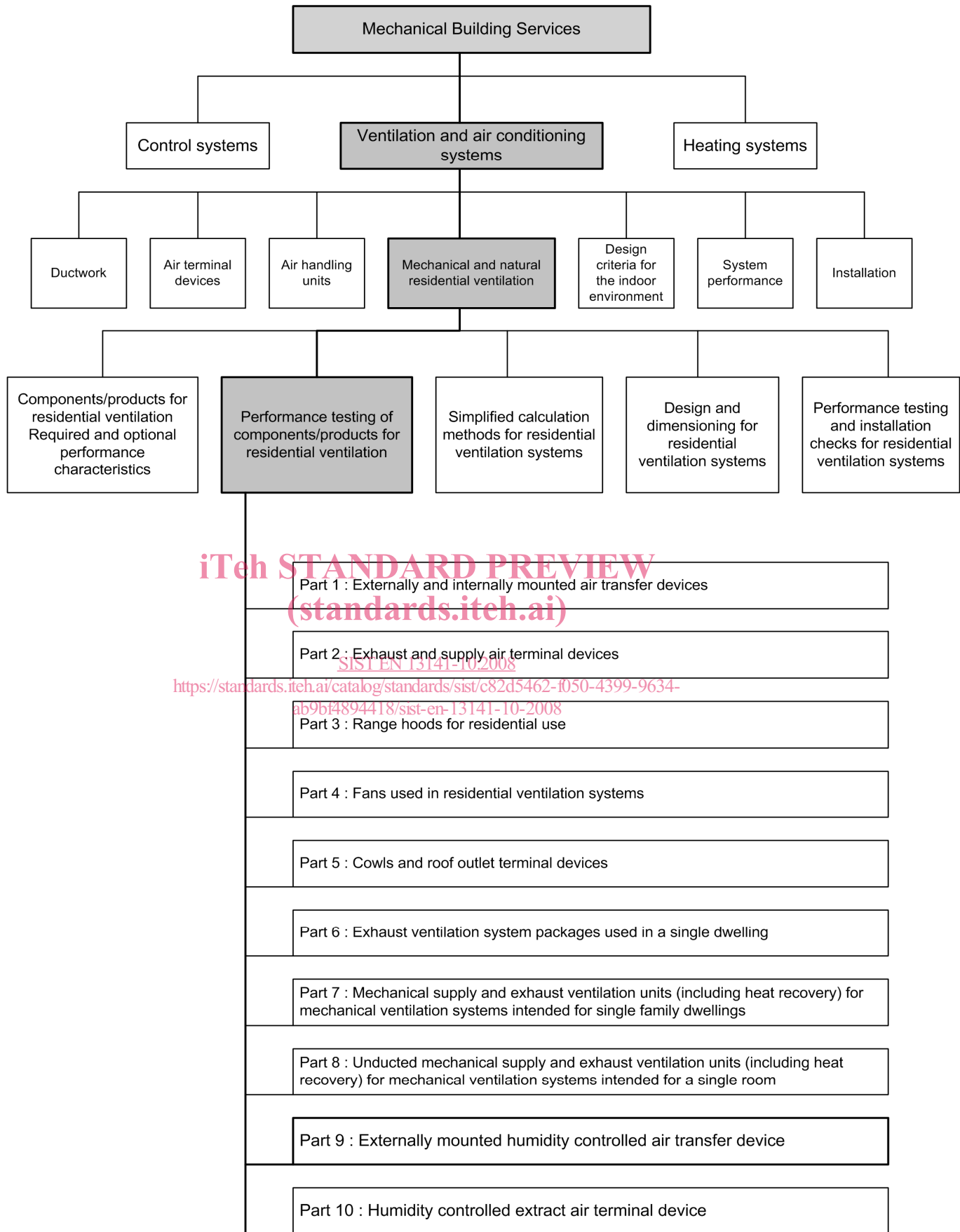


Figure 1 — Position of EN 13141-10 in the field of the mechanical building services

## 1 Scope

This European Standard specifies laboratory methods for testing humidity controlled exhaust air terminal devices.

This European Standard applies to all controlled devices on indoor humidity, used in mechanical and natural powered residential ventilation systems. For instance, devices of the following types:

- humidity controlled devices with a manually adjustable opening;
- humidity controlled devices with fixed setting;
- humidity controlled devices self-adjusting on pressure difference.

This European Standard describes tests intended to characterize:

- aero and hygro-dynamic performance;
- acoustic characteristics (including noise production of the device; insertion loss of the device; sound insulation);
- time response.

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## 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 13141-2:2004, *Ventilation for buildings — Performance testing of components/products for residential ventilation - Part 2: Exhaust and supply air terminal devices*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12792:2003, EN 13141-2:2004 and the following apply.

### 3.1

#### **hysteresis**

value defined as the difference of relative humidity, read on the response curve for the same flow, in % RH

## 4 Symbols and abbreviations

For the purposes of this document, the symbols and units given in EN 12792:2003 and the symbols and units given in Table 1 apply.

Table 1 — Symbols and units

Term	Symbol	Unit
humidity	$\varphi$	
minimum airflow	$q_{v \min}$	$\text{l} \cdot \text{s}^{-1}$
maximum airflow	$q_{v \max}$	$\text{l} \cdot \text{s}^{-1}$
relative humidity	$\varphi_p$	% RH
maximum relative humidity for minimum airflow	$\varphi_{p \min}$	% RH
minimum relative humidity for maximum airflow	$\varphi_{p \max}$	% RH

## 5 Performance testing of aerodynamic and hygro-dynamic characteristics

### 5.1 Aero and hygro-dynamic performances

#### 5.1.1 Principle

This test consists of measuring several volume flow rates induced through a device by humidity conditions, under an applied static pressure difference, to define the flow rate/humidity characteristic curve.

In the case of manually adjustable devices, a test according to EN 13141-2 shall be carried out at specific opening conditions specified by the manufacturer.

Some exhaust air terminal devices are designed to work under both natural and mechanical ventilation systems. In this case the manufacturer may have to specify two operational ranges, and the device shall be tested for each of them.

#### 5.1.2 Test installation, conditions and uncertainty of measurement

##### 5.1.2.1 Test installation and conditions

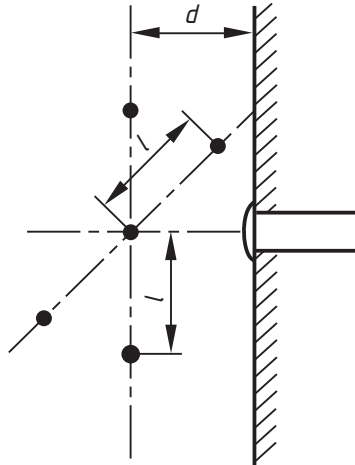
The test facility shall include one room controlled both in humidity and temperature, representing indoor conditions. The airflow test rig may be either in this room or outside but in this case, it shall be verified that all test conditions are still valid, i.e leakages shall be included to achieve the overall uncertainty of measurement that is required.

The test installation shall comply with those of EN 13141-2:2004, 4.1.2.1 for indoor rooms.

The test facilities shall have a range from – 300 Pa to 0 Pa.

Special care to limit air velocities around the inlet in the test box shall be taken: air velocities shall be measured at locations specified in Figure 2. The measures shall not exceed  $0,10 \text{ m} \cdot \text{s}^{-1}$  at these points without airflow through the exhaust vent.



**Key**

- Locations of the measurement points
- $d = 0,04 \text{ m}$
- $l = 0,20 \text{ m}$

**Figure 2 — Locations of measurement points**

To avoid difficulties in the control of the humidity and temperature controlled room, the volume should be big enough.

The air permeability of the test equipment shall be measured with the test specimen sealed, over the same range of pressure differences used during the performance testing of the specimen.

The air permeability of the test equipment shall be reported and shall generate a leakage lower than  $0,1 \text{ l} \cdot \text{s}^{-1}$  at 100 Pa.

NOTE For low airflow measurements, it can be necessary to introduce some intentional leakage.

In this case, the leakage airflow shall be measured and used in the test report for correction of values and for uncertainty calculations.

**5.1.2.2 Uncertainty of measurement**

The pressure shall be measured with an uncertainty lower than:

$$0,2 + 0,03 \times (\text{measured value}) \quad (\text{Pa})$$

The volume flow rate shall be measured with an uncertainty lower than:

$$0,3 + 0,03 \times (\text{measured value}) \quad (\text{l} \cdot \text{s}^{-1})$$

The temperature shall be measured with an uncertainty lower than  $\pm 0,5 \text{ K}$ .

The relative humidity shall be measured with an uncertainty lower than 2 % RH.