

Ventilation for buildings — Performance testing of components/products for residential ventilation

Part 9: Externally mounted humidity controlled air transfer device

ICS 91.140.30,

National foreword

This British Standard is the UK implementation of EN 13141-9:2008.
The UK participation in its preparation was entrusted to Technical Committee RHE/2, Ventilation for buildings, heating and hot water services.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

**Ventilation for buildings - Performance testing of
components/products for residential ventilation - Part 9:
Externally mounted humidity controlled air transfer device**

Ventilation des bâtiments - Essais de performance des
composants/produits pour la ventilation des logements -
Partie 9: Dispositif de transfert d'air hygroréglable monté en
extérieur

Lüftung von Gebäuden - Leistungsprüfung von
Bauteilen/Produkten für die Lüftung von Wohnungen - Teil
9: Feuchtegeregelte Zuluftdurchlässe

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

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Foreword

This document (EN 13141-9:2008) 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of an identical text or by endorsement, at the latest by November 2008, and conflicting national standards shall be withdrawn at the latest by November 2008.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 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.

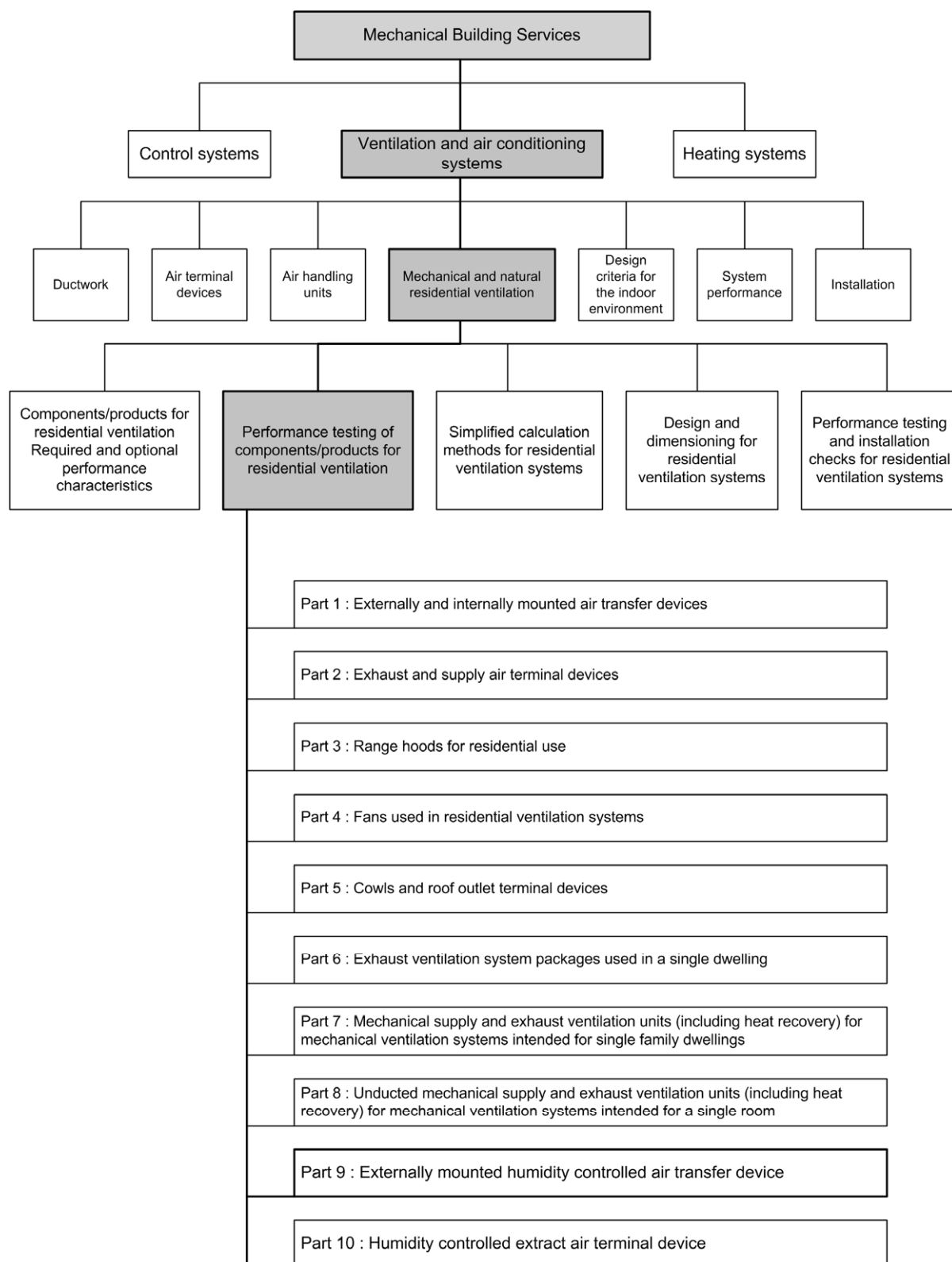


Figure 1 — Position of EN 13141-9 in the field of mechanical building services

1 Scope

This European Standard specifies laboratory methods for testing humidity controlled air inlets operating under pressure differences.

It applies to all devices located between one room and outside and controlled on indoor humidity. For instance, devices of the following types:

- humidity controlled devices with fixed setting;
- manually openable or closable humidity controlled devices;
- humidity controlled devices self-adjusting on pressure difference.

It describes tests intended to characterise:

- aero and hygro-dynamic performance;
- air tightness when closed (for closable humidity controlled air inlet);
- air diffusion in the occupied zone;
- sound insulation;
- time response.

This European Standard does not apply to the evaluation of air filtration, condensation risk and noise production.

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 13141-1:2004, *Ventilation for buildings — Performance testing of components/products for residential ventilation — Part 1: Externally and internally mounted air transfer devices*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12792:2003, EN 13141-1:2004 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	ϕ	
minimum airflow	$q_{v \min}$	l. s^{-1}
maximum airflow	$q_{v \max}$	l. s^{-1}
relative humidity	ϕ_p	% RH
maximum relative humidity for minimum airflow	$\phi_{p \min}$	% RH
minimum relative humidity for maximum airflow	$\phi_{p \max}$	% RH

5 Performance testing of aerodynamic characteristics

5.1 Aero and hygro-dynamic performance

5.1.1 Principle

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

5.1.2 Test installation, conditions and uncertainty of measurement

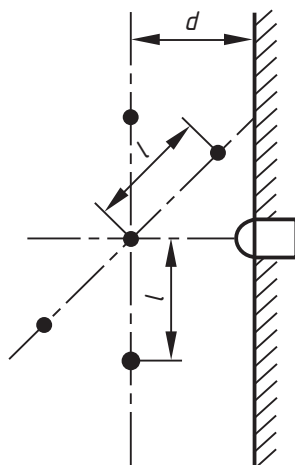
5.1.2.1 Test installation and conditions

The test facility shall include two rooms controlled both in humidity and temperature, the first one representing outside conditions, the other one indoor conditions as described in Figure 3.

The test installation and the indoor room shall comply with 4.1.2.1 of EN 13141-1:2004.

The test facilities shall have a range from 0 Pa to + 100 Pa.

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



Key

- Locations of the measurement points

$d = 0,04 \text{ m}$

$l = 0,20 \text{ m}$

Figure 2 — Locations of measurement points