SLOVENSKI STANDARD
oSIST prEN 13142:2010

01-december-2010

Prezračevanje stavb - Komponente/izdelki za prezračevanje stanovanj - Zahtevane in nezahtevane karakteristične lastnosti

Ventilation for buildings - Components/products for residential ventilation - Required and optional performance characteristics

Lüftung von Gebäuden - Bauteile/Produkte für die Lüftung von Wohnungen - Geforderte und frei wählbare Leistungskenngrößen

Ventilation des bâtiments - Composants/produits pour la ventilation des logements - Caractéristiques de performances exigées et optionnelles

Ta slovenski standard je istoveten z: **prEN 13142**

ICS:

91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning

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EUROPEAN STANDARD

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English Version

Ventilation for buildings - Components/products for residential ventilation - Required and optional performance characteristics

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This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 156.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Contents

Page

Foreword

This document (prEN 13142:2010) has been prepared by Technical Committee CEN/TC 156 “Ventilation for buildings”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 13142:2004.

This standard is one of a series of standard on residential ventilation. It is referring to the performance testing of the components/products for residential ventilation.

This Standard defines a classification for balanced ventilation units which shall be used for the determination of minimum and optional product characteristic in national building regulations and standards.

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

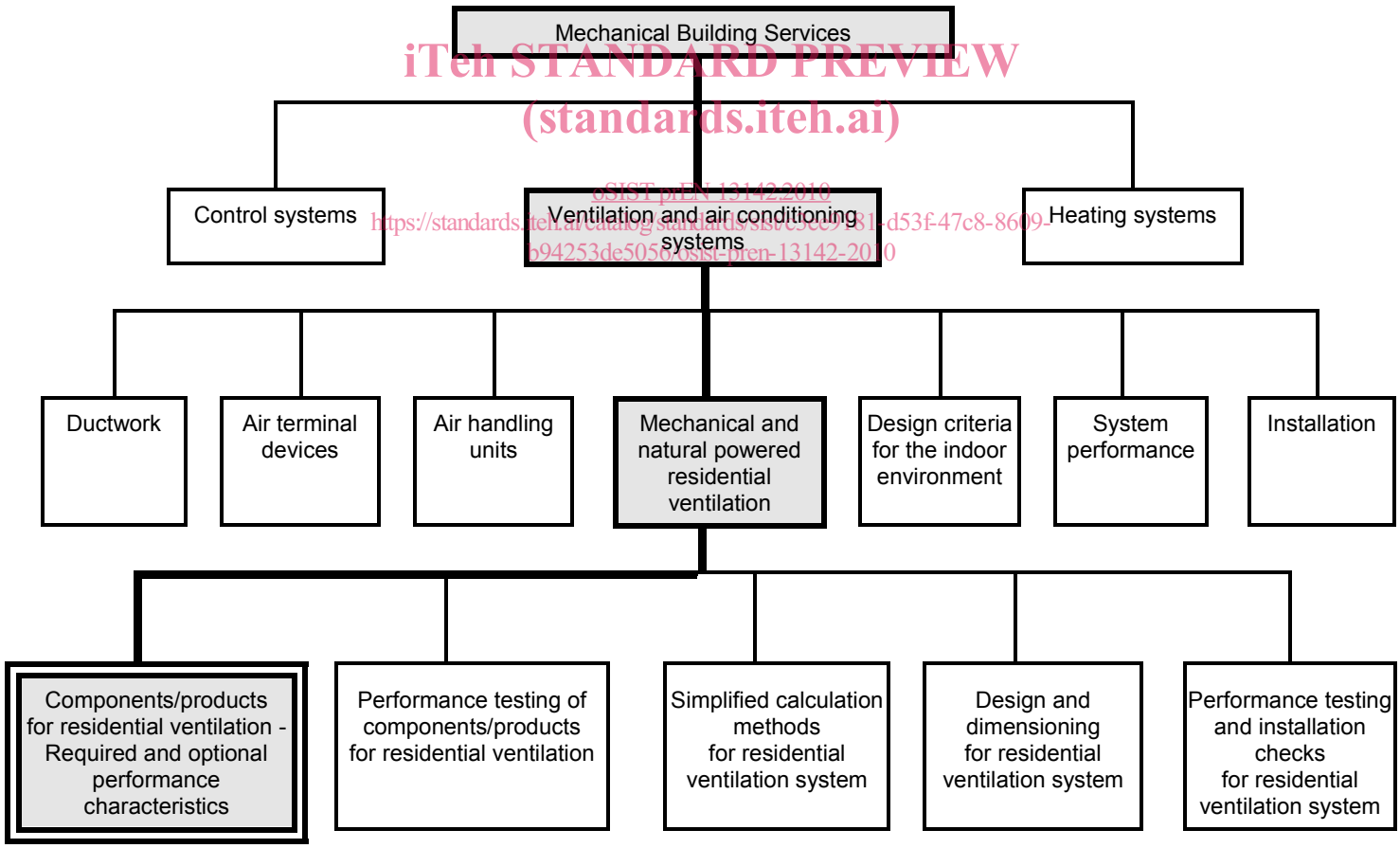

Figure 1 — Position of EN 13142 in the field of the mechanical building services

Introduction

A ventilation system is the combination of all the components/products required to provide ventilation. These components/products interact to achieve a renewal of the air in a dwelling.

It is important to consider each product not only individually but also as part of the whole system: for example from the outdoor canopy of an externally mounted air transfer device to the roof outlet terminal at the end of an exhaust duct. To enable good design it is essential that certain performance characteristics for each product are available in a simple and comparable form.

1 Scope

This European Standard specifies and classifies the component/product performance characteristics which may be necessary for the design and dimensioning of residential ventilation systems to provide the predetermined comfort conditions of temperature, air velocity, humidity, hygiene and sound in the occupied zone.

It defines those performance characteristics (mandatory or optional) which shall be determined and measured and presented according to relevant test methods. It will provide a classification scheme which lead to a full definition of product properties based on European test methods described in various EN standards and gives an overview of the Test Standards in various CEN TC´s. Distinction between mandatory and optional requirement is left to each national regulations. This standard gives an informative national annex in which the member states define the valid parameters.

The codification part in Clause 8 and the classification part in Clause 9 apply to the following products:

— mechanical supply and exhaust unit according to EN 13141-7 and EN 13141-8.

This standard does not apply to other products such as filters, fire dampers, ducts, control devices, sound attenuators, which may also be incorporated in residential ventilation.

This standard does not cover requirements raised by European directives, for example: Low voltage directive, EMC directive and other requirements such as corrosion, resistance and snow penetration.

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 12097, *Ventilation for buildings — Ductwork — Requirements for ductwork components to facilitate maintenance of ductwork systems*

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

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

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

EN 13141-3, *Ventilation for buildings — Performance testing of components/products for residential ventilation — Part 3: Range hoods for residential use*

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

EN 13141-5, *Ventilation for buildings — Performance testing of components/products for residential ventilation — Part 5: Cowls and roof outlet terminal devices*

EN 13141-6, *Ventilation for buildings — Performance testing of components/products for residential ventilation — Part 6: Exhaust ventilation system packages used in a single dwelling*

EN 13141-7:2004, *Ventilation for buildings — Performance testing of components/products for residential ventilation — Part 7: Performance testing of mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for single family dwellings*

EN 13141-8, *Ventilation for buildings — Performance testing of components/products for residential ventilation — Part 8: Performance testing of un-ducted mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for a single room*

EN 60335-2-31, *Safety of household and similar electrical appliances — Part 2: Particular requirements for range hoods (IEC 60335-2-31:2009)*

EN 60335-2-80, *Household and similar electrical appliances — Safety — Part 2-80: Particular requirements for fans (IEC 60335-2-80:2008)*

EN ISO 12100-2, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles*

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
externally mounted air transfer device
device designed to allow the passage of air through the building envelope with the minimum ingress of rain, snow, foreign bodies, etc.

3.2
internally mounted air transfer device
device designed to allow the passage of air between two internal spaces

3.3
exhaust air terminal device
device through which air leaves the treated space

3.4
supply air terminal device
device through which air enters the treated space

3.5
range hood
cooker hood
device intended to collect contaminated air from above a cooking appliance and either discharge it into the room or remove it from the room

NOTE It may incorporate one or more of the following components:

— filter (essential when the contaminated air is discharged into the room);

— fan;

— fire damper;

— non return flow damper.

3.6
cowl
air terminal device, with or without moving components, which is intended to use the wind to create negative pressures above the roof in order to avoid reverse flow in the duct

3.7
fan assisted cowl
assisted cowl where the optionally device is a fan

3.8
roof outlet
air terminal device used for mechanical ventilation systems

NOTE Roof outlet terminals are not primarily intended to use the wind to create negative pressures above the roof.

3.9
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.

4 Systematic of balanced ventilation units

There are many possible arrangements of balanced ventilation units with heat exchanger intended for a single family dwelling (EN 13141-7) or a single room (EN 13141-8). Additionally all kinds of units might have a heat pump only or an additionally heat pump. Annex A Table A.1 gives an overview of possible arrangements and the relevant standards for testing and classification.

5 Performance characteristics for residential ventilation components/products

5.1 General

It is essential that the results of product performance tests reflect the performance which will be achieved by the product in service. A product shall therefore be tested as a complete assembly with all necessary components which affect performance.

Accessories are sometimes available for a product as an option. Where accessories could affect performance, the product shall be tested both with and without those accessories.

If any insect screen, filter or similar device is intended to be fitted in the product, then it shall be in position when the product is tested.

5.2 Externally mounted air transfer devices

5.2.1 Aerodynamic characteristics

The aerodynamic characteristics (pressure/flow rate curve) shall be measured and the results presented in accordance with EN 13141-1.

5.2.2 Equivalent area

The equivalent area shall be calculated and stated in accordance with EN 13141-1.

5.2.3 Free area

The free area shall be calculated according to EN 13141-1 with the product in the fully open position and installed according to the manufacturer's instruction.

5.2.4 Controls

The manufacturer shall state which type of control is incorporated; e.g. manual control or automatic control according to pressure difference.

For manual control the pressure/flow rate curve, equivalent area and free area when fully closed shall be stated under the same test conditions as for the fully open results. If the device is not closable then this shall be stated.

NOTE Automatic control by humidity, occupancy or other stimuli is possible, but there is no agreed test method for products with these types of control.

5.2.5 Air diffusion

These characteristics shall be measured and the results presented in accordance with EN 13141-1.

5.2.6 Acoustic characteristics

These characteristics shall be measured and the results presented in accordance with EN 13141-1.

5.2.7 Water penetration

Products shall be tested when closed in accordance with EN 13141-1.

NOTE In the future, further tests may be carried out to assess thermal insulation and condensation characteristics but the test methods are not yet available.

5.3 Internally mounted air transfer devices

5.3.1 Aerodynamic characteristics

The aerodynamic characteristics (pressure/flow rate curve) shall be measured and the results presented in accordance with EN 13141-1.

5.3.2 Equivalent area

The equivalent area shall be calculated and stated in accordance with EN 13141-1.

5.3.3 Free area

The free area shall be calculated according to EN 13141-1 with the product installed according to the manufacturer's instructions.

5.3.4 Acoustic characteristics

These characteristics shall be measured and the results presented in accordance with EN 13141-1.

5.4 Exhaust and supply air terminal devices

5.4.1 Aerodynamic characteristics

The aerodynamic characteristics (pressure/flow rate curve and pressure loss coefficient) shall be measured and the results presented in accordance with EN 13141-2.

5.4.2 Acoustic characteristics

The acoustic characteristics shall be measured and the results presented in accordance with EN 13141-2.

5.4.3 Controls

Manually controllable devices shall be tested for aerodynamic characteristics in both fully open and fully closed positions.

Pressure or flow controlled devices shall be tested with the control allowed to operate normally.

NOTE Automatic control by humidity, occupancy or other stimuli is possible but there is no agreed test method for products with these types of control.

5.4.4 Air diffusion characteristics

For supply air terminal devices, the air diffusion characteristics shall be measured and the results presented in accordance with EN 13341-2.

5.5 Range hoods

5.5.1 Aerodynamic characteristics

The air flow/pressure characteristics of range hoods which incorporate a fan shall be measured according to EN 13141-3.

The pressure drop characteristics of range hoods without a fan shall be measured in accordance with the aerodynamic test methods for exhaust air terminal devices specified in EN 13141-2.

5.5.2 Acoustic characteristics

The sound power levels produced at the inlet of range hoods incorporating a fan shall be measured according to EN 13141-3.

The acoustic characteristics of range hoods without a fan, both noise production and noise attenuation, shall be measured and the results presented in accordance with the acoustic test methods for exhaust air terminal devices specified in EN 13141-2.

5.5.3 Efficiency of grease absorption

The efficiency of absorption by the grease filter shall be measured and the results presented according to EN 13141-3.

5.5.4 Effectiveness of odour extraction

The effectiveness of odour extraction of the range hood shall be measured and the results presented according to EN 13141-3.

5.5.5 Electrical power

If a fan is fitted, the electrical power of the motor shall be measured, and the power per unit air volume flow rate calculated, in accordance with EN 13141-3.

5.5.6 Safety

General requirements for safety of range hoods incorporating a fan shall be as given in EN 60335-2-31.

5.5.7 Controllability

The manufacturer shall indicate the function of the controls either on the range hood or in accompanying literature.

5.6 Fans used in residential ventilation systems

5.6.1 Aerodynamic characteristics

The pressure/flow rate characteristic shall be measured and the results presented according to EN 13141-4.