



**NSAI**  
Standards

Irish Standard  
I.S. EN 16573:2017

Ventilation for Buildings - Performance testing of components for residential buildings - Multifunctional balanced ventilation units for single family dwellings, including heat pumps

**I.S. EN 16573:2017**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):*

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

*This document is based on:*

EN 16573:2017

*Published:*

2017-02-01

*This document was published under the authority of the NSAI and comes into effect on:*

2017-02-20

ICS number:

91.140.30

NOTE: If blank see CEN/CENELEC cover page

NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

## National Foreword

I.S. EN 16573:2017 is the adopted Irish version of the European Document EN 16573:2017, Ventilation for Buildings - Performance testing of components for residential buildings - Multifunctional balanced ventilation units for single family dwellings, including heat pumps

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with this document does not of itself confer immunity from legal obligations.**

*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

This page is intentionally left blank

EUROPEAN STANDARD

EN 16573

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2017

ICS 91.140.30

English Version

Ventilation for Buildings - Performance testing of  
components for residential buildings - Multifunctional  
balanced ventilation units for single family dwellings,  
including heat pumps

Ventilation des bâtiments - Essais de performance des  
composants pour les bâtiments résidentiels - Centrales  
de ventilation double flux multifonctions pour les  
logements individuels, comprenant des pompes à  
chaleur

Lüftung von Gebäuden - Leistungsprüfung von  
Bauteilen für Wohnbauten - Multifunktionale Zu-  
/Abluft-Lüftungseinheiten für Einzelwohnungen,  
einschließlich Wärmepumpen

This European Standard was approved by CEN on 22 July 2016.

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 CEN-CENELEC 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

<b>Contents</b>	<b>Page</b>
European foreword.....	4
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>5</b>
<b>3 Terms, definitions and symbols</b> .....	<b>6</b>
<b>3.1 Terms and definitions</b> .....	<b>6</b>
<b>3.2 Symbols</b> .....	<b>7</b>
<b>4 Functions</b> .....	<b>8</b>
<b>5 Description and testing of multifunctional units</b> .....	<b>8</b>
<b>6 Performance testing of aerodynamic characteristics</b> .....	<b>13</b>
<b>6.1 Leakages</b> .....	<b>13</b>
<b>6.1.1 Test method</b> .....	<b>13</b>
<b>6.1.2 Requirements</b> .....	<b>13</b>
<b>6.2 Air flow/pressure curve</b> .....	<b>13</b>
<b>6.3 Reference point for aerodynamic conditions</b> .....	<b>13</b>
<b>6.4 Pressure drop setting</b> .....	<b>14</b>
<b>7 Performance testing of thermal characteristics</b> .....	<b>15</b>
<b>7.1 General</b> .....	<b>15</b>
<b>7.2 Air flow settings and uncertainty</b> .....	<b>15</b>
<b>7.2.1 General</b> .....	<b>15</b>
<b>7.2.2 Configuration without any recirculation</b> .....	<b>16</b>
<b>7.2.3 Configuration with recirculation from outdoor air to exhaust air</b> .....	<b>16</b>
<b>7.2.4 Configuration with recirculation from extract to supply air</b> .....	<b>17</b>
<b>7.2.5 Configuration with two recirculations</b> .....	<b>17</b>
<b>7.3 Ventilation heat recovery performance</b> .....	<b>18</b>
<b>7.3.1 General</b> .....	<b>18</b>
<b>7.3.2 Air flow test conditions</b> .....	<b>18</b>
<b>7.3.3 Test procedure</b> .....	<b>19</b>
<b>7.3.4 Data to be recorded</b> .....	<b>19</b>
<b>7.3.5 Calculations</b> .....	<b>21</b>
<b>7.4 Ventilation and domestic hot water production</b> .....	<b>21</b>
<b>7.4.1 General</b> .....	<b>21</b>
<b>7.4.2 Test procedure</b> .....	<b>21</b>
<b>7.4.3 Data to be recorded</b> .....	<b>22</b>
<b>7.4.4 Performance rating calculations</b> .....	<b>24</b>
<b>7.5 Ventilation with hydronic space heating/cooling</b> .....	<b>24</b>
<b>7.5.1 General</b> .....	<b>24</b>
<b>7.5.2 Temperature test conditions</b> .....	<b>25</b>
<b>7.5.3 Test procedure</b> .....	<b>27</b>
<b>7.5.4 Data to be recorded</b> .....	<b>27</b>
<b>7.5.5 Performance rating calculations</b> .....	<b>29</b>
<b>7.6 Ventilation combined with supply air heating/cooling</b> .....	<b>31</b>
<b>7.6.1 General</b> .....	<b>31</b>
<b>7.6.2 Temperature test conditions</b> .....	<b>31</b>
<b>7.6.3 Test procedure</b> .....	<b>31</b>
<b>7.6.4 Data to be recorded</b> .....	<b>32</b>

<b>7.6.5</b>	<b>Performance rating calculations.....</b>	<b>34</b>
<b>7.7</b>	<b>Ventilation combined with both hydronic and supply air heating/cooling.....</b>	<b>35</b>
<b>7.7.1</b>	<b>General .....</b>	<b>35</b>
<b>7.7.2</b>	<b>Test procedure .....</b>	<b>35</b>
<b>7.7.3</b>	<b>Data to be recorded.....</b>	<b>36</b>
<b>7.7.4</b>	<b>Performance rating calculations.....</b>	<b>39</b>
<b>7.8</b>	<b>Ventilation combined with heating and hot water production .....</b>	<b>40</b>
<b>7.8.1</b>	<b>General .....</b>	<b>40</b>
<b>7.8.2</b>	<b>Test procedure .....</b>	<b>40</b>
<b>7.8.3</b>	<b>Data to be recorded.....</b>	<b>42</b>
<b>7.8.4</b>	<b>Performance rating calculations.....</b>	<b>45</b>
<b>7.9</b>	<b>Ventilation combined with cooling and hot water production.....</b>	<b>48</b>
<b>7.9.1</b>	<b>General .....</b>	<b>48</b>
<b>7.9.2</b>	<b>Test procedure .....</b>	<b>48</b>
<b>7.9.3</b>	<b>Data to be recorded.....</b>	<b>50</b>
<b>7.9.4</b>	<b>Performance rating calculations.....</b>	<b>53</b>
<b>8</b>	<b>Performance testing of acoustic characteristics .....</b>	<b>57</b>
<b>8.1</b>	<b>General .....</b>	<b>57</b>
<b>8.2</b>	<b>Configurations to be tested .....</b>	<b>57</b>
<b>8.3</b>	<b>Performance testing ventilation only.....</b>	<b>57</b>
<b>8.4</b>	<b>Performance testing ventilation and hydronic heating.....</b>	<b>57</b>
<b>8.5</b>	<b>Performance testing ventilation and supply air heating.....</b>	<b>57</b>
<b>8.6</b>	<b>Performance testing ventilation and supply air heating and hydronic heating.....</b>	<b>57</b>
<b>8.7</b>	<b>Performance testing ventilation and domestic hot water .....</b>	<b>58</b>
<b>9</b>	<b>Test report .....</b>	<b>58</b>
<b>9.1</b>	<b>General information .....</b>	<b>58</b>
<b>9.2</b>	<b>Additional information.....</b>	<b>59</b>
<b>9.3</b>	<b>Rating test results.....</b>	<b>59</b>
<b>9.3.1</b>	<b>Product specifications.....</b>	<b>59</b>
<b>9.3.2</b>	<b>Leakages.....</b>	<b>59</b>
<b>9.3.3</b>	<b>Air flow/pressure curve.....</b>	<b>59</b>
<b>9.3.4</b>	<b>Temperature ratios of ventilation function .....</b>	<b>59</b>
<b>9.3.5</b>	<b>Performance data of ventilation and domestic hot water functions .....</b>	<b>59</b>
<b>9.3.6</b>	<b>Performance data of ventilation and hydronic space heating and/or cooling.....</b>	<b>59</b>
<b>9.3.7</b>	<b>Performance data of ventilation and air heating and/or cooling.....</b>	<b>59</b>
<b>9.3.8</b>	<b>Performance data of ventilation with both hydronic and air heating/cooling.....</b>	<b>59</b>
<b>9.3.9</b>	<b>Performance data of ventilation with heating and hot water production .....</b>	<b>59</b>
<b>9.3.10</b>	<b>Performance data of ventilation with cooling and hot water production .....</b>	<b>59</b>
<b>9.4</b>	<b>Acoustic characteristics .....</b>	<b>60</b>

## **EN 16573:2017 (E)**

### **European foreword**

This document (EN 16573:2017) 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 August 2017, and conflicting national standards shall be withdrawn at the latest by August 2017.

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



## 1 Scope

This European Standard specifies the laboratory test methods and test requirements for aerodynamic, energy rating and acoustic performance, of multifunctional balanced units intended for use in a single dwelling.

In the case of units consisting of several parts, this standard applies only to those designed and supplied as a complete package with the mount instructions.

It covers units that contain at least, within one or more casing:

- supply and exhaust air fans;
- air filters
- common control system;

and one or more of the additional components:

- air to water heat pump;
- air to air heat pump;
- air-to-air heat exchanger.

Units including only an air to air heat exchanger and/or an exhaust air to supply air heat pump are covered by EN 13141-7.

A non-exhaustive list of possible configurations of multifunctional units covered by this standard is given in Clause 5.

The standard does not cover the thermal aspects of humidity transfer in the air-to-air heat exchanger.

This standard does not deal with non-ducted units on supply and extract air side.

This standard does not deal with collective units (centralized or semi-centralized systems)

These multifunctional balanced units can be connected to ground heat exchanger for air preheating, solar collector or other heating systems. This standard does not cover the testing with these additional components.

This standard does not cover units including combustion engine driven compression heat pumps and sorption heat pump.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12102, *Air conditioners, liquid chilling packages, heat pumps and dehumidifiers with electrically driven compressors for space heating and cooling - Measurement of airborne noise - Determination of the sound power level*

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

EN 13141-7:2010, *Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 7: Performance testing of a mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for single family dwellings*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-