



SLOVENSKI STANDARD SIST EN 14134:2019

01-julij-2019

Nadomešča:
SIST EN 14134:2004

Prezračevanje stavb - Preskušanje lastnosti in kontrola vgrajenih stanovanjskih sistemov prezračevanja

Ventilation for buildings - Performance measurement and checks for residential ventilation systems

Lüftung von Gebäuden - Leistungsprüfung und Einbaukontrollen von Lüftungsanlagen von Wohnungen

Ventilation des bâtiments - Essais de performances et contrôles d'installation des systèmes de ventilation résidentiels

<https://standards.iteh.ai/catalog/standards/sist/16b18be4-5995-4f73-bdfl-b110b33ecc7c/sist-en-14134-2019>

Ta slovenski standard je istoveten z: EN 14134:2019

ICS:

91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning systems
-----------	------------------------------------	--

SIST EN 14134:2019

en,fr,de

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 14134:2019

<https://standards.iteh.ai/catalog/standards/sist/16b18be4-5995-4f73-bdfl-b110b33ecc7c/sist-en-14134-2019>

EUROPEAN STANDARD

EN 14134

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2019

ICS 91.140.30

Supersedes EN 14134:2004

English Version

Ventilation for buildings - Performance measurement and checks for residential ventilation systems

Ventilation des bâtiments - Mesure de la performance et vérifications des systèmes de ventilation résidentiels

Lüftung von Gebäuden - Leistungsprüfung und Funktionsprüfungen von Lüftungsanlagen in Wohnungen

This European Standard was approved by CEN on 14 December 2018.

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: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	4
Introduction	6
1 Scope	7
2 Normative references	8
3 Terms and definitions	8
4 Symbols and abbreviations	9
5 Check and measurement procedures	9
5.1 General.....	9
5.2 Checks and measurements conditions.....	10
5.3 Sampling.....	10
6 Pre-check.....	13
6.1 General.....	13
6.2 Documents for design parameters, system characteristics and settings	13
6.3 Documents for operation, maintenance and use.....	15
7 Functional checks.....	16
7.1 General.....	16
7.2 Checklist	16
8 Functional measurements	18
8.1 General.....	18
8.2 Air flow rate and direction	18
8.2.1 Mechanical ventilation.....	18
8.2.1.1 Principle.....	18
8.2.1.2 Equipment	19
8.2.1.3 Control settings	19
8.2.2 Natural ventilation	19
8.3 Static pressure.....	19
8.3.1 Mechanical ventilation.....	19
8.3.1.1 General	19
8.3.1.2 Principle.....	20
8.3.1.3 Equipment	20
8.3.1.4 Control settings	20
8.3.2 Natural ventilation	20
8.4 Running time	20
9 Special measurement	21
9.1 General.....	21
9.2 Ductwork leakage	21
9.3 Sound pressure level.....	21
9.3.1 Principle	21
9.3.2 Control settings.....	21
9.3.3 Description of the tests	21
9.4 Electric power	21
9.4.1 Principle	21
9.4.2 Equipment	22
9.4.3 Control settings.....	22
10 Report.....	22

iTech STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 14134:2019

<https://standards.iteh.ai/catalog/standards/sist/16b18be4-5995-4f73-bdf1-b110b33eec7c/sist-en-14134-2019>

10.1	General	22
10.2	General information	22
10.3	Pre-check	22
10.4	Functional checks	22
10.5	Air flow measurement	23
10.6	Static pressure measurement	23
10.7	Running time measurement	23
10.8	Ductwork leakage	23
10.9	Sound pressure level	24
10.10	Electric power	24
Annex A (informative) Check lists		25
Annex B (informative) Test pressures for air leakage measurement		32
Bibliography		33

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 14134:2019](https://standards.iteh.ai/catalog/standards/sist/16b18be4-5995-4f73-bdfl-b110b33ecc7c/sist-en-14134-2019)

<https://standards.iteh.ai/catalog/standards/sist/16b18be4-5995-4f73-bdfl-b110b33ecc7c/sist-en-14134-2019>

EN 14134:2019 (E)**European foreword**

This document (EN 14134:2019) 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 2019, and conflicting national standards shall be withdrawn at the latest by August 2019.

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.

This document supersedes EN 14134:2004.

In comparison to EN 14134:2004 the following changes have been made:

- modification of the title to be in accordance with terms defined in this document;
- modification of the scope to delete identification of responsible people;
- modification of the scope to define the on-site and large scale use of this document;
- modification of the definitions to complete them;
- addition of preliminary requirements for the application of this document;
- modification of methods to delete steps order;
- modification of sampling method to be applicable to all checks and measurement defined in this document;
- modification of sampling method to explain the different levels;
- modification of pre-check and functional check methods to be more exhaustive and more detailed;
- additional pre-check for Ecodesign requirements and product labelling;
- addition of requirements for equipment uncertainties;
- removal of requirement for global measurement uncertainties;
- modification of methods for air flow measurement and for ductwork air leakage measurement to be consistent with existing European standards;
- removal of method for control measurement to be consistent with on-site measurement conditions;
- modification of method for noise measurement;
- replacement of Annex A to give example of checklists;
- replacement of Annex B to give example of test pressures;
- removal of Annex C.

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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 14134:2019](#)

<https://standards.iteh.ai/catalog/standards/sist/16b18be4-5995-4f73-bdf1-b110b33ecc7c/sist-en-14134-2019>

EN 14134:2019 (E)**Introduction**

The purpose of a residential ventilation system is to supply air to and extract air from rooms in a dwelling.

The ventilation system should be designed to achieve the purpose whilst minimizing energy use and possible discomfort (e.g. noise, draught).

The performance requirements of the ventilation system are laid down by the designer in the dwelling specifications.

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

[SIST EN 14134:2019](https://standards.iteh.ai/catalog/standards/sist/16b18be4-5995-4f73-bdfl-b110b33ecc7c/sist-en-14134-2019)

<https://standards.iteh.ai/catalog/standards/sist/16b18be4-5995-4f73-bdfl-b110b33ecc7c/sist-en-14134-2019>

1 Scope

This document specifies checks and measurement methods in order to verify the fitness for purpose of installed ventilation systems in dwellings. It can be applied to commissioning of new systems and performance testing of existing systems. It provides choice between simple test methods, when sufficient, and extensive measurements, when necessary.

Considering that this document has been developed for large scale application and considering the practical conditions of field measurements, no correction regarding ambient conditions (temperature and barometric pressure) is applied to functional measurements.

This document deals with items d), e), f), and g) of the following list giving the different stages of the design, installation, checking and measuring of a ventilation system:

- a) design and dimensioning of residential system;
- b) installation of system;
- c) balancing and adjustment of system;
- d) pre-checks on system;
- e) functional checks on system;
- f) functional measurements on system;
- g) special measurements on system if required.

This document applies to ventilation systems (mechanical, hybrid, natural) comprising any of the following elements:

- air terminal devices (supply, extract, intake and exhaust);
- air transfer devices (externally mounted, internally mounted);
- controls;
- ducts;
- fans;
- filters;
- heat recovery;
- heating/cooling of supply air;
- recirculation air;
- cooker hood;
- cowls;
- dampers;
- sound reduction devices.

EN 14134:2019 (E)

In case of multi-functional units, the checking and measuring only apply to the ventilation part. Therefore, this document does not apply to:

- heating systems and their control;
- refrigerating systems and their control;
- electrical power supply systems.

It does not cover the following points:

- airtightness of the building envelope; the whole dwelling and the individual room ventilation rates can be influenced by air infiltration through the building envelope (see EN ISO 9972);
- effect of the ventilation system on indoor air speed within the occupied zone (see for example EN 15726).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1507, *Ventilation for buildings - Sheet metal air ducts with rectangular section - Requirements for strength and leakage*

EN 12237, *Ventilation for buildings - Ductwork - Strength and leakage of circular sheet metal ducts*

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

EN ISO 16032, *Acoustics - Measurement of sound pressure level from service equipment in buildings - Engineering method (ISO 16032)*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

**3.1
check**

observation of the operation of a system or devices, against a specification without resorting to specific measurements

[SOURCE: EN 12792:2003; definition 193]

**3.2
pre-check**

verification of the documentation of a system or devices intended to be used during the check process

3.3 measurement

process of experimentally obtaining one or more quantity values that can reasonably be attributed to a quantity

[SOURCE: JCGM 200:2012; definition 2.1, modified – Notes have been removed.]

3.4 run-on timer

device which ensures that air flow through a ventilation system or an air terminal device (ATD) continues for a specific time period after a user operated control has been turned off

Note 1 to entry: Run-on-timers are commonly used to control extract fans which are activated by the room light switch in internal rooms.

3.5 maximum permissible measurement error

extreme value of measurement error, with respect to a known reference quantity value, permitted by specifications or regulations for a given measurement, measuring instrument, or measuring system

[SOURCE: JCGM 200:2012; definition 4.26, modified – Notes have been removed.]

3.6 housing estate

group of homes and other buildings built together as a single development

Note 1 to entry: The exact form can vary from country to country. A housing estate is usually built by a single contractor, with only a few styles of houses or building design, so they tend to be uniform in appearance.

4 Symbols and abbreviations

For the purpose of this document, the symbols given in EN 12792 and the following (see Table 1) apply.

Table 1 — Symbols

Symbol	Designation
e	sampling error (decimal value)
L_{pA}	A-weighted installation sound pressure level
n	sample size
N	total numbers of apartments or houses
SL1	Sampling level

5 Check and measurement procedures

5.1 General

This document includes procedures for:

- pre-check;
- functional checks;

EN 14134:2019 (E)

- functional measurements;
- special measurements.

Checks and measurements to be performed shall be defined beforehand to meet the needs.

The installation work should be completed and the system should be adjusted before starting checks and measurements.

Safe access to the ventilation system is required for on-site checks and measurement.

5.2 Checks and measurements conditions

Checks and measurements conditions are as follows:

- the mechanical ventilation system shall be switched on;
- the system settings shall remain unchanged during measurements;
- all external and internal doors, and windows shall be closed;
- all other ventilation provisions such as externally and internally mounted air transfer devices should be set in their intended position which shall be recorded in the report;
- as set points of control devices have an impact on the performances of the system, they shall be recorded in the report.
- in the case of occupancy control or demand control and as the value of the relevant parameters has an impact on the performances of the system, these parameters or any overriding of the controls should be recorded in the report.

iTeh STANDARD PREVIEW

(standard.iteh.ai)

SIST EN 14134:2019

<https://standards.iteh.ai/catalog/standards/sist/16b18be4-5995-4f73-bdfl-b110b33ecc7c/sist-en-14134-2019>

5.3 Sampling

Checks and measurements for ventilation systems of the same type (example of types are natural ventilation, unidirectional ventilation or bidirectional ventilation) within apartments belonging to the same building or within houses belonging to the same housing estate can be performed on a sample of these apartments or houses.

NOTE The basic assumption behind the authorization for sampling is that ventilation systems that belong to such groups (same type and same building or same housing estate) and that are considered together for the purpose of measurement and checks (for example because of same owner or same general contractor or same installer) have enough similarities to make sampling relevant.

The sample size depends on the selected sampling level and the total number of apartments or houses of the considered group. Table 2 gives the sampling error for each sampling level for a level of confidence of 95 %. Table 3 gives the sample size as a function of the total number of apartments or houses for each sampling level. For total numbers of apartments or houses that are not in Table 3, the sample size is calculated using Formula (1).