

**Hoonete ventilatsioon. Katseprotseduurid ja
mõõtmismeetodid paigaldatud ventilatsiooni- ja
õhukonditsioneerimissüsteemide üleandmiseks**

**Ventilation for buildings - Test procedures and
measurement methods to hand over air conditioning
and ventilation systems**

EESTI STANDARDI EESSÕNA

See Eesti standard EVS-EN 12599:2012 sisaldab Euroopa standardi EN 12599:2012 ingliskeelset teksti.

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English Version

Ventilation for buildings - Test procedures and measurement methods to hand over air conditioning and ventilation systems

Ventilation des bâtiments - Procédures d'essai et méthodes de mesure pour la réception des installations de conditionnement d'air et de ventilation

Lüftung von Gebäuden - Prüf- und Messverfahren für die Übergabe raumluftechnischer Anlagen

This European Standard was approved by CEN on 25 August 2012.

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Foreword

This document (EN 12599:2012) 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of an identical text or by endorsement, at the latest by April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

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 supersedes EN 12599:2000.

The significant technical changes between this edition and the previous one are:

- the scope was modified so that the test methods and measuring instruments can be used before, during and after handing over instead of at the stage of handing over, and also in the frame of EPBD-measurements;
- the scope was modified so that EN 12599 does not exclude dwellings;
- the normative references have been updated;
- Table 1 now includes requirements for the cleanliness and leakage of the system;
- in Table 2, the uncertainty of the air flow rate has been reduced from $\pm 20\%$ to $\pm 15\%$ for each individual room and from $\pm 15\%$ to $\pm 10\%$ for each system;
- a formula to calculate the uncertainty of the measuring location τ_u has been added to Table E.4
- methods to measure the electrical power have been added.

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies checks, test methods and measuring instruments in order to verify the fitness for purpose of the installed systems primarily for handing over which will be partially performed before, during and after handing over.

This European Standard enables the choice between simple test methods, when sufficient, and extensive measurements, when necessary.

This European Standard applies to mechanically operated ventilation and air conditioning systems as specified in EN 12792 and comprising any of the following:

- air terminal devices and units,
- air handling units,
- air distribution systems (supply, extract, exhaust),
- fire protection devices,
- automatic control devices.

When the system is set, adjusted and balanced measurement methods described in this European Standard apply.

This European Standard does not apply to:

- heat generating systems and their control,
- refrigerating systems and their control,
- distribution of heating and cooling medium to the air handling units,
- compressed air supplying systems,
- water conditioning systems,
- central steam generating systems for air humidifying,
- electric supply systems.

This European Standard applies to ventilation and air conditioning systems designed for the maintenance of comfort conditions in buildings. It is not applicable in the case of systems for the control of industrial or other special process environments. In the latter case, however, it may be referred to if the system technology is similar to that of the above mentioned ventilation and air conditioning systems.

This European Standard does not include any requirements concerning the installation contract. However, in order to facilitate the application of this standard, the installation contract should refer to the provisions which are listed in Annex F.

The measuring methods in this European Standard can be used in the frame of the energy inspection of air-conditioning systems according to EU Directive 2010/31/EU "Energy performance of buildings Directive" (see EN 15239, EN 15240).

This European Standard may be used for residential and dwelling ventilation systems.

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 308, *Heat exchangers — Test procedures for establishing performance of air to air and flue gases heat recovery devices*

EN 1507, *Ventilation for buildings — Sheet metal air ducts with rectangular section — Requirements for strength and leakage*

EN 1822-1, *High efficiency particulate air filters (EPA, HEPA and ULPA) — Part 1: Classification, performance testing, marking.*

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

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

EN 12238, *Ventilation for buildings — Air terminal devices — Aerodynamic testing and rating for mixed flow application*

EN 13182, *Ventilation for buildings — Instrumentation requirements for air velocity measurements in ventilated spaces*

EN 13779, *Ventilation for non-residential buildings — Performance requirements for ventilation and room-conditioning systems*

EN 14239, *Ventilation for buildings — Ductwork — Measurement of ductwork surface area*

EN 15423:2008, *Ventilation for buildings — Fire precautions for air distribution systems in buildings*

EN 15726, *Ventilation for buildings — Air diffusion — Measurements in the occupied zone of air conditioned/ventilated rooms to evaluate thermal and acoustic conditions*

EN 15780, *Ventilation for buildings — Ductwork — Cleanliness of ventilation systems*

EN 60584-1, *Thermocouples — Part 1: Reference tables (IEC 60584-1)*

EN 60584-2, *Thermocouples — Part 2: Tolerances (IEC 60584-2)*

EN 60751, *Industrial platinum resistance thermometers and platinum temperature sensors (IEC 60751)*

EN 61672-1, *Electroacoustics — Sound level meters — Part 1: Specifications (IEC 61672-1)*

EN ISO 3740, *Acoustics — Determination of sound power levels of noise sources — Guidelines for the use of basic standards (ISO 3740)*

EN ISO 3744, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering methods for an essentially free field over a reflecting plane (ISO 3744)*

EN ISO 3746, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746)*

EN ISO 3747, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering/survey methods for use in situ in a reverberant environment (ISO 3747)*

EN ISO 7726, *Ergonomics of the thermal environment — Instruments for measuring physical quantities (ISO 7726)*

EN ISO 11201, *Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201)*

EN ISO 12569, *Thermal performance of buildings — Determination of air change in buildings — Tracer gas dilution method (ISO 12569)*

ENV 13005, *Guide to the expression of uncertainty in measurement*

CR 1752, *Ventilation for buildings — Design criteria for the indoor environment*

3 Test and check procedure

The following steps shall be carried out in the given order:

- a) completeness checks;
- b) functional checks;
- c) functional measurements;
- d) special measurements;
- e) report.

Functional checks and measurements on the system can be performed to a variable extent which is specified by means of 4 levels (see Annex C). The choice of a level should be agreed upon and be part of the installation contract.

The special measurements in accordance with Clause 7 and Annex E shall only be carried out when required and especially agreed.

A summary of the different tests and measurements is included in Table 1.