

Building & Ductwork Airtightness Standards

Version 1.05, November 2019

Standard Reference	Technical Body	Title	ICS (International Classification for Standards)	Scope
Doors, windows, shutters, building hardware and curtain walling				
EN 12207:2016	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Windows and doors - Air permeability - Classification	91.060.50 - Doors and windows	This European Standard defines the classification of test results for completely assembled windows and external and internal pedestrian doorsets of any materials after testing in accordance with EN 1026.
EN 1026:2016	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Windows and doors - Air permeability - Test method	91.060.50 - Doors and windows	This European Standard defines the test method to be used to determine the air permeability of completely assembled windows and doorsets of any material, when submitted to positive or negative test pressures. This test method is designed to take account of conditions in use, when the window or doorset is installed in accordance with the manufacturer's specification and the requirements of relevant European Standards and codes of practice. This European Standard does not apply to the joints between the window or doorset frame and the building construction.
EN 12152:2002	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Curtain walling - Air permeability - Performance requirements and classification	91.060.10 - Walls. Partitions. Façades	This standard specifies requirements and classification of air permeability of both fixed and openable parts of curtain walling, under positive and negative static air pressure. NOTE This standard applies to curtain walling as specified in prEN 13830.
EN 13125:2001	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Shutters and blinds - Additional thermal resistance - Allocation of a class of air permeability to a product	91.120.10 - Thermal insulation 91.060.50 - Doors and windows	This European Standard specifies the classification criteria of shutters and internal and external blinds in relation with their air permeability for the calculation of additional thermal resistance given by these products according to EN ISO 10077-1. This standard applies to shutters and blinds fitted to a window, a French window or a curtain walling in such a way that in extended and closed position they inclose an air layer of thickness roughly constant between 15 mm and 300 mm (shutters and blinds parallel to the window or to the façade). This standard applies to the following shutters and blinds : - Shutters : roller shutter, external venetian blind, wing shutter, sliding panel shutter, venetian shutter, concertina shutter, flat-closing concertina shutter ; - External blinds : vertical awning, facade awning, conservatory awning ; - Internal blinds : venetian blind, roller blind, vertical blind, pleated blind ; - Blinds incorporated into glazing.
EN 12426:2000	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Industrial, commercial and garage doors and gates - Air permeability - Classification	91.060.50 - Doors and windows	This European Standard specifies the classification for air permeability for doors in a closed position, when tested in accordance with EN 12427. The doors are intended for installation in areas in the reach of people, for which the main in-tended uses are giving safe access for goods, vehicles and persons in industrial, commercial or residential premises. The doors may be manually or power operated. This document applies to all doors provided in accordance with prEN 13241:1998. 1.2 Exclusions It does not apply to: - lock gates and dock gates; - doors on lifts; - doors on vehicles; - armoured doors; - doors mainly for the retention of animals; - theatre textile curtains; - horizontally moving doors less than 2,5 m wide and 6,25 m ² area, designed principally for pedestrian use; - revolving doors of any size; - doors outside the reach of people (such as crane gantry fences); - railway barriers; - barriers used solely for vehicles.
EN 12427:2000	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Industrial, commercial and garage doors and gates - Air permeability - Test method	91.060.50 - Doors and windows	This European Standard specifies a test method for determining the air permeability for doors in a closed position. The doors are intended for installation in areas in the reach of people, for which the main in-tended uses are giving safe access for goods, vehicles and persons in industrial, commercial or residential premises. The doors may be manually or power operated. This document applies to all doors provided in accordance with prEN 13 241:1998. 1.2 Exclusions It does not apply to: - lock gates and dock gates; - doors on lifts; - doors on vehicles; - armoured doors; - doors mainly for the retention of animals; - theatre textile curtains; - horizontally moving doors less than 2,5 m wide and 6,25 m ² area, designed principally for pedestrian use; - revolving doors of any size; - doors outside the reach of people (such as crane gantry fences); - railway barriers; - barriers used solely for vehicles.
EN 12835:2000	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Airtight shutters - Air permeability test	91.060.50 - Doors and windows	This European Standard specifies a test method for determining the air permeability of shutters that claim to conform to class 5 of thermal resistance "airtight shutters" according to standards prEN ISO 10077-1:1999 and prEN 13125:1998, when allocation cannot be given by geometrical criteria.
EN 12153:2000	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Curtain walling - Air permeability - Test method	91.060.10 - Walls. Partitions. Façades	This standard defines the method to be used to determine the air permeability of curtain walling, both its fixed and openable parts. It describes how the specimen shall be tested under positive and negative air pressure. NOTE: This standard applies to any curtain walling product as defined in WI 00033238.

Disclaimer: TightVent has compiled this information with care. However, TightVent does not warrant that the information in this publication is free of errors. No responsibility or liability can be accepted for any claims arising through the use of the information contained within this publication. The reader assumes the entire risk of the use of any information in this publication.

NEW

Ventilation for buildings				
EN 13053:2019	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Air handling units - Rating and performance for units, components and sections	91.140.30 - Ventilation and air-conditioning	This document specifies requirements and testing for rating and performance of Non Residential Ventilation Units, NRVU's, specifically Air Handling Units (AHU's). It specifies requirements, classifications and testing of components and sections of air handling units. This document applies to tests in a laboratory and in situ. This document is applicable both for mass produced air handling units and tailor-made Air Handling Units. This document applies to AHU and individual sections of AHU with the designed air flow > 250 m ³ · h ⁻¹ . This document applies to UVU's with additional air treatment components in addition to filtration. This standard does not include: - residential unidirectional and bidirectional ventilation units; - nonresidential unidirectional ventilation units which consist of only a casing, a fan with or without filter. NOTE 1 Residential ventilation units are covered by EN 13142. NOTE 2 Nonresidential unidirectional ventilation units which consists only casing, fan with or without filter are covered by EN 17291.
EN 14134:2019	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Performance measurement and checks for residential ventilation systems	91.140.30 - Ventilation and air-conditioning systems	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. 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).
EN 16798-1:2019	CEN/TC 156 - Ventilation for buildings	Energy performance of buildings - Ventilation for buildings - Part 1: Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics - Module M1-6	91.120.10 - Thermal insulation of buildings 91.140.01 - Installations in buildings in general	This document specifies requirements for indoor environmental parameters for thermal environment, indoor air quality, lighting and acoustics and specifies how to establish these parameters for building system design and energy performance calculations. This European Standard includes design criteria for the local thermal discomfort factors, draught, radiant temperature asymmetry, vertical air temperature differences and floor surface temperature. This European Standard is applicable where the criteria for indoor environment are set by human occupancy and where the production or process does not have a major impact on indoor environment. This European Standard also specifies occupancy schedules to be used in standard energy calculations and how different categories of criteria for the indoor environment can be used. The criteria in this European Standard can also be used in national calculation methods. This standard sets criteria for the indoor environment based on existing standards and reports listed under normative references or in the bibliography. This European Standard does not specify design methods, but gives input parameters to the design of building envelope, heating, cooling, ventilation and lighting. Table 1 shows the relative position of this standard within the set of EPB standards in the context of the modular structure as set out in EN ISO 52000 1. NOTE 1 In CEN ISO/TR 52000 2 the same table can be found, with, for each module, the numbers of the relevant EPB standards and accompanying technical reports that are published or in preparation. NOTE 2 The modules represent EPB standards, although one EPB standard may cover more than one module and one module may be covered by more than one EPB standard, for instance a simplified and a detailed method respectively. See also Clause 2 and Tables A.1 and B.1.
CEN/TS 17153:2018	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Correction of air flow rate according to ambient conditions	91.140.30 - Ventilation and air-conditioning systems	This document gives guidelines to correct the measured air flow rate when measuring conditions are different from standard conditions. It applies to a power-law formula giving the air flow rate as a function of a pressure difference with an air flow rate coefficient, C, varying with temperature and pressure. This document applies to: - passive elements of air distribution systems with a cross-section area that does not depend on pressure; - volume flow rate (and not mass flow rate). This document is applicable to (but not limited to): - EN 1507, Ventilation for buildings - Sheet metal air ducts with rectangular section - Requirements for strength and leakage; - EN 1751, Ventilation for buildings - Air terminal devices - Aerodynamic testing of damper and valves; - EN 12237, Ventilation for buildings - Ductwork - Strength and leakage of circular sheet metal ducts; - 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 9, Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 9: externally mounted humidity controlled air transfer device; - EN 13141 10, Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 10: humidity controlled extract air terminal device; - EN 15727, Ventilation for buildings - Ducts and ductwork components, leakage classification and testing. This document does not apply to: - fans; - air terminal devices with automatically controlled openings (variable openings).

Disclaimer: TightVent has compiled this information with care. However, TightVent does not warrant that the information in this publication is free of errors. No responsibility or liability can be accepted for any claims arising through the use of the information contained within this publication. The reader assumes the entire risk of the use of any information in this publication.

NEW

EN 17192:2018	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Ductwork - Non-metallic ductwork - Requirements and test methods	91.140.30 - Ventilation and air-conditioning systems	This document defines the test methods and performance characteristics for rigid or semi-rigid non-metallic ductwork which are used for ventilation and air conditioning of buildings. This document does not include flexible ducts such as those made of textiles, non-metallic spiral ductwork or others, which are handled in EN 13180 or ductwork made from insulation duct board, which is handled in EN 13403. Requirements for the air tightness of the ventilation system for non-residential buildings are given in EN 16798 3. For residential buildings, it is essential to apply national rules. This document specifies methods to test rigid or semi-rigid non-metallic ductwork under laboratory conditions. On-site tests are excluded. The test methods and performance characteristics are valid for ventilation ducts with circular, rectangular or other cross sections.
EN 16798-7:2017	CEN/TC 156 - Ventilation for buildings	Energy performance of buildings - Ventilation for buildings - Part 7: Calculation methods for the determination of air flow rates in buildings including infiltration (Modules M5-5)	91.120.10 - Thermal insulation of buildings 91.140.30 - Ventilation and air-conditioning	This European Standard describes the methods to calculate the ventilation air flow rates for buildings to be used for energy calculations evaluation, heating and cooling loads. This European Standard applies to buildings with: - Mechanical ventilation systems (mechanical exhaust, mechanical supply or balanced system); - Passive duct ventilation systems for residential and low-rise non-residential buildings; - Combustion appliances; - Windows opening by manual operation; - Kitchens where cooking is for immediate use (including restaurants) This European Standard is applicable to hybrid systems combining mechanical and passive duct ventilation systems in residential and low-rise non-residential buildings. This European Standard applies to buildings smaller than 100 m and rooms where vertical air temperature difference is smaller than 15 K. The results provided by the standard are: \square the air flow rates entering or leaving a ventilation zone; - the air flow rates required to be distributed by the mechanical ventilation system, if present. This European Standard is not applicable to: - Buildings with kitchens where cooking is not for immediate use - Buildings with automatic windows (or openings) - Buildings with industry process ventilation. The definition of ventilation and airtightness requirements (as indoor air quality, heating and cooling, safety, fire protection...) is not covered by this standard. The following information can be found in other standards and technical reports: - guidance to estimate pressure drops in ducts (CR 14378:2002) Table 1 shows the relative position of this standard within the EN EPB package of standards.
EN 16798-17:2017	CEN/TC 156 - Ventilation for buildings	Energy performance of buildings - Ventilation for buildings - Part 17: Guidelines for inspection of ventilation and air conditioning systems (Module M4-11, M5-11, M6-11, M7-11)	91.120.10 - Thermal insulation of buildings 91.140.30 - Ventilation and air-conditioning	This European Standard specifies the common methodology and the requirements for inspection of air conditioning systems in buildings for space cooling and/or heating and/or ventilation systems from an energy use standpoint. It can be used to fulfil the EPBD requirements (Energy Performance of Buildings Directive 2010/31/EU [9]) as well as in other contexts where such inspections are specified. The methodology specified in this standard deals with indoor climate problems that can be due to the systems inspected. This standard applies to both residential and non-residential buildings equipped with: - air conditioning system(s) without mechanical ventilation; or - air conditioning system(s) with mechanical ventilation; or - natural and mechanical ventilation system(s). This standard applies to: - fixed systems; - accessible parts that contribute to the cooling and mechanical ventilation services. This standard is also applicable to some systems for which the Directive does not require inspection, such as: - fixed systems of less than 12 kW output; - ventilation-only systems. The inspection of systems given in this standard is applicable to: - all types of comfort cooling and air conditioning systems. This includes air conditioning systems of an effective rated output of less than 12 kW not covered by Directive 2010/31/EU; - all types of ventilation systems that is to say mechanical, natural, hybrid (including mechanical and natural ventilation). Parts of this standard are also applicable to check ventilation requirements when there is no ventilation system. The inspection of systems includes but is not limited to the following components: - reverse-cycle operation of air-conditioning equipment; - associated water and air distribution and exhaust systems that form a necessary part of the system; - controls that are intended to regulate the use of associated water and air distribution and exhaust systems. Table 1 shows the relative position of this standard within the offset of EPB standards in the context of the modular structure as set out in EN ISO 52000 1:2017. NOTE 1 In CEN ISO/TR 52000 2:2017 [7] the same table can be found, with, for each module, the numbers of the relevant EPB standards and accompanying technical reports that are published or in preparation. NOTE 2 The modules represent EPB standards, although one EPB standard may cover more than one module and one module may be covered by more than one EPB standard, for instance a simplified and a detailed method respectively. See also Clause 2, Table A.1 and Table B.1. This standard is not applicable to: - qualification of the persons or organization in charge of inspections; - frequency of the mandatory inspection (defined at national level); - components supporting the heating function (specified in EN 15378-1:2017 [8] and the accompanying technical report CEN/TR 15378-2:2017 [8] covering the inspection of heating-only systems using boilers). The following information can be found in other standards or technical reports: - guidance regarding features affecting the frequency and duration of inspection are given in CEN/TR 16798-18:2017; - procedures and methods for the inspection of boilers and heating systems are given in prEN 15378 (all parts) [8]. Table 1 shows the relative position of this standard within the set of EPB standards in the context of the modular structure as set out in EN ISO 52000 1:2017.

Disclaimer: TightVent has compiled this information with care. However, TightVent does not warrant that the information in this publication is free of errors. No responsibility or liability can be accepted for any claims arising through the use of the information contained within this publication. The reader assumes the entire risk of the use of any information in this publication.

EN 16798-5-1:2017	CEN/TC 156 - Ventilation for buildings	Energy performance of buildings - Ventilation for buildings - Part 5-1: Calculation methods for energy requirements of ventilation and air conditioning systems (Modules M5-6, M5-8, M6-5, M6-8, M7-5, M7-8) - Method 1: Distribution and generation	91.120.10 - Thermal insulation of buildings 91.140.30 - Ventilation and air-conditioning systems	This European Standard covers the energy performance calculation of mechanical ventilation and air conditioning systems, including humidification and dehumidification. It takes into account the generation (air handling unit) and distribution (duct system) parts. It includes a simplified calculation of adiabatic cooling systems. It does not cover the emission part (calculation of the required volume flow rates and/or supply air conditions), which is covered in EN 16798-7. It does not include the calculation of heating/cooling generation. This method is focussed on large customized ventilation and air conditioning systems, typically used in commercial buildings, although the application is not restricted on the basis of building or space use type. A calculation method for ventilation systems with integrated heating/cooling generation, including domestic hot water generation, using a monthly or seasonal calculation interval or a bin method, is provided in a separate standard, EN 16798-5-2. This method does not include humidification and dehumidification or adiabatic cooling. Table 1 shows the relative position of this standard within the set of EPB standards in the context of the modular structure as set out in EN ISO 52000 1. NOTE 1 In CEN ISO/TR 52000 2 the same table can be found, with, for each module, the numbers of the relevant EPB standards and accompanying technical reports that are published or in preparation. NOTE 2 The modules represent EPB standards, although one EPB standard might cover more than one module and one module might be covered by more than one EPB standard, for instance a simplified and a detailed method respectively. See also Clause 2 and Tables A.1 and B.1.
EN 16798-3:2017	CEN/TC 156 - Ventilation for buildings	Energy performance of buildings - Ventilation for buildings - Part 3: For non-residential buildings - Performance requirements for ventilation and room-conditioning systems (Modules M5-1, M5-4)	91.120.10 - Thermal insulation of buildings 91.140.30 - Ventilation and air-conditioning systems	This European Standard applies to the design, energy performance of buildings and implementation of ventilation, air conditioning and room conditioning systems for non-residential buildings subject to human occupancy, excluding applications like industrial processes. It focuses on the definitions of the various parameters that are relevant for such systems. The guidance for design given in this European Standard and accompanying FprCEN/TR 16798-4 are mainly applicable to mechanical supply and/or exhaust ventilation systems. Natural ventilation systems or natural parts of hybrid ventilation systems are not covered by this European Standard. Reference is made to the Technical Report for informative guidance on the design of such systems. Applications for residential ventilation are not dealt with in this European Standard. Performance of ventilation systems in residential buildings are dealt with in EN 15665 and CEN/TR 14788. The classification uses different categories. For some values, examples are given and, for requirements, typical ranges with default values are presented. The default values given in this European Standard are not normative as such, and should be used where no other values are specified. Classification should always be appropriate to the type of building and its intended use, and the basis of the classification should be explained if the examples given in the European Standard are not to be used. NOTE 1 Different standards may express the categories for the same parameters in a different way, and also the category symbols may be different. Table 1 shows the relative position of this European Standard within the set of EPB standards in the context of the modular structure as set out in EN ISO 52000 1. NOTE 2 In FprCEN ISO/TR 52000 2 the same table can be found, with, for each module, the numbers of the relevant EPB standards and accompanying technical reports that are published or in preparation. NOTE 3 The modules represent EPB standards, although one EPB standard may cover more than one module and one module may be covered by more than one EPB standard, for instance a simplified and a detailed method respectively. See also Clause 2 and Tables A.1 and B.1.
EN 16798-5-2:2017	CEN/TC 156 - Ventilation for buildings	Energy performance of buildings - Ventilation for buildings - Part 5-2: Calculation methods for energy requirements of ventilation systems (Modules M5-6, M5-8, M6-5, M6-8, M7-5, M7-8) - Method 2: Distribution and generation	91.120.10 - Thermal insulation of buildings 91.140.30 - Ventilation and air-conditioning systems	This European Standard covers energy performance calculation of mechanical ventilation systems with integrated heating/cooling generation, including domestic hot water production, using a monthly or seasonal calculation interval or a bin method. It takes into account the generation (air handling unit) and distribution (duct system) parts. It does not cover the emission part (calculation of the required volume flow rates and/or supply air conditions), which is covered in the M5-5 standard. It does not include humidification and dehumidification. This method is focussed on small, packaged ventilation systems, typically used in residential buildings, although the application is not restricted on the basis of building or space use type. A calculation method for mechanical ventilation and air conditioning systems, including humidification and dehumidification, using an hourly calculation interval or a bin method, is provided in a separate standard, EN 16798 5 1. Table 1 shows the relative position of this standard within the set of EPB standards in the context of the modular structure as set out in EN ISO 52000 1. NOTE 1 In CEN ISO/TR 52000 2, the same table can be found, with, for each module, the numbers of the relevant EPB standards and accompanying technical reports that are published or in preparation. NOTE 2 The modules represent EPB standards, although one EPB standard might cover more than one module and one module might be covered by more than one EPB standard, for instance a simplified and a detailed method respectively. See also Clause 2 and Tables A.1 and B.1.
EN 16211:2015	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Measurement of air flows on site - Methods	17.120.10 - Flow in closed conduits 91.140.30 - Ventilation and air-conditioning systems	This European Standard specifies simplified methods for the measurement of air flows on site. It provides a description of the air flow methods and how measurements are performed within the margins of stipulated method uncertainties. One measurement method is to take point velocity measurements across a cross-section of a duct to obtain the air flow. This simplified method is an alternative to the method described in ISO 3966 and EN 12599. This European Standard requests certain measurement conditions (length of straight duct and uniform velocity profile) to be met to achieve the stipulated measurement uncertainties for the simplified method.

EN 1751:2014	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Air terminal devices - Aerodynamic testing of damper and valves	91.140.30 - Ventilation and air-conditioning	This European Standard specifies methods for the testing and rating of dampers and valves used in air distribution systems with pressure differences up to 2 000 Pa. The tests incorporated in this European Standard are: a) leakage past a closed damper or valve (for classification see Annex C); b) casing leakage (for classification see Annex C); c) flow rate/pressure requirement characteristics; d) torque: (see Annex A); e) thermal transmittance: (see Annex B). The acoustic testing of dampers and valves is not included in this European Standard. The tests specified above apply to the following: f) measurement of leakage past a closed damper or valve; g) measurement of casing leakage; h) determination of flow rate and pressure requirements; i) measurement of torque characteristics (see Annex A); j) measurement of thermal transfer characteristics to determine insulation properties (see Annex B). NOTE Certain aspects of the dynamic performance of dampers or valves are dependent upon the air distribution system to which they are connected and are, therefore, difficult to measure in isolation. Such considerations have led to the omission of these aspects of the dynamic performance measurements from this European Standard. Also, in common with other air distribution components, the results from tests carried out in accordance with this European Standard may not be directly applicable if the damper or valve is situated in an area of non-uniform flow.
EN 12599:2012	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Test procedures and measurement methods to hand over air conditioning and ventilation systems	91.140.30 - Ventilation and air-conditioning	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.
EN 15780:2011	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Ductwork - Cleanliness of ventilation systems	91.140.30 - Ventilation and air-conditioning	This European Standard applies to both new and existing ventilation and air conditioning systems and specifies the assessment criteria of cleanliness, cleaning procedures of these systems, and the validation of the effectiveness of cleaning applies also to products, which conform to EN 1505, EN 1506, EN 13053, EN 13180 and EN 13403, used in air conditioning and ventilation systems for human occupancy defined in the scope of CEN/TC 156. This European Standard does not apply to installations for industrial processes. Cleanliness of ventilation systems is considered important for human comfort and health, energy consumption, system service life and for cleanliness of operations or processes carried out in the ventilated area. Considerations for change of component as an alternative for cleaning (e.g. in case of flexible ducts and air filters) are also included. This European Standard specifies general requirements and procedures necessary in assessing and maintaining the cleanliness of ducted ventilation, including: - cleanliness quality classification; - how to assess the need for cleaning (visual, measurements); - assessment frequency (general guidance); guidance of system inspections in accordance with EN 15239, and EN 15240 when relevant; - selection of cleaning method – to be in line with handing over documentation according to EN 12599; - how to assess the result of cleaning. This European Standard is a parallel standard to EN 12097, which specifies requirements for dimension, shape and location for access panels for cleaning and service in ductwork systems. This European Standard is made as an umbrella standard with informative annexes that can be revised, completed and further added in future revisions of this European Standard for specific system types, and products or applications in the system, such as: - Air Handling Units (AHU); - filter; - humidifiers; - heat recovery units; - decentralised air treatment units such as fan-coil units
EN 15726:2011	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Air diffusion - Measurements in the occupied zone of air-conditioned/ventilated rooms to evaluate thermal and acoustic conditions	91.140.30 - Ventilation and air-conditioning	This European Standard is applicable to measure some parameters of thermal and acoustic comfort (i.e. temperatures, air velocities...) in a room with an air diffusion system. This European Standard can be used on site or in a lab for full-scale measurements. This European Standard applies to ventilation or air conditioning systems designed to maintain the comfort conditions in buildings. It is not applicable in the case of systems for the control of industrial or other special process environments. NOTE 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.

EN 13141-7:2010	CEN/TC 156 - Ventilation for buildings	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	91.140.30 - Ventilation and air-conditioning	This part of EN 13141 specifies the laboratory test methods and test requirements for the testing of aerodynamic, thermal and acoustic performance, and the electrical performance characteristic of a mechanical supply and exhaust ventilation units used in a single dwelling. It covers unit that contain at least, within one or more casing: - supply and exhaust air fans; - air filters; - air-to-air heat exchanger and/or Extract Air-to-Outdoor Air heat pump for extract air heat recovery; - control system. Such unit can be provided in more than one assembly, the separate assemblies of which are designed to be used together. The different possible arrangements of heat recovery heat exchangers and/or heat pumps are described in Annex A. This standard does not deal with non-ducted units or reciprocating heat exchangers. This standard does not deal with units that supply several dwellings. This standard does not cover ventilation systems that may also provide water space heating and hot water. This standard does not cover units including combustion engine driven compression heat pumps and absorption heat pumps. Electrical safety requirements are given in EN 60335-2-40 and EN 60335-2-80.
EN 15727:2010	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Ducts and ductwork components, leakage classification and testing	91.140.30 - Ventilation and air-conditioning	This European Standard applies to technical ductwork products, intended for installation in ductwork conforming to EN 1505 and EN 1506, used in air conditioning and ventilation systems defined in the scope of CEN/TC 156. This document specifies the leakage requirements for technical ductwork products, i.e. components in the ductwork that has more functions than conveying air, such as sound attenuators, filter boxes and duct fans, etc. The following products are not within the scope of this document: - ductwork components like bends, reducers and T-pieces. EN 12237 and EN 1507 apply; - flexible ducts according to EN 13180; - ducts made of insulation ductboards according to EN 13403; - dampers according to EN 1751; - air handling units according to EN 1886. This document is a parallel standard to EN 12237, EN 1507 and EN 1751, based on the same leakage classification.
EN 1507:2006	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Sheet metal air ducts with rectangular section - Requirements for strength and leakage	91.140.30 - Ventilation and air-conditioning	The European Standard applies to rectangular ductwork of sheet metal used in air conditioning and ventilation systems defined in the principal scope of CEN/TC 156.
EN 12097:2006	CEN/TC 156 - Ventilation for buildings	Ventilation for Buildings - Ductwork - Requirements for ductwork components to facilitate maintenance of ductwork systems	91.140.30 - Ventilation and air-conditioning	This European standard specifies requirements for dimension, shape and location for access panels for cleaning and service in ductwork systems, which conform to EN 1505, EN 1506 and EN 13180. National regulations shall always be followed, even when they deviate from requirements given in this standard.
EN 14239:2004	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Ductwork - Measurement of ductwork surface area	91.140.30 - Ventilation and air-conditioning	To specify a method for the measurement and calculation of the surface area of ductwork and ductwork components.
EN 12237:2003	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Ductwork - Strength and leakage of circular sheet metal ducts	91.140.30 - Ventilation and air-conditioning	This standard specifies requirements and test methods for strength and air leakage of circular ductwork used in air conditioning and ventilation systems in buildings. The standard is intended to establish the mechanical strength and leakage required to verify the fitness for the intended service as installed ductwork. The standard is primarily intended for in-situ measurements, but provisions are also made for its use in laboratory testing. The requirements and methods are applicable also to rectangular ductwork in respect of air leakage.
EN 13403:2003	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Non-metallic ducts - Ductwork made from insulation ductboards	91.140.30 - Ventilation and air-conditioning	This European Standard specifies the basic requirements and characteristics for ductwork made of insulation ductboards and used in ventilation and air conditioning systems of buildings subject to human occupancy. This standard does not specify the fire reaction classification for different types of ductboards.
EN 13180:2001	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Ductwork - Dimensions and mechanical requirements for flexible ducts	91.140.30 - Ventilation and air-conditioning	This standard specifies requirements and test methods for the technical characteristics of flexible ducts used in ventilation and air conditioning installations in buildings for human occupancy. This standard identifies the following parameters which shall be tested or inspected: - dimensions and tolerances; - mechanical resistance. Acoustic, thermal, reaction to fire, and pressure loss properties of flexible ducts are not covered in this standard.
Thermal performance and energy use in the built environment/Thermal performance of buildings and building components				
ISO 17772-1:2017	ISO/TC 163 Thermal performance and energy use in the built environment	Energy performance of buildings -- Indoor environmental quality -- Part 1: Indoor environmental input parameters for the design and assessment of energy performance of buildings	91.120.10 Thermal insulation of buildings	ISO 17772-1:2017 specifies requirements for indoor environmental parameters for thermal environment, indoor air quality, lighting and acoustics and specifies how to establish these parameters for building system design and energy performance calculations. It includes design criteria for the local thermal discomfort factors, draught, radiant temperature asymmetry, vertical air temperature differences and floor surface temperature. ISO 17772-1:2017 is applicable where the criteria for indoor environment are set by human occupancy and where the production or process does not have a major impact on indoor environment. It also specifies occupancy schedules to be used in standard energy calculations and how different categories of criteria for the indoor environment can be used. The criteria in ISO 17772-1:2017 can also be used in national calculation methods. ISO 17772-1:2017 sets criteria for the indoor environment based on existing standards and reports (listed in Clause 2 and the Bibliography). The document does not specify design methods, but gives input parameters to the design of building envelope, heating, cooling, ventilation and lighting.

EN ISO 9972:2015	CEN/TC 89 - Thermal performance of buildings and building components	Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method (ISO 9972:2015)	91.120.10 - Thermal insulation	ISO 9972:2015 is intended for the measurement of the air permeability of buildings or parts of buildings in the field. It specifies the use of mechanical pressurization or depressurization of a building or part of a building. It describes the measurement of the resulting air flow rates over a range of indoor-outdoor static pressure differences. ISO 9972:2015 is intended for the measurement of the air leakage of building envelopes of single-zone buildings. For the purpose of this International Standard, many multi-zone buildings can be treated as single-zone buildings by opening interior doors or by inducing equal pressures in adjacent zones. ISO 9972:2015 does not address evaluation of air permeability of individual components.
EN 12114:2000	CEN/TC 89 - Thermal performance of buildings and building components	Thermal performance of buildings - Air permeability of building components and building elements - Laboratory test method	91.060.10 - Walls. Partitions. Façades	This Standard defines a general laboratory test method for determining the air permeability of building components or building elements, when subjected to positive or negative air pressure differences. It specifies the definitions, the test equipment and procedure, and provides directions for the interpretation of results. Annexes give indications on test conditions and a method for expressing results using a regression technique. This standard is not applicable to whole buildings or on site measurements.
Sealants for joints in building construction				
EN 15651-1:2017	CEN/TC 349 - Sealants for joints in building construction	Sealants for non-structural use in joints in buildings and pedestrian walkways - Part 1: Sealants for facade elements	91.100.50 - Binders. Sealing materials	This European Standard specifies definitions and requirements for non-structural facade sealants intended for sealing exterior wall joints, window and door perimeter joints in building construction, including the interior face. NOTE Provisions on assessment and verification of constancy of performance - AVCP (i.e. Product type determination and Factory Production Control) and marking of these products are given in EN 15651-5. This European Standard does not apply to non-structural sealants in any of non-paste form, to those used in interior walls and/or partitions and to oil-based mastics.
EN 15651-2:2017	CEN/TC 349 - Sealants for joints in building construction	Sealants for non-structural use in joints in buildings and pedestrian walkways - Part 2: Sealants for glazing	91.100.50 - Binders. Sealing materials	This European Standard specifies definitions and requirements for non-structural elastic sealants used for sealing glazing in building construction applications. It covers glazing joints from 7° horizontal. Main areas of application are: - glass to glass; - glass to frame; - glass to porous substrates. Excluding aquariums, structural bonding/glazing, inner and outer seal to manufacture insulated glazing units, horizontal glazing (below 7°), organic glass (e.g. polycarbonate, PMMA, etc.).
EN 15651-3:2017	CEN/TC 349 - Sealants for joints in building construction	Sealants for non-structural use in joints in buildings and pedestrian walkways - Part 3: Sealants for sanitary joints	91.100.50 - Binders. Sealing materials	This European Standard specifies definitions and requirements for sealants used for sealing of joints applied in sanitary areas in the interior of buildings exposed to non-pressurized water. It covers joints in: - bathrooms; - toilets; - showers; - domestic kitchens; - prefabricated elements in sanitary areas (e.g. shower cubicles). Industrial, drinking water, underwater (swimming pools, sewage systems, etc.), food contact applications and sealing of glass-ceramic cooktop panels (stove tops, ceramic hobs) are excluded from the scope. This European Standard does not provide criteria or recommendations for the design of joints and installation of sealants in sanitary applications. NOTE Provisions on assessment and verification of constancy of performance - AVCP (i.e. Product type determination and Factory Production Control) and marking of these products are given in EN 15651-5. This European Standard does not apply to non-structural sealants in any of non-paste form, to those used in sanitary joints and to oil-based mastics.
EN ISO 8394-2:2017	CEN/TC 349 - Sealants for joints in building construction	Buildings and civil engineering works - Determination of extrudability for sealant - Part 2: Using standardized	91.100.50 - Binders. Sealing materials	ISO 8394-2 specifies a method for determining the extrudability of sealants independently of the package in which they are supplied.
EN ISO 8394-1:2010	CEN/TC 349 - Sealants for joints in building construction	Building construction - Jointing products - Part 1: Determination of extrudability of sealants (ISO 8394-1:2010)	91.100.50 - Binders. Sealing materials	ISO 8394-1:2010 specifies a method for determining the extrudability of sealants. The method is for use in testing the extrudability of a sealant.
Structures				
EN ISO 6927:2012	CEN/SS B02 - Structures	Buildings and civil engineering works - Sealants - Vocabulary (ISO 6927:2012)	91.100.50 - Binders. Sealing materials 01.040.91 - Construction materials and building (Vocabularies)	ISO 6927:2012 defines technical terms for self-levelling and gun-grade (gunnable) sealants for above ground exposed structures. It is not applicable to sealants used in roads and airfields, sealants for water retaining structures, or structural glazing sealants.
EN ISO 10591:2005	CEN/SS B02 - Structures	Building construction - Sealants - Determination of adhesion/cohesion properties of sealants after immersion in water (ISO 10591:2005)	91.100.50 - Binders. Sealing materials	ISO 10591:2005 specifies a method for the determination of the influence of water on the adhesion cohesion properties of sealants with predominantly plastic behaviour which are used in joints in building construction.
EN ISO 9046:2004	CEN/SS B02 - Structures	Building construction - Jointing products - Determination of adhesion/cohesion properties of sealants at constant temperature (ISO 9046:2002)	91.100.50 - Binders. Sealing materials	This international Standard specifies a method for the determination of the adhesion/cohesion properties of sealants with predominantly plastic behaviour which are used in joints in building construction.
EN ISO 7390:2003	CEN/SS B02 - Structures	Building construction - Jointing products - Determination of resistance to flow of sealants (ISO 7390:2003)	91.100.50 - Binders. Sealing materials	This international Standard specifies a method for the determination of the resistance to flow of sealants, by loss of cohesion under their own weight. These sealants are used in joints in vertical surfaces in building construction.

Disclaimer: TightVent has compiled this information with care. However, TightVent does not warrant that the information in this publication is free of errors. No responsibility or liability can be accepted for any claims arising through the use of the information contained within this publication. The reader assumes the entire risk of the use of any information in this publication.

EN ISO 9047:2003	CEN/SS B02 - Structures	Building construction - Jointing products - Determination of adhesion/cohesion properties of sealants at variable temperatures (ISO 9047:2001)	91.100.50 - Binders. Sealing materials	-
EN ISO 11600:2003	CEN/SS B02 - Structures	Building construction - Jointing products - Classification and requirements for sealants (ISO 11600:2002)	91.100.50 - Binders. Sealing materials	This International Standard specifies the types and classes of sealants used in building construction according to their applications and performance characteristics. The requirements and respective test methods for the different classes are also given.
EN ISO 11431:2002	CEN/SS B02 - Structures	Building construction - Jointing products - Determination of adhesion/cohesion properties of sealants after exposure to heat, water and artificial light through glass (ISO 11431:2002)	91.100.50 - Binders. Sealing materials	ISO 11431:2002 specifies a method for the determination of the adhesion/cohesion properties of sealants after cyclic exposure to heat and artificial light followed by a period of exposure to water at a defined temperature.
Polymeric materials				
EN ISO 4638:1995	CEN/TC 249 - Plastics	Polymeric materials, cellular flexible - Determination of air flow permeability (ISO 4638:1984)	83.100 - Cellular materials	Applicable to test pieces cut from products of cellular materials. Useful for two purposes: a) studying the structure of cellular products in connection with their physical properties and their method of manufacture and b) ensuring product quality (quality assurance). Describes principle, apparatus, test piece and conditions, procedure and calculation and expression of the results. Three figures deliver the details for testing.