

Building & Ductwork Airtightness Standards

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Standard Reference	Technical Body	Title	ICS (International Classification for Standards)	Scope
Door and Windows				
EN 12207:1999	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Windows and doors - Air permeability - Classification	91.060.50 - Doors and windows	This standard defines the classification of test results for completely assembled windows and doors of any materials after testing in accordance with prEN 1026.
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 1026:2000	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 standard defines the conventional method to be used to determine the air permeability of completely assembled windows and doors of any materials, when submitted to positive or negative test pressures. This test method is designed to take account of conditions in use, when the window or door is installed in accordance with the manufacturer's specification and the requirements of relevant European Standards and codes of practice. This standard does not apply to the joints between the window or door frame and the building construction.
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.
Shutters & Blinds				
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 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.

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Curtain Walling				
EN 12152:2002	CEN/TC 33 - Doors, windows, shutters, building hardware and curtain walling	Curtain walling - Air permeability - Performance requirements and	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 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.
Buildings & building components				
EN 13829:2000	CEN/TC 89 - Thermal performance of buildings and building components	Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method (ISO 9972:1996, modified)	91.120.10 - Thermal insulation	This standard 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. This standard is intended for the measurement of the air leakage of building envelopes of single-zone buildings.
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	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
EN 15242:2007	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Calculation methods for the determination of air flow rates in buildings including infiltration	91.140.30 - Ventilation and air-conditioning	This European Standard describes the method to calculate the ventilation air flow rates for buildings to be used for applications such as energy calculations, heat and cooling load calculation, summer comfort and indoor air quality evaluation. The ventilation and air tightness requirements (as IAQ, heating and cooling, safety, fire protection...) are not part of the standard. For these different applications, the same iterative method is used but the input parameter should be selected according to the field of application. For specific applications a direct calculation is also defined in this standard. A simplified approach is also allowed at national level following prescribed rules of implementation. The method is meant to be applied to: - Mechanically ventilated building (mechanical exhaust, mechanical supply or balanced system). - Passive ducts. - Hybrid system switching between mechanical and natural modes. - Windows opening by manual operation for airing or summer comfort issues. Automatic windows (or openings) are not directly considered here. Industry process ventilation is out of the scope. Kitchens where cooking is for immediate use are part of the standards (including restaurants..) Other kitchens are not part of the standard. The standard is not directly applicable for buildings higher than 100 m and rooms where vertical air temperature difference is higher than 15K. The results provided by the standard are the building envelope flows either through leakages or purpose provided openings and the air flows due to the ventilation system, taking into account the product and system characteristics.
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 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 13053:2006+A1:2011	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 European Standard specifies requirements and testing for ratings and performance of air handling units as a whole. It also specifies requirements, recommendations, classification, and testing of specific components and sections of air handling units. For many components and sections it refers to component standards, but it also specifies restrictions or applications of standards developed for stand alone components. This standard is applicable both to standardised designs, which may be in a range of sizes having common construction concepts, and also to custom-design units. It also applies both to air handling units, which are completely prefabricated, and to units which are built up on site. Generally the units within the scope of this standard include at least a fan, a heat exchanger and an air filter. This standard is not applicable to the following: a) air conditioning units serving a limited area in a building, such as fan coil units; b) units for residential buildings; c) units producing ventilation air mainly for a manufacturing process.
EN 1751:1998	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Air terminal devices - Aerodynamic testing of dampers 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 2000 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).
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 15241:2007	CEN/TC 156 - Ventilation for buildings	Ventilation for buildings - Calculation methods for energy losses due to ventilation and infiltration in commercial buildings	91.140.30 - Ventilation and air-conditioning	This European Standard describes the method to calculate the energy impact of ventilation systems (including airing) in buildings to be used for applications such as energy calculations, heat and cooling load calculation. Its purpose is to define how to calculate the characteristics (temperature, humidity) of the air entering the building, and the corresponding energies required for its treatment and the auxiliaries electrical energy required. This standard can also be used for air heating and cooling systems when they assure the provision of ventilation, considering that prEN 15243 will provide the required heating or cooling load and the corresponding air flows and/or air temperatures.
Ducts and ductwork				
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 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 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 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.
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 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, indu
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.
Sealants for joints in building construction				
EN 15651-1:2012	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 evaluation of conformity (i.e. Initial Type Testing 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 internal walls and/or partitions and to oil-based mastics.
EN 15651-2:2012	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.).

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EN 15651-3:2012	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-pressurised water. It covers joints in: - bathrooms; - toilets; - showers; - domestic kitchens. Industrial, drinking water, underwater (swimming pools, sewage systems, etc.) and food contact applications 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 evaluation of conformity (i.e. Initial Type Testing 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 8394-1:2010	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.
EN ISO 8394-2:2010	CEN/TC 349 - Sealants for joints in building construction	Building construction - Jointing products - Part 2: Determination of extrudability of sealants using standardized apparatus (ISO 8394-2:2010)	91.100.50 - Binders. Sealing materials	ISO 8394-2:2010 specifies a method for determining the extrudability of sealants independently of the package in which they are supplied. It is not applicable to the classification of sealants.
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.
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 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.
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 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 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 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 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 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	-
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.