



BUSINESS PLAN
CEN/TC 156
VENTILATION FOR BUILDINGS

EXECUTIVE SUMMARY

CEN/TC156 deals with all aspects of ventilation for buildings. The scope covers the standardization of terminology, testing and rating methods, dimensioning and fitness for purpose of natural and mechanical ventilation systems and components for buildings subject to human occupancy; it includes both dwellings and non-residential buildings.

In addition, CEN/TC 156 work also covers work in the area of Fans, ventilation in hospitals and ventilation in commercial kitchens.

The business sector covering the design and products for ventilation (and air-conditioning) for residential and non-residential buildings is a multimillion Euro market per annum.

Every effort has been put into the development of major Standards supporting the 'Energy performance of buildings (recast) directive, 2010/31/EU. The timescales given were short. To this end, seventeen work items (including CEN/TRs which are Guidance on how to use the EN standards) went through the Formal Vote stage at the end of 2016 and early 2017 with fifteen of which have now been published or are in the publishing process as ENs and CEN/TRs. One draft standard is subject revision and a further formal vote. The corresponding CEN/TR has passed the formal vote but is being held for the acceptance of the revised draft standard.

The other work items include development of candidate harmonised standards in support of EU Regulations 1253/2015, EU 1254/2015, Eco Design Directive as well as work items in a supporting role for a new Policy being considered by the Adaptation of Climate Change Coordination Group. Also it is planned to consider the specification for the measurement of indoor Perceived Air Quality.

Standards already published, covering testing and rating duct work and a range of products are already simplifying duct work systems and providing common methods for cross product performance comparisons. This in the longer term will result in cheaper, safer and more energy efficient products, whilst at the same time improving the indoor environment.

1 BUSINESS ENVIRONMENT OF THE CEN/TC

1.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal, societal and/or international dynamics that describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of CEN/TC 156, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards.

1.1.1 General information regarding market sector and products

The market for ventilation is driven by the need for the production and installation of energy efficient products and systems, to provide healthier living and working conditions, and conserve the fabric of the building, with the minimum impact on the environment. It is recognized that improving the indoor air quality results in higher productivity and a reduction of 'Sick building syndrome'. The industry's wish, therefore, is to provide good indoor air quality, but also to improve the outdoor environment, and to ensure the efficient use of energy. The focus of CEN/TC 156 is on individual products and their performance testing, the ductwork necessary to introduce and exhaust the air as required, together with the design criteria for the indoor environment, system performance criteria, necessary calculation methods and requirements for installation. There has been additional emphasis on energy with Directive 2010/31/EU on the energy performance of buildings (EPBD recast) issued on 19/04/10. This has resulted in the development of nine new standards and eight technical reports.

Interested parties in the work CEN/TC156 include the following:

a) Product Manufacturers

Responsible for design, manufacture and testing of products for use in ventilation systems where standardization will aid specification and testing.

b) Building Services Consulting Engineers

Responsible for the design of the system within the building and the specification of the products to be used where standardization will aid system design, product selection and specification.

c) Installation and maintenance personnel

Responsible for the installation of the system within the structure of the building, its subsequent testing and proving to the designers' specification where standardization will assist in common interpretation of requirements. Provision of guidelines for the regular inspection of air conditioning and ventilation systems

d) Building Institutes and Academic Establishments

Academic bodies with interest in the support of industry, with a view to improving the efficiency and effectiveness of ventilation products and systems, and improving the identification and specification of meaningful parameters within standards, particularly with respect to the EPBD recast as this will impact on national building regulations.

e) Public authorities

Responsible for regulations aimed at improving the indoor environment usually by specifying minimum air flow rates. Clearly, a standardized approach to air quality would assist manufactures, designers and installers with a consequent improvement in efficiency. The EPBD recast has major importance in this area as it will impact on national building regulations.

f) Building owners and occupiers, clients, community and consumers

Will benefit from improved air quality within buildings and increases in efficiency and effectiveness will impact the environment more generally.

g) Test houses

Responsible for providing (independent) test facilities to evaluate performance and demonstrate compliance where appropriate.

A number of CEN Technical Committees cover various aspects of the air conditioning of buildings for occupation, and a Joint Working group has been established to cover those issues which impact on more than one Technical Committee. The related Technical Committees are:

- CEN/TC 89 Thermal performance of buildings and building components
- CEN/TC 228 Heating systems in buildings.

CEN/TC 156 also liaises with CEN/TC 247 'Controls for mechanical building services' and CEN/TC 211 'Acoustics'.

In relation to the EPBD CEN/TC 156 has liaison with the following:

- CEN/TC 89 Thermal performance of buildings and building components;
- CEN/TC 169 Light and lighting systems;
- CEN/TC 228 Heating systems in buildings;
- CEN/TC 247 Building automation, control and building management;
- CEN TC371 Project Committee - Energy performance of buildings project group. CEN/TC

156 also liaises with:

- CENTC113 - 'Heat Pumps';
- CENTC127 - 'Fire Safety';
- ISO/TC 205 - 'Building environment design';
- ISO/TC117 - 'Fans'.
- ISO/TC163 – "Thermal performance and energy use in the built environment

1.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the CEN /TC: Political, economic, social, technical, legal and international factors that either directly require some or all of the standardization activities proposed by the CEN/TC, or significantly influence the way these activities are carried out are the following:

The following EU directives form the basis for a number of the activities of CEN/TC 156.

- Directive 2010/31/EU Energy performance of buildings (recast) –
- EPBD recast and Supplement 244/2012 Establishing a comparative methodology framework for calculating cost-optimal levels of minimum energy performance requirements for buildings and building elements
- Directive 2009/125/EC establishing a framework for the setting of Ecodesign requirements for energy related products (recast)
- Directive 305/2011 laying down harmonised conditions for the marketing of construction products (CPR)
- Directive 2012/27/EU Energy efficiency
- Directive 2006/42/EC Machinery (MS)
- Directive 2006/95/EC harmonisation of laws of Member States relating to electrical equipment designed for use within certain voltage limits (LVD)
- Directive 2009/125/EC (Regulation (EU) 1253/2014) Eco Design Legislation/ Eco Design of Energy Related Products (ErP)
- Directive 2009/125/ EC (Regulation (EU) 1254/2014) Eco Design Legislation/ Eco Design of Energy Related Products (ErP)

The standards prepared to meet the requirements of the EPBD recast will impact on national building regulations. The interpretation of these requirements by individual member states can be clarified in the form of national annexes to the standards

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In addition, most Countries, even outside the requirements of the EPBD, require designs to be in accordance with National Building Regulations. It is considered that standardization of performance criteria, measuring methods and instruments will assist in a gradual convergence of the requirements embodied in such regulations, thereby, facilitating trade and eliminating perceived barriers to trade.

With respect to the EPBD recast, there is a mandate M/480 "Elaboration and adoption of standards for a methodology calculating the integrated energy performance of buildings and promoting the energy efficiency of buildings, in accordance with the terms set in the recast of the directive on the energy performance of buildings (2010/31/EU). Under this mandate the following seven existing EPBD related standards require revision and restructuring to separate out the mandatory requirements into the new ENs and the related TRs to provide guidance on the interpretation of the new ENs.

The relationship between the new and previous version of EN Standards supporting EPBD is summarised in Table 1 below:

TABLE 1

EPBD Number	EN	Recast EPBD Number	EN	Title
EN 15251		EN 16798-1		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)
N/A		CEN/TR 16798-2		Energy performance of buildings – Ventilation for buildings - Part 2: Interpretation of the requirements in EN 16798-1 - 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)
EN 13779		EN 16798-3		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)
N/A		CEN/TR 16798-4		Energy performance of buildings – Ventilation for buildings - Part 4: Interpretation of the requirements in EN 16798-3 - For non-residential buildings – Performance requirements for ventilation and room-conditioning systems (Modules M5-1, M5-4)
EN 15241		EN 16798-5-1		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
EN 15241		EN 16798-5-2		Energy performance of buildings – Ventilation for buildings - Part 5-2: Calculation methods for energy requirements of ventilation systems (Modules M5-6.2, M5-8.2) - Method 2: Distribution and generation
N/A		CEN/TR 16798-6		Energy performance of buildings - Ventilation for buildings – Part 6: Interpretation of the requirements in EN 16798-5 -1 and EN 16798-5-2 – Calculation methods for energy requirements of ventilation and air conditioning systems (Modules M5-6, M5-8, M6-5, M6-8, M7-5, M7-8)
EN 15242		EN 16798-7		Energy performance of buildings - Ventilation for buildings - Part 7: Calculation methods for the determination of air flow rates in buildings including infiltration (Module M5-5)

N/A	CEN/TR 16798-8	Energy performance of buildings – Ventilation for buildings – Part 8: Interpretation of the requirements in EN 16798-7 – Calculation methods for the determination of air flow rates in buildings including infiltration – (Module M5-5)
EN 15243	EN 16798-9	Energy performance of buildings – Ventilation for buildings - Part 9: Calculation methods for energy requirements of cooling systems (Modules M4-1, M4-4, M4-9) - General
N/A	CEN/TR 16798-10	Energy performance of buildings – Ventilation for buildings – Part 10: Interpretation of the requirements in EN 16798-9 – Calculation methods for energy requirements of cooling systems (Module M4-1, M4-4, M4-9) – General
EN 15243	EN 16798-13	Energy performance of buildings – Ventilation for buildings - Part 13: - Calculation of cooling systems (Module M4-8) – Generation
EN 15243	CEN/TR 16798-14	Energy performance of buildings – Ventilation for buildings - Part 14: Interpretation of the requirements in EN 16798-13 – Calculation of cooling systems (Module M4-8) – Generation
N/A	EN 16798-15	Energy performance of buildings – Ventilation for buildings – Part 15: Calculation of cooling systems (Module M4-7) – Storage
N/A	CEN/TR 16798-16	Energy performance of buildings – Ventilation for buildings – Part 16: Interpretation of the requirements in EN 16798-15 – Calculation of cooling systems (Module M4-7) – Storage
EN 15239 and EN15240	EN 16798-17	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)
N/A	CEN/TR 16798-18	Energy performance of buildings – Ventilation for buildings – Part 18: Interpretation of the requirements in EN 16798-17 – Guidelines for inspection of ventilation and air-conditioning systems (Module M4-11, M5-11, M6-11, M7-11)

At this time apart from prEN 16798-1 all draft ENs and CEN/TRs have final vote approval and are in various stages of the publication process. Again the other exception to this is CEN/TR 16798-2 which has been held until a revised version of prEN 16798-1 has final vote approval. It is planned for the future to consider implications of Eco Design directive requirements on EN 16798 -1 and 3 and the corresponding CEN/TRs 16798-2 and 4.

Following EPBD recast there is a need to consider the application of EN16798-1 to

1. Natural and hybrid ventilation systems for non-residential buildings
2. Strategies to prevent overheating when using ventilative cooling systems, applicable to natural, hybrid and mechanical ventilative systems for residential and non-residential buildings
3. Develop procedures and detailed specifications for measuring Indoor Perceived Air Quality

Consideration is also being given to the issues of:

Fans (WG 17)

Ventilation in hospitals (WG18)

Ventilation in commercial kitchens (WG14)

Joint working group with CEN TC113 – Multi-function ventilation units, including heat pumps for heating, cooling and domestic hot water.

2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC

Political, economic, environmental, social, technical, legal and international benefits related to some or all of the standardization activities proposed by CEN TC156, or significantly influence the way these activities are carried out are the following:

2.1 Political Benefits

The realization that resources must be used rationally to preserve the environment has become widespread. Countries in Europe are increasing their requirements for lower energy consumption in buildings.

Ventilation and air-conditioning systems in buildings are important in this respect. Energy reduction in this area is very important and is reflected in the requirements of the recast EPBD and the associated new/revised standards being produced to provide common methods for the evaluation of energy requirements and system efficiencies.

2.2 Economic benefits

Application of uniform European Standards is anticipated to lower costs manufacturers and service companies involved in in this sector of the large ventilation and air-conditioning market.

2.3 Environmental benefits

Ventilation and air-conditioning systems in buildings represent a significant part of the total amount of energy consumed in European countries and therefore contribute strongly to CO2 emissions. Reduction in primary energy demand for ventilation and air-conditioning systems in buildings requires appropriate design and accurate sizing of systems whilst at the same time reducing product/system costs.

Further reduction of CO2 emissions will require the development and the use of renewable energy resources.

In terms of the internal living and working environment ventilation and air-conditioning systems are important in providing healthier conditions and the provision of standards to effectively evaluate this aspect

2.4 Social benefits

Ventilation and air-conditioning systems are the most important installations to provide comfort for building users and residents by maintaining an acceptable indoor climate.

2.5 Technical benefits

Technical solutions vary from country to country across the EU it is important to have standards that can be used to evaluate system and product performance on a common basis which in turn facilitates the free movement of products across Member States by restricting the barriers to trade.

2.6 Legal benefits

The standards which have been and are being developed for system and product performance evaluation, system commissioning and subsequent system inspection in terms of ongoing system performance, provide appropriate references for use in the local building regulations of Member States

3 PARTICIPATION IN THE CEN/TC

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible under certain conditions. To participate in the activities of this CEN/TC, please contact the national standards organization in your country.

4 OBJECTIVES OF THE CEN/TC AND STRATEGIES FOR THEIR ACHIEVEMENT

4.1 Defined objectives of the CEN/TC

The elaboration of standards for commercial and domestic buildings on:

- Symbols units and terminology;
- Requirements for component characteristics;
- Dimensions and requirements for strength, leakage, cleanliness and maintenance of duct components;
- Performance testing of ventilation products and components;
- Design criteria for the indoor environment;
- Performance requirements for ventilation and room conditioning requirements
- Design and dimensioning of systems;
- Calculation methods for ventilation systems;
- Performance testing of ventilation systems;

- System performance;
- Cooling load calculation;
- Instrumentation for ventilated spaces;
- Fire precautions for air distribution systems in buildings;
- Test procedures and measuring methods for handing over installed ventilation and air conditioning systems;
- Procedures for the periodic inspection of building ventilation and air-conditioning systems

4.2 Identified strategies to achieve the CEN/TCs defined objectives

The Technical Committee agreed to create a number of working groups to consider the work areas identified above. These working groups have been established such that particular expertise may be concentrated in a group to cover a range of products or activities that are covered by the scope of CEN/TC 156. Within these working groups, we aim to produce European documents reflecting the current and future requirements of the industry by considering best practice throughout Europe and to fulfil the industry needs. Within the CEN/TCV 156 it has been agreed that, whilst many documents may be circulated for consideration by correspondence, regular group meetings (i.e. either face-to-face or via a webex) are required to discuss the approach, technical issues and draft documents within the group.

In addition to the above, the use of experts drawn from Member States will be required in some instances to provide the ground work for some work items. These experts will report back to the appropriate Member States and will work in collaboration with regional governments such as Building Controls, Environment Agency and National Health Services.

With regard to Symbols units and terminology EN 12792 has been issued. However, there is an ongoing activity to cover additions to this arising from the yet to be completed and new work items.

4.3 Environmental aspects

CEN/TC 156 have identified the environmental aspects to be addressed in its standards are 'emissions to air', 'use of energy', 'use of materials' and 'other possible effects on biodiversity'. These are identified in the appropriate field, i.e. 6, when completing the electronic work item tool. The environmental aspects will be addressed by prescribed test methods within the standards.

5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMME

The majority of products being considered for standardization in CEN/TC 156 are well established and no risks are identified in these instances.

In respect of design criteria for the indoor environment, this area is still developing and the latest work in this area will be considered in the further revision of EN16798-1 and 3, CEN/TR 167981-2 and 4.

Also, the calculation methods for the determination of airflow rates in dwellings and non-residential buildings along with the associated calculation methods for the energy required, have been topics which have proved demanding.

Outside of the EPBD mandated work it is recognized that some working groups are under resourced in respect of the number of experts and their expertise, and the balanced participation recorded for these groups depends to some extent on the feedback from National mirror groups.