

# Ventilation for buildings — Fire precautions for air distribution systems in buildings

ICS 13.220.50,91.140.30,

# National foreword

This British Standard is the UK implementation of EN 15423:2008.

The UK participation in its preparation was entrusted to Technical Committee RHE/2, Ventilation for buildings, heating and hot water services.

A list of organizations represented on this committee can be obtained on request to its secretary.

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**Ventilation for buildings - Fire precautions for air distribution  
systems in buildings**

Systèmes de ventilation des bâtiments - Sécurité incendie  
pour les systèmes de distribution d'air dans les bâtiments

Lüftung von Gebäuden - Brandschutz von Lüftungsanlagen  
in Gebäuden

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## Foreword

This document (EN 15423:2008) has been prepared by Technical Committee CEN/TC 156 “Ventilation for buildings”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2008, and conflicting national standards shall be withdrawn at the latest by November 2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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## 1 Scope

This document gives guidance for system designers, installers, commissioners and maintenance teams on the incorporation of protective measures for air distribution systems including dual purpose systems for smoke and heat exhaust systems within buildings, to prevent the initiation and the spread of fire, smoke and other by-products of combustion.

This document intends to only support any national (building) regulations, which are the basis of any design of a building or parts of it. It is up to the designer to enquire about the suitability (in particular in legal terms) of a specific solution given in this document (e.g. although “dual purpose systems” are covered in this document, they may not be permitted in some Member States or only in certain types of buildings).

This document applies to all air distribution systems including dual purpose systems (except systems only dedicated to smoke exhaust systems, which are dealt in other European standards) including technical rooms or spaces for the installation of devices to assist in ventilation of a building (e.g. distance of storage of combustible materials to devices and not the fire resistance of the building structure), penetrations, and following components/products used in the system like:

- inlet/outlet louvres;
- fans not exposed / exposed to the smoke;
- air control dampers;
- ducts;
- fire control dampers;
- air terminal devices;
- anchors and supports;
- duct fittings;
- control panels;
- cables and connections;
- air handling units;
- air filters;
- sound attenuators;
- heat exchangers.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1364-2, *Fire resistance test for non loadbearing elements - Part 2: Ceilings*

EN 1366-1, *Fire resistance tests for service installations - Part 1: Ducts*

EN 1366-2, *Fire resistance tests for service installations - Part 2: Fire dampers*

EN 1366-8, *Fire resistance tests for service installations - Part 8: Smoke extraction ducts*

EN 1366-9, *Fire resistance tests for service installations - Part 9: Single compartment smoke extraction ducts*

prEN 1366-10, *Fire resistance tests for service installations - Part 10: Smoke control dampers*

EN 1505, *Ventilation for buildings - Sheet metal air ducts and fittings with rectangular cross section - Dimensions*

EN 1506, *Ventilation for buildings - Sheet metal air ducts and fittings with circular cross section - Dimensions*

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

EN 12101-3, *Smoke and heat control systems - Part 3: Specification for powered smoke and heat exhaust ventilators*

prEN 12101-8, *Smoke and heat control systems - Part 8: Specification for smoke control dampers*

prEN 12101-9, *Smoke and heat control systems - Part 9: Control panels*

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

EN 12792:2003, *Ventilation for buildings - Symbols, terminology and graphical symbols*

EN 13053, *Ventilation for buildings - Air handling units - Rating and performance for units, components and sections*

EN 13403, *Ventilation for buildings - Non-metallic ducts - Ductwork made from insulation ductboards*

EN 13501-1, *Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests*

EN 13501-3, *Fire classification of construction products and building elements - Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers*

EN 13501-4, *Fire classification of construction products and building elements - Part 4: Classification using data from fire resistance tests on components of smoke control systems*

EN 13964, *Suspended ceilings - Requirements and tests methods*

EN 1886:2007 *Ventilation for buildings - Air handling units - Mechanical performance*

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

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

### **3 Terms and definitions**

For the purposes of this European Standard, the terms and definitions given in EN 12792:2003, together with the following apply.

#### **3.1 shaft**

space generally encased with building elements, where ventilation ducts and possibly other pipes and cables are located

#### **3.2 support**

device for a system component, e.g. fire damper, silencer, etc. to bear a load

#### **3.3 inlet/outlet louvre**

device, consisting of an assembly of parallel sloping vanes, intended to permit the passage of air, while providing a measure of protection against environmental influences

[EN 12792:2003, Table 1, number 242]

#### **3.4 air control damper**

element inserted into an air distribution system or element of an air distribution system permitting modification of the air resistance of the system, and consequently changing the air flow rate (dampers), or shutting off the air flow completely (valves), or controlling the air flow rate and in addition providing shut-off of the air flow (control valves)

[EN 12792:2003, Table 1, number 95]

#### **3.5 fire damper**

mobile closure within a duct, which is designed to prevent the passage of fire

[EN 1366-2]

#### **3.6 smoke control damper**

device automatically or manually activated which may be open or closed in its operational position, to control the flow of smoke and hot gases into, from or within a duct

[prEN 1366-10]

#### **3.8 air terminal devices**

component of a ventilation installation which is designed with the purpose of achieving the predetermined movement of air into or from a treated space

[EN 12792:2003, Table 1, number 31]

### **3.9**

#### **air transfer devices**

air terminal device designed to allow the transfer of air from one space/room to another space/room

[EN 12792:2003, Table 1, number 36]

### **3.10**

#### **local requirement**

legal requirement to comply with, from a regulation implemented in a country

NOTE Local requirement could deal with characteristics of products, installation, commissioning, maintenance... Most of the time, these requirements come from Fire Safety Regulations.

### **3.11**

#### **control equipment**

any initiating device for a smoke and heat control system component e.g. control panel, basic control panel, mechanical control panel

### **3.12**

#### **control panel**

multi-operation initiating device for a smoke and heat control system

## **4 Air distribution system**

### **4.1 General requirements**

Components in the air distribution system shall be made or installed in such a way that they will not increase the hazard of spreading fire and smoke gases in the case of fire. The materials used in buildings, air distribution systems and their components shall not contribute to the development of fire in accordance with any local requirement.

If there are local requirements on the reaction to fire of materials and/or resistance to fire, they shall be observed.

### **4.2 Design of air distribution systems**

Air distribution systems shall be turned off in case of fire, unless local requirements allow for other procedures.

### **4.3 Installation**

Use the manufacturer's instructions for all components.

The sealings through fire resistance enclosures (e.g. ceiling or walls), shall be in accordance with local requirements.

## **5 Requirements for components intended for fire precautions**

### **5.1 General**

The performance, which will be achieved by the product in end-use conditions, shall reflect the results of product fire resistance, fire reaction and smoke control testing, when required, and in accordance with the local regulations, if any. A product shall be tested as a complete assembly with all necessary components which affect fire resistance performance as described in the product standard.

Optional accessories can be available for a product.