სსტ ენ 12101-7:2011/2018

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Smoke and heat control systems - Part 7: Smoke duct sections

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Rauch- und Wärmefreihaltung - Teil 7: Entrauchungskanalstücke

This European Standard was approved by CEN on 17 March 2011.

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Foreword

This document (EN 12101-7:2011) has been prepared by Technical Committee CEN/TC 191 “Fixed firefighting systems”, 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of an identical text or by endorsement, at the latest by November 2011, and conflicting national standards shall be withdrawn at the latest by November 2011.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This European Standard has the general title “*Smoke and heat control systems*” and consists of the following separate Parts:

Part 1: Specification for smoke barriers,

Part 2: Specification for natural smoke and heat exhaust ventilators,

Part 3: Specification for powered smoke and heat exhaust ventilators,

Part 4: Installed SHEVS systems for smoke and heat ventilation (Technical Report (TR)),

Part 5: Guidelines on functional recommendations and calculation methods for smoke and heat exhaust ventilation systems (TR),

Part 6: Specification for pressure differential systems – Kits,

Part 7: Smoke duct sections (this standard),

Part 8: Smoke control dampers,

Part 9: Control panels,

Part 10: Power supplies.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European Standard contains the basic performance and requirements for smoke control duct sections, which are to be used in conjunction with pressure differential systems and smoke and heat control systems. They may also be used to pressurise when gas extinguishing systems are used.

Particular reference is required to EN 1366-8 and EN 1366-9, which define the fire resistance testing associated with these products and EN 13501-4, which provides details on their fire resistance classification.

In addition to the prevention of transmission of smoke and combustion products from a fire zone, smoke control duct sections are utilised to contain the spillage of otherwise harmful and toxic extinguishing gases from the affected area, and for the control of pressurising and excess air relief within pressurisation systems.

Smoke control systems are designed to fulfil three basic functions. These are:

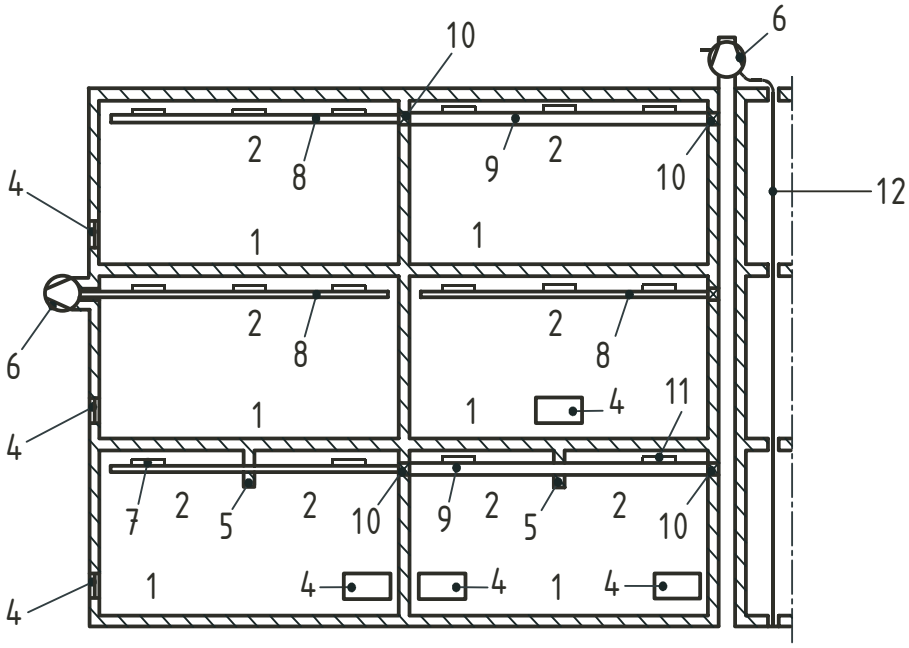
a) the extraction of smoke from a single fire compartment to the outside of the building;

b) the extraction of smoke from fire compartments of a building, using a SHEVS connected to one or more fire compartments. The smoke control duct may or may not pass through other compartments of the building to reach the outside of the building;

c) the use of pressurisation to maintain smoke free clear areas.

Smoke control ducts are commonly used in smoke and heat control systems. They may serve single compartments or a number of different fire compartments. The systems may be dedicated smoke extraction or possibly a combined environmental ventilation/smoke extraction.

The smoke and heat control system may remove smoke using either high temperature fans (in accordance with EN 12101-3) or natural ventilators (in accordance with EN 12101-2).



Key

1 Fire compartment
2 Smoke reservoir
4 Air inlet
5 Smoke barrier
6 Powered smoke and heat exhaust ventilator (fan)
7 Smoke control dampers for single compartments (FprEN 12101-8 and prEN 1366-10)
8 Smoke control duct sections for single compartments (FprEN 12101-7 and EN 1366-9)
9 Smoke control duct sections for multi compartments (FprEN 12101-7 and EN 1366-8)
10 Smoke control dampers for multi compartments (FprEN 12101-8 and prEN 1366-10) mounted inside or outside of wall or floor
11 Smoke control dampers for multi compartments (FprEN 12101-8 and prEN 1366-10) mounted on the surface of the duct
12 Electrical equipment

Figure 1 – Example of powered smoke and heat exhaust ventilation

Further guidance on the application of smoke control ducts may be found within the rest of the EN 12101 series of harmonised standards and technical reports.

The areas for which products supplied to this European Standard are considered applicable include for example:

a) commercial premises,

b) shopping and retail centres,

c) hospitals,

d) multi-residential buildings.

Smoke control duct sections are intended for use in the following types of systems, including:

a) pressurisation,

b) pressure relief,

c) extraction systems,

d) ductwork systems,

e) inerting fire suppression systems.

It is realised that all the above systems do not address smoke directly, but similar properties are required of such smoke control ducts to limit leakage in a fire and smoke control situation.