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**SMOKE AND HEAT CONTROL SYSTEMS -
PART 2: SPECIFICATION FOR NATURAL
SMOKE AND HEAT EXHAUST VENTILATORS**

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**Smoke and heat control systems - Part 2: Specification for
natural smoke and heat exhaust ventilators**

Systèmes pour le contrôle des fumées et de la chaleur -
Partie 2: Spécifications pour les dispositifs d'évacuation de
fumées et de chaleur

Rauch- und Wärmefreihaltung - Teil 2: Festlegungen für
natürliche Rauch- und Wärmeabzugsgeräte

This European Standard was approved by CEN on 9 April 2003.

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EN 12101-2:2003 (E)

Foreword

This document EN 12101-2:2003 has been prepared by CEN /TC 191, "Smoke and heat control 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of an identical text or by endorsement, at the latest by September 2003, and conflicting national standards shall be withdrawn at the latest by September 2005.

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 is one of ten parts of the European Standard EN 12101 covering smoke and heat control systems.

This European Standard has the general title *Smoke and heat control systems* and consists of the following six parts:

Part 1: *Specification for smoke barriers — Requirements and test methods*

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

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

Part 4: *Natural smoke and heat exhaust ventilation systems — Installation and test methods*

Part 5: *Design and calculation for smoke and exhaust ventilation systems (published as CR 12101-5)*

Part 6: *Design and calculation methods and installation procedure for pressure differential smoke control systems*

Part 7: *Specification for smoke ducts*

Part 8: *Specification for smoke dampers*

Part 9: *Specification for control panels and emergency control panels*

Part 10: *Specification for power supplies*

EN 12101 is included in a series of European Standards planned to cover also:

- Gas extinguishing systems (EN 12094 and ISO 14520-1)
- Sprinkler systems (EN 12259)
- Powder systems (EN 12416)
- Explosion protection systems (EN 26184)
- Foam systems (EN 13565)
- Hose systems (EN 671)
- Water spray systems

Annexes A, B, C, D, E, F and G are normative.

This document includes a Bibliography.

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

Introduction

In a fire situation, smoke and heat exhaust ventilation systems create and maintain a smoke free layer above the floor by removing smoke. They also serve simultaneously to exhaust hot gases released by a fire in the developing stages. The use of such systems to create smoke-free areas beneath a buoyant layer has become widespread. Their value in assisting in the evacuation of people from buildings and other construction works, reducing fire damage and financial loss by preventing smoke damage, facilitating access for firefighting by improving visibility, reducing roof temperatures and retarding the lateral spread of fire is firmly established. For these benefits to be obtained it is essential that smoke and heat exhaust ventilators operate fully and reliably whenever called upon to do so during their installed life. A smoke and heat exhaust ventilation system (referred to in this standard as a SHEVS) is a system of safety equipment intended to perform a positive role in a fire emergency.

1 Scope

This part of this European Standard specifies requirements and gives test methods for natural smoke and heat exhaust ventilators which are intended to be installed as a component of a natural smoke and heat exhaust system.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 54-7, *Fire detection and fire alarm systems - Part 7: Smoke detectors - Point detectors using scattered light, transmitted light or ionization.*

EN 1363-1, *Fire resistance tests - Part 1: General requirements.*

EN 12259-1, *Fixed firefighting systems - Components for sprinkler and water spray systems - Part 1: Sprinklers.*

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

EN 60584-1, *Thermocouples - Part 1: Reference tables (IEC 60584-1:1995).*

3 Terms and definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1.1

aerodynamic efficiency

another term for coefficient of discharge (see 3.1.8)

3.1.2

aerodynamic free area

product of the geometric area multiplied by the coefficient of discharge

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