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**Smoke and heat control systems —**

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

*Systèmes de contrôle de fumée et de chaleur —*

*Partie 2: Spécifications pour les dispositifs d'évacuation naturelle des  
fumées et de la chaleur*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 21927-2 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 11, *Smoke and heat control systems and components*.

ISO 21927 consists of the following parts, under the general title *Smoke and heat control systems*:

- *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*

## 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 fire-fighting 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 part of ISO 21927 as a SHEVS) is a system of safety equipment intended to perform a positive role in a fire emergency.

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# Smoke and heat control systems —

## Part 2:

## Specification for natural smoke and heat exhaust ventilators

### 1 Scope

This part of ISO 21927 specifies requirements and gives test methods for natural smoke- and heat-exhaust ventilators that are intended to be installed in a roof and/or wall as a component of a natural smoke- and heat-exhaust system.

### 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.

ISO 6182-1, *Fire protection — Automatic sprinkler systems — Part 1: Requirements and test methods for sprinklers*

ISO 7240-7, *Fire detection and alarm systems — Part 7: Point-type smoke detectors using scattered light, transmitted light or ionization*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13943 and the following apply.

#### 3.1

##### **aerodynamic free area**

product of the geometric area multiplied by the coefficient of discharge

#### 3.2

##### **ambient**

properties of the surroundings

#### 3.3

##### **automatic activation**

initiation of operation without direct human intervention

#### 3.4

##### **aspect ratio**

ratio of length to width

#### 3.5

##### **automatic natural smoke- and heat-exhaust ventilator**

smoke- and heat-exhaust ventilator that is designed to open automatically after the outbreak of fire if called upon to do so

**NOTE** Automatic natural smoke- and heat-exhaust ventilators can also be fitted with a manual control or release device.