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**Fire safety engineering — General  
principles —**

**Part 1:  
General**

*Ingénierie de la sécurité incendie — Principes généraux —  
Partie 1: Généralités*



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Published in Switzerland

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 92, *Fire safety*, Subcommittee SC 4, *Fire safety engineering*.

This first edition of ISO 23932-1 cancels and replaces ISO 23932:2009, which has been technically revised.

The main changes compared to the previous edition are as follows:

- a clarification of the FSE process ([Figure 1](#)) has been added and the document has been restructured subsequently in accordance with the performed changes;
- an expanded discussion of the types of risk analysis approaches commonly used for FSE has been added;
- references to relevant FSE standards have been added;
- examples to illustrate the FSE process have been added.

A list of all parts in the ISO 23932 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

Fire safety designs often rely on prescriptive specifications set in national, regional or local regulations. It is possible that various engineering approaches also be allowed by these regulations. In addition to prescriptive design, regulations can also allow the use of performance-based design, i.e. the reliance on engineering methods to determine whether a given design meets stated performance objectives. Fire safety can be evaluated through engineering approaches based on the quantification of the behaviour of fire and people, and based on the knowledge of the consequences of such behaviour on life, property, operations, environment and heritage.

Fire safety engineering (FSE) is used in support of performance-based fire safety design. The FSE process not only involves fire safety design, but also extends to the implementation of fire safety design plans and fire safety management.

The difference between prescriptive and performance-based fire safety design is highlighted in this document by requiring fire safety objectives (FSO), functional requirements (FR) and performance criteria (PC) to be explicitly stated in performance-based fire safety design.

This document sets forth the general principles and requirements for a performance-based fire safety design and the implementation of fire safety design plans and fire safety management. Hence, it is important that this document be viewed as an outline of the FSE process, and not as a detailed design methodology. This document provides the process (necessary steps) and essential elements that are needed to design, implement and maintain a robust performance-based fire safety programme.

A set of ISO documents on FSE is available, which provides methods and data supporting the steps in a FSE design, as defined in the ISO 23932 series. This coherent set of ISO documents ensures an effective and correct application of FSE, which includes performance-based fire safety design, implementation of fire safety design plans and fire safety management.

# Fire safety engineering — General principles —

## Part 1: General

### 1 Scope

This document provides general principles and requirements for FSE, and is intended to be used by professionals involved in

- 1) performance-based fire safety design (of both new and existing built environments),
- 2) implementation for fire safety design plans, and
- 3) fire safety management.

This document is not intended as a detailed technical design guide, but does provide the key elements necessary for addressing the different steps and their linkages in the fire safety design process. This document also provides key elements linked to the implementation of fire safety design plans and fire safety management. This document is intended not only to be used on its own, but also in conjunction with a consistent set of FSE documents covering methods in performance-based fire safety design, implementation and management.

FSOs covered by this document include:

- safety of life;
- property protection;
- continuity of operations;
- protection of the environment;
- preservation of heritage.

The general principles and requirements of FSE can be applied to all configurations of the built environment, i.e. buildings or other structures (e.g. off-shore platforms; civil engineering works, such as tunnels, bridges and mines; and means of transportation, such as motor vehicles and marine vessels), but may not be applicable for construction sites.

Because prescriptive regulations covering fire safety design commonly co-exist with performance-based design, this document acknowledges that fire safety designs conforming to prescriptive regulations can become the basis for comparison of engineered designs of built environments.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 13943, *Fire safety — Vocabulary*

### 3 Terms and definitions

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