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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 31540.2-2015

**Fire safety engineering guide -- Part 2: Initiation and
development of fire and generation of fire effluents**

消防安全工程指南 第2部分：火灾发生、发展及烟气的生成

(English Translation)

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Appendix A (informative) of this section and the ISO/T R13387-4. Article 1999 of Chapter 14 case control number

Annex B (informative) of this section and the ISO/T R13387-4. technical differences between 1999 and Its Causes

Annex C (normative) flue gas measurement units

Foreword

GB/T 31540 "Fire Safety Engineering Guidelines" consists of the following components.

- Part 1. Performance-based design application;
- Part 2. fire, smoke generation and development;
- Part 3. Structural Response and indoor fires spread outside;
- Part 4. detection, and fire started;

This section GB/T Part of 231,540.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This part redrafted modification method using ISO/T R13387-4.1999 "Fire Safety Engineering Guidelines - Part 4. Fire hair Health, Development and smoke generation. " Listed in Appendix A of this part of the reg number and ISO/T R13387-4.1999 Number of control clauses List. This part of ISO/T and R13387-4.1999 technical differences have also been incorporated into the text, and in terms of which they are involved page Identified by a single vertical line in the margin. The list of technical differences and the reasons given in Appendix B for reference.

This section also made the following editorial changes.

- Deleted international standards foreword, preface redrafted;
- Modify the introduction of international standards, as a part of this introduction;
- International standard "this International Standard" be replaced by "GB/T 31540 this part" or "this part";
- The International Standard some punctuation modified to comply with Chinese habit of punctuation;
- Deleted the references to international standards;
- Increase the informative Appendix A and Appendix B.

This section presents the People's Republic of China Ministry of Public Security.

This part of the National Standardization Technical Committee on Fire Building Fire Safety Engineering at the Technical Committee (SAC/TC113/SC13) Centralized.

This section is responsible for drafting unit. Ministry of Public Security of Sichuan Fire Research Institute.

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Introduction

The past 20 years, on fire, and smoke generation model development has been greatly developed, but also for the advancement of computing technology test Model provides the input data, but also to large scale fire test can be used to verify the validity and limitations of computational models.

Fire safety design objectives is to prevent fires and reduce the size of the fire. By limiting the current fire codes generally combustible materials Use, control fire and reduce the fire load method to prevent fires and reduce the size of the fire, while using material Reaction to fire tests and combustion properties of materials classification method for controlling ignition performance, flame propagation, burn rate, smoke and toxic formation.

Assess the occurrence of fire, smoke generation and development is an important part of the performance-based design and assessment. This section provides Using fire model or test methods to predict the likelihood of a building fire, fire development, smoke and fire product flow, etc., Building fire risk assessment specific workflow. This section should be GB/T 31540 other parts used in common.

This section for professionals engaged in fire safety engineering, including building fire staff, fire rescue personnel, fire safety standards Norm makers, insurers, fire safety officers, standard users should fully understand the calculation method given in this section of the relevant parameters Meaning and application conditions.

Fire Safety Engineering Guidelines Part 2. fire, smoke generation and development

1 Scope

This section GB/T 31540 of the calculation method used to predict the occurrence of fire engineering, development and fumes generated can be used to assess in order to reduce the chance of fire, limiting the development of fire, heat and smoke reduced accumulation of toxic combustion products as the goal of the effectiveness of fire safety measures.

This section applies to building fire safety engineering and fire risk assessment, as well as related engineering and computing applications.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 5907 (all parts) Fire Vocabulary GB/T 31540.1 Fire Safety Engineering Guide Part 1. Performance of Application Design (GB/T 31540.1-2015, ISO/T R13387-1.1999, MOD)
GB/T 31593.4 Fire safety engineering - Part 4. Setting fire scenarios and select the setting fires (GB/T 31593.4-2015, ISO 16733:2006, MOD) ISO 5658 (all parts).2006 pairs of reaction to fire test flame spread (Reactiontofiretests-Spreadofflame)

3 Terms and Definitions

GB/T 5907 defined by the following terms and definitions apply to this document.

Fuel-air ratio air-fuelratio Mass ratio of fuel and air.

Mass loss rate rateoflostmass when fuel combustion, mass loss rate per unit time, in kilograms per second (kg/s).

Ignition temperature Under specific test environment by measuring certain substances can cause continuous combustion minimum temperature in Kelvin (K).

Thermal inertia krhoc Thermal conductivity, density and specific heat of the composite parameter, in units of $J^2/(m^4 \cdot K^2 \cdot s)$.

The total cross-sectional area of smoke particles
totalcross-sectionalareaofsmoke and the optical path perpendicular to the average cross-sectional area multiplied by the number of particles in cigarette smoke particles in square meters (m^2).