

ICS 13.220.01
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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 31540.3-2015

**Fire safety engineering guide -- Part 3: Structural response and
fire spread beyond the enclosure of origin**

消防安全工程指南 第3部分：结构响应和室内火灾的对外蔓延

(English Translation)

Issued on: May 15, 2015

Implemented on: August 1, 2015

Issued by: Standardization Administration of China

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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 331,540.

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

This section uses redrafted law revision using ISO/T R13387-6. Room 1999 "Fire Safety Engineering structural response and closed fire Foreign spread. " this part of ISO/T R13387-6.1999 compared to the structure have more adjustment, listed in Appendix A of this part of the ISO/TR13387-6:1999 Number of reg control list.

This part of ISO/T R13387-6.1999 technical differences exist compared to the terms of these differences has been involved through its outer margin Vertical single line blank position (I) have been marked, in Appendix B gives the corresponding list of technical differences and their causes.

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 "this section;
- The International Standard some punctuation modified to comply with the Chinese habit of punctuation.

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

Whether it is a "prescriptive" provisions or performance-based fire safety design methods, should ensure that building components can be prevented or delayed Fire spread and structural failure; to ensure that the spread of fire and structural failure does not threaten the safety of people in buildings and fire rescue personnel, it does not affect the achievement of other fire safety objectives.

"Prescriptive" fire safety design commonly used building components resistance test methods GB/T 9978.1 prescribed to determine building elements Fire resistance standard criterion mainly refractory stability, fire insulation and fire integrity. Fire codes in our country in general, according to Jian Use buildings, the height of the fire district and the size of the building, on the fire resistance of building elements requested.

This section is part of the overall assessment of the fire safety system. Using the calculation method given in this part of the project, in a representative Under the conditions set fire scenarios, calculate building components for thermal and mechanical response of the fire response. On this basis, the use of appropriate assessment criteria Fire spread trends and assess the possibility of structural failure.

This section for professionals engaged in fire safety engineering design personnel including fire, fire and rescue personnel, and standardize standards who, insurers, fire safety management and risk management, standard user should fully understand the calculation method given in this section related Meaning and application conditions parameters.

Fire Safety Engineering Guidelines Part 3. Indoor and structural response External fire spread

1 Scope

GB/T 31540 Part of the assessment is divided into the hazard of fire and the extent of structural fire spread direction, and the corresponding fire safety measures the effectiveness of the provisions of the framework applied engineering calculation methods.

This section applies to predict structural response of building components under conditions of fire caused by the fire, and the fire inside the building and construction the spread of material between.

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 9978.1 building components resistance test methods - Part 1. General requirements (GB/T 9978.1-2008, ISO 834-1.

1999, MOD)

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 31540.2 Fire Safety Engineering Guidelines - Part 2. fire, smoke generation and development (GB/T 31540.2-2015, ISO/T R13387-4.1999, MOD)

3 Terms and Definitions

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

Building components buildingelement Part of the building structure, including floors, walls, beams, columns, doors, etc., but not within the storage building.

Closed from enclosure the building components from the enclosed space.

Mechanical Response Buildings member offsets the change in the fire, stiffness and stability of the change, fire or building material shrinkage (expansion), stripping Buildings member down, hierarchical and other reasons caused by the opening (crack) changes.

Thermal Response the melting process of cracking fire in the building component changes in temperature, as well as building components affected by the high temperature of the fire.