

ICS 13.220.50
CCS C 82



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

GB/T 26784-2011

**Fire resistance test for elements of building construction --
Alternative and additional procedures
(English Translation)**

Issued on: July 20, 2011

Implemented on: November 1, 2011

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China**

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative References...	4
3 Terms and Definitions...	5
4 Alternative Heating Curves...	5
5 Additional Test Procedures...	13

Foreword

This Standard is developed in accordance with the rules given in GB/T 1.1-2009.

This Standard refers to the technical content of EN 1363-2.1999 Fire Resistance Tests - Part 2. Alternative and Additional Procedures (English edition).

This Standard is changed largely from EN 1363-2.1999 in terms of structure. See Annex A for the comparison of chapter and article numbers in this Standard and those in EN 1363-2.1999.

There are technical differences between this Standard and EN 1363-2.1999. The differences are marked by perpendicular single line (|) in the outer side page margin of corresponding clauses. See Annex B for the list of corresponding technical differences and their reasons.

This Standard was proposed by the Ministry of Public Security of the People's Republic of China.

This Standard shall be under the jurisdiction of Subcommittee on Fire Endurance of Building Elements of National Technical Committee on Fire Protection of Standardization Administration of China (SAC/TC 113/SC 8).

Fire Resistance Test for Elements of Building

Construction - Alternative and Additional Procedures

Warning. The fire resistance test of for elements building construction may be hazardous and there is a possibility that toxic and/or harmful smoke and gases may

be evolved during the test. Mechanical and operational hazards may also arise during the construction of the test specimens, and their testing and disposal of test residues. An assessment of all potential hazards and risks to health shall be made and safety precautions shall be identified and provided. Written safety instructions shall be issued. Appropriate training shall be given to relevant personnel.

Laboratory personnel shall ensure that they follow written safety instructions at all times.

1 Scope

This Standard specifies alternative fire heating curves and other procedures that may need to be adopted under special fire circumstances of the elements of building construction.

The alternative fire heating curves include hydrocarbon (HC), external fire exposure, slow heating, electric fire and tunnel fire RABT-ZTV heating curves; the additional test procedures include (weight and spray water) impact test and measurement of radiation.

This Standard is applicable to the elements or accessories of building construction which need to be subject to fire resistance test under special fire heating curve conditions and/or to be subject to other additional tests during fire resistance test.

Unless one of the alternative fire heating curves is specifically required, the standard temperature-time curve given in GB/T 9978.1 shall be used. Similarly, the (weight and spray water) impact test and measurement of radiation shall only be undertaken when they are specifically requested.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated reference, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 5907 Fundamental Terminology of Fire Protection - Part 1

GB 6246 Lined Fire Hose - Performance Requirements and Test Methods

GB 8181 Fire Nozzles

GB/T 9978.1 Fire-resistance Tests - Elements of Building Construction - Part 1.General

Requirements (GB/T 9978.1-2008, ISO 834-1.1999, MOD)

GB/T 9978.4 Fire-resistance Tests - Elements of Building Construction - Part 4. Specific Requirements for Loadbearing Vertical Separating Elements (GB/T 9978.4-2008, ISO 834-4.2000, MOD)

3 Terms and Definitions

For the purposes of this document, the terms and definitions given in GB/T 5907 and GB/T 9978.1 and the following apply.

3.1

heat flux

the quantity of heat energy per unit area incident on the target of the measuring device. It includes heat transferred by convection as well as that due to radiation

4.1.1 General

In assessment on the fire resistance of the elements of building construction under fire conditions of liquid hydrocarbon, hydrocarbon (HC) heating curve specified in 4.1.2 may be adopted to carry out fire resistance test.

4.1.3 Tolerances for furnace temperature

During the fire resistance test according to standard temperature-time curve of hydrocarbon (HC) fire, the percentage deviation (d_e) in the area of the curve of the average temperature measured and recorded by the thermocouples in fire-resistance test furnace versus time from the area of the temperature-time curve specified in standard shall be represented by Formula (2), and the value of d_e shall be controlled within.

4.3.1 General

In assessment on the fire resistance of the separating elements of building construction under slowly growing fire conditions, slow heating curve specified in 4.3.2 may be adopted to carry out fire resistance test.

4.3.3 Tolerances for furnace temperature

During the fire resistance test according to standard temperature-time curve of slowly growing fire, the deviation of temperature in fire-resistance test furnace shall be controlled as stated in 4.1.3.

4.3.4 Assessment of performance

Fire resistance of samples shall be assessed by comparing the behaviours of samples tested using the slow heating curve with that obtained using the standard temperature-time curve specified in GB/T 9978.1.

4.4.1 General

In assessment on the fire resistance of the elements of building construction or cable plugging components under electric fire conditions (with organic polymer materials as the main fuel), electric fire heating curve specified in 4.4.2 may be adopted to carry out fire resistance test.

4.5.1 General

In assessment on the fire resistance of elements of building construction or tunnel structures under tunnel fire RABT-ZTV heating conditions, tunnel fire RABT-ZTV heating curve specified in 4.5.2 may be adopted to carry out fire resistance test.

4.5.3 Tolerances for furnace temperature

During the fire resistance test according to tunnel fire RABT-ZTV heating curve specified in this chapter, the percentage deviation (d_e) in the area of the curve of the average temperature measured and recorded by the thermocouples in fire-resistance test furnace versus time from the area of the temperature-time curve specified in standard shall be represented by Formula (2), and the value of d_e shall be controlled within.

5.1.1 General

In actual building fire, the fire resistance (including fire separation function) of such elements and accessories of building construction as fire wall, fire partition, fire resistant