International Standard

ISO 834-1

Second edition
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Fire-resistance tests — Elements of building construction —

Part 1: General requirements

Essai de résistance au feu — Éléments de construction —

Partie 1: Exigences générales

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Foreword

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This document was prepared by Technical Committee ISO/TC 92, *Fire Safety*, Subcommittee SC 2, *FireResistance*.

This second edition cancels and replaces the first edition of ISO 834-1:1999 and the second edition of ISO/TR 834-3:2012, which have both been technically revised. It also incorporates the Amendment(s) ISO 834-1:1999/Amd 1:2012 and ISO 834-1:1999/Amd 2:2021.

The main changes are as follows:

— the content has been aligned with EN 1363-1: additional time-temperature curves have been added and changes have been made with respect to the criteria for load bearing capacity.

A list of all parts in the ISO 834 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.

Introduction

The main changes made in this document with respect to ISO 834-1:1999/Amd2:2021 have been to align with EN 1363-1. In that respect, additional time-temperature curves have been added, and changes have been made to the criteria for load bearing capacity. ISO/TC 92/SC 2 appreciates that such criteria are in essence a contemporary compromise between state of the art science on structural behaviour in fire, and considerations reflecting the practical implication for use in fire laboratories, respecting the safety of staff and protecting the test equipment. EN 1363-1 was revised in 2019 (published officially in 2020), not directly based on scientific evidence but leaning more on practical considerations, with a view to judge different structures on a fair and equal basis, regardless of their failure mode in fire. Over the past couple of years, the revised EN 1363-1 has been used satisfactorily in Europe. Taking good notice of this, and after good discussion, ISO/TC 92/SC 2, decided to adopt the EN 1363-1:2020 changes.

Fire-resistance tests — Elements of building construction —

Part 1: General requirements

1 Scope

This document specifies a test method for determining the fire resistance of various elements of construction when subjected to fire exposure conditions, represented with standardized time-temperature curves. The test data thus obtained will permit subsequent classification on the basis of the duration for which the performance of the tested elements under these conditions satisfies specified criteria.

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 834-2, *Fire-resistance tests — Elements of building construction — Part 2: Requirements and recommendations for measuring furnace exposure on test samples*

ISO 13943, *Fire safety — Vocabulary*

IEC 60584-1, *Thermocouples — Part 1: EMF specifications and tolerances*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
actual material properties
properties of a material determined from representative samples taken from the specimen for the fire test according to the requirements of the concerned product standard

3.2
calibration test
procedure to assess the test conditions experimentally

3.3
deformation
any change in dimension or shape of an element of construction due to structural and/or thermal actions

Note 1 to entry: This includes deflection, expansion or contraction of elements.

3.4
element of building construction
defined construction component, such as a wall, partition, floor, roof, beam or column