
**Fire-resistance tests — Elements of
building construction —**

Part 2:

**Guidance on measuring uniformity of
furnace exposure on test samples**

Essais de résistance au feu — Éléments de construction —

*Partie 2: Lignes directrices pour la mesure de l'uniformité de l'exposition
au feu des échantillons pour essai*



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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.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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.

ISO/TR 834-2 was prepared by Technical Committee ISO/TC 92, *Fire safety*, Subcommittee SC 2, *Fire containment*.

ISO 834 consists of the following parts, under the general title *Fire-resistance tests — Elements of building construction*:

- *Part 1: General requirements*
- *Part 2: Guidance on measuring uniformity of furnace exposure on test samples* [Technical report]
- *Part 3: Commentary on test method and test data application* [Technical report]
- *Part 4: Specific requirements for loadbearing vertical separating elements*
- *Part 5: Specific requirements for loadbearing horizontal separating elements*
- *Part 6: Specific requirements for beams*
- *Part 7: Specific requirements for columns*
- *Part 8: Specific requirements for non-loadbearing vertical separating elements*
- *Part 9: Specific requirements for non-loadbearing ceiling elements*

Introduction

The purpose of this Technical Report is to recommend a procedure to measure the exposure of a test sample to a furnace during a test conducted in accordance with ISO 834 (all parts). The furnace exposure is determined by measuring temperature, air velocity and oxygen concentration at various locations. The recommended procedure includes the use of low-cost, readily available, lightweight materials to represent the test sample. The recommended materials minimize the influence of variable moisture content among samples.

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Fire-resistance tests — Elements of building construction —

Part 2:

Guidance on measuring uniformity of furnace exposure on test samples

1 Scope

This Technical Report establishes general principles for measuring the uniformity of furnace exposure of samples tested in accordance with the requirements of ISO 834-1. This Technical Report specifies the type and location of instrumentation used to measure the temperature, velocity and oxygen content near the surface of simulated test samples. The surface of the simulated sample facing the furnace is gypsum board secured to cold-formed steel supports.

This Technical Report does not include requirements for furnace performance.

2 Normative references

The following referenced documents are indispensable for the application 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 834-1, *Fire resistance tests — Elements of building construction — Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

effective area of furnace opening

furnace opening within the boundaries of the monitoring instrumentation

4 Test equipment

4.1 Supporting construction

4.1.1 The supporting construction shall consist of cold-formed steel supports faced with two layers of gypsum board a minimum of 16 mm thick intended for use in fire-barrier assemblies on the side facing the furnace and with a single-layer structural panel a minimum of 18 mm thick on the side facing away from the furnace.

NOTE 1 Gypsum boards used in fire barrier assemblies are identified as Type X by ASTM C1396 and as Type F by EN 520.

NOTE 2 Plywood and oriented strand boards are considered typical structural panels.