

Fire resistance tests — Elements of building construction — Glazed elements

ICS 13.220.50; 81.040.20

National foreword

This British Standard reproduces verbatim ISO 3009:2003 and implements it as the UK national standard.

The UK participation in its preparation was entrusted by Technical Committee FSH/22, Fire resistance tests, to Subcommittee FSH/22/7, Fire test procedures for partitions and walls, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Summary of pages

This document comprises a front cover, an inside front cover, the ISO title page, pages ii to v, a blank page, pages 1 to 26, an inside back cover and a back cover.

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INTERNATIONAL STANDARD

ISO 3009

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Fire-resistance tests — Elements of building construction — Glazed elements

*Essais de résistance au feu — Éléments de construction — Éléments
en verre*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

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 3009 was prepared by Technical Committee ISO/TC 92, *Fire safety*, Subcommittee SC 2, *Fire containment*.

This second edition cancels and replaces the first edition (ISO 3009:1976), which has been technically revised.

Introduction

This International Standard contains specific requirements for fire resistance testing which are unique to glazed elements used in building construction. The requirements for these glazed elements are intended to be applied, as appropriate, in conjunction with the detailed and general requirements given in ISO 834-1.

Fire-resistance tests — Elements of building construction — Glazed elements

SAFETY PRECAUTIONS — The attention of all persons concerned with managing and carrying out this fire resistance test is drawn to the fact that fire testing can be hazardous and that there is a possibility that toxic and/or harmful smoke and gases could be evolved during the test. Mechanical and operational hazards can also arise during the construction of the test elements or structures, 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 International Standard provides a test method for determining and assessing the fire resistance performance of both insulated and uninsulated glazed elements of building construction, when those elements are exposed to heating on one face. It is applicable to glazed separating elements such as screens, walls of glass blocks and other light-transmitting assemblies used in vertical, inclined or horizontal orientations, and to all separating elements containing glazing intended to be assessed in accordance with ISO 834-1 — except for doors and shutter assemblies, which are intended to be tested in accordance with ISO 3008. It is directly applicable to planar elements, but also gives guidance on the testing of non-planar elements such as pyramids.

The application of the test results to other, untested, forms of construction is acceptable only when the construction complies with the field of direct application given in this International Standard or when it is subjected to a field of extended application analysis in accordance with ISO/TR 12470.

NOTE Since ISO/TR 12470 gives only general guidelines, specific extended application analyses are to be performed only by persons expert in fire-resistant constructions.

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 834-1:1999, *Fire-resistance tests — Elements of building construction — Part 1: General requirements*

ISO 834-8, *Fire-resistance tests — Elements of building construction — Part 8: Specific requirements for non-loadbearing vertical separating elements*

ISO 6308, *Gypsum plasterboard — Specification*

ISO 13943, *Fire safety — Vocabulary*

3 Terms, definitions and symbols

For the purposes of this document, the terms and definitions given in ISO 13943, the following terms and definitions, and the symbols given in ISO 834-1, apply.

3.1

aspect ratio

ratio of the exposed height to the exposed width of the glass

3.2

associated construction

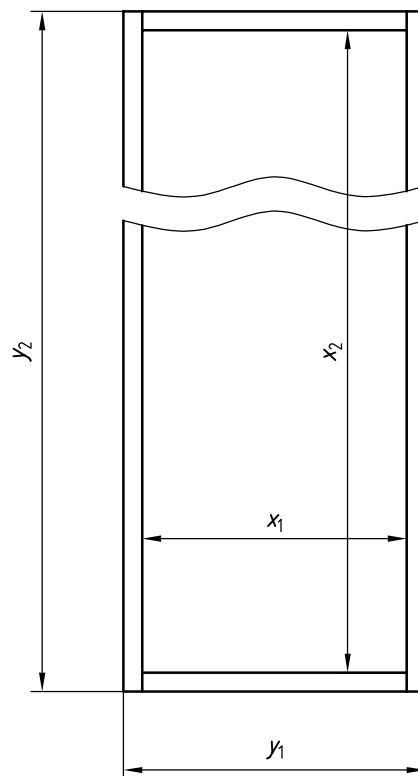
specific construction in which the glazed element is to be installed in practice and which is used to close off the furnace and provide the levels of restraint and thermal heat transfer to be experienced in normal use

3.3

expansion allowance

difference in dimension between the pane or unit and the opening/aperture in the frame or other method of attachment into which the panes or units are mounted, available for expansion

NOTE The dimensions are measured in two directions (e.g. vertical and horizontal for a vertical glazed element). See dimension $y-x$ in Figure 1.



- y_1 aperture width
- y_2 aperture height
- x_1 visible glass width
- x_2 visible glass height

Figure 1 — Elevation of glazed pane

3.4**fire-resistant gypsum board**

gypsum board with increased fire resistance as a result of additives to the formulation as specified in ISO 6308

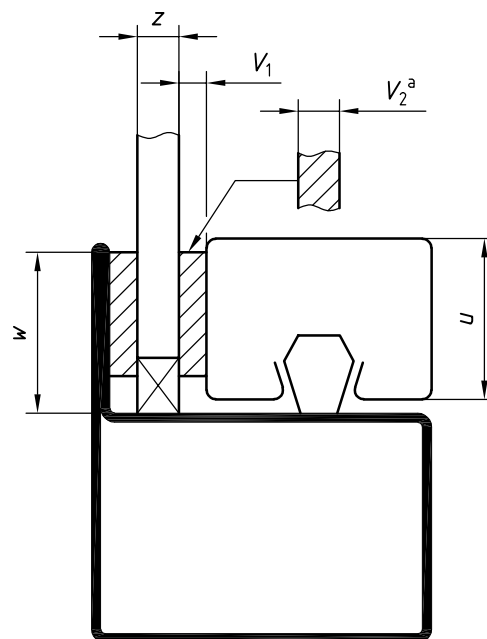
3.5**glass**

rigid transparent or translucent material installed in elements of construction for the purpose of vision or to allow the passage of light

3.6**glass edge cover**

depth of glass retained by the glazing system

NOTE Half the difference between the pane dimension and the exposed dimension, assuming that the pane is centrally glazed into the opening. See dimension w in Figure 2.



z glass thickness

w edge cover

V_2 pre-installed (for gaskets and strips)

V_1 post-installed (for gaskets and strips)

u depth

^a Uncompressed.

Figure 2 — Cross-section through framing/glazing system

3.7**glazed element**

element containing transparent or translucent panes or units retained in frames or other methods of attachment or units mounted or attached together to provide a barrier

3.8**horizontal glazed element**

glazed element intended for installations with inclinations of from 0° up to and including 25°