

INTERNATIONAL STANDARD

**ISO
9051**

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Glass in building — Glazed assemblies containing fire-resistant transparent or translucent glass, for use in building

*Verre dans la construction — Ensembles vitrés comportant du verre transparent ou
translucide, résistant au feu, pour utilisation dans le bâtiment*



Reference number
ISO 9051 : 1990 (E)

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.

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.

International Standard ISO 9051 was prepared by Technical Committee ISO/TC 160, *Glass in building*.

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Glass in building — Glazed assemblies containing fire-resistant transparent or translucent glass, for use in building

1 Scope

This International Standard specifies the classification and marking of transparent and translucent glass products, which will be described in future International Standards on basic or processed glass products, in assemblies for use in building and intended to provide some degree of fire-resistance.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 834 : 1975, *Fire-resistance tests — Elements of building construction*.

ISO 3009 : 1976, *Fire-resistance tests — Glazed elements*.

3 Fire-resistance characteristics of glazed assemblies

Glass is a non-combustible material and therefore will not contribute to or propagate fire.

Glass if affected by heat may fracture by thermal shock or may soften and then not be held by the frame. Only certain types of glazed assemblies are, therefore, recognized as fire-resisting. The ability of glazed assemblies to resist fire depends on the type of glass products, glazing method, frame type, pane size, fixing method and the type of construction surrounding the glazed area.

Some transparent and translucent glazed assemblies can meet requirements for stability and integrity (RE), and in some cases insulation (REI, where R is for resistance, E for étanchéité and I for insulation).

Not only is the possibility of direct fire propagation through openings caused by glass breakage to be considered for fire protection precautions: it may also be necessary to take into account the heat transmitted through the glazed assembly, which may still be intact, as such heat may cause ignition of combustible materials.

4 Classes

As glazed assemblies perform differently in case of fire, the type shall be classified into one of the following categories.

4.1 Class RE

Glazed assemblies of fire-resistance according to class RE under the fire conditions as defined in ISO 834 provide, for a given time, stability and integrity. The temperature of the unexposed side is not taken into account.

4.2 Class REI

Glazed assemblies of fire-resistance according to class REI under the fire conditions as defined in ISO 834 provide, for a given time, stability, integrity and insulation.

5 Frame, glass, glazing material and surrounding construction

The frame, glazing material and surrounding construction shall be such that the glazed assembly as a whole corresponds to the test report.

Glass of class RE could for example be:

- glass bricks,
 - glass with a low coefficient of thermal expansion, or glass ceramics,
 - glass toughened by thermal or chemical treatment,
 - wired glass,
 - flat glass in small panes,
 - laminated glass,
- in single or multiple glazings.

Glass of class REI could for example be:

- some types of glass bricks,
- some types of laminated glazings in single or multiple glazings.