
**Glass in building — Laminated glass and
laminated safety glass —**

Part 1:

Definitions and description of component parts

Verre dans la construction — Verre feuilleté et verre feuilleté de sécurité —

Partie 1: Définitions et description des composants



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 12543-1 was prepared by the European Committee for Standardization (CEN) in collaboration with ISO Technical Committee TC 160, *Glass in building*, Subcommittee SC 1, *Product consideration*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 12543 consists of the following parts, under the general title *Glass in building — Laminated glass and laminated safety glass*:

- *Part 1: Definitions and description of component parts*
- *Part 2: Laminated safety glass*
- *Part 3: Laminated glass*
- *Part 4: Test methods for durability*
- *Part 5: Dimensions and edge finishing*
- *Part 6: Appearance*

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Foreword

The text of EN ISO 12543-1:1998 has been prepared by Technical Committee CEN/TC 129 "Glass in building", the secretariat of which is held by IBN, in collaboration with Technical Committee ISO/TC 160 "Glass in building".

This part of the standard is one of a series of interrelated parts:

- EN ISO 12543-1: Glass in building - Laminated glass and laminated safety glass - Part 1: Definitions and description of component parts
- EN ISO 12543-2: Glass in building - Laminated glass and laminated safety glass - Part 2: Laminated safety glass
- EN ISO 12543-3: Glass in building - Laminated glass and laminated safety glass - Part 3: Laminated glass
- EN ISO 12543-4: Glass in building - Laminated glass and laminated safety glass - Part 4: Test methods for durability
- EN ISO 12543-5: Glass in building - Laminated glass and laminated safety glass - Part 5: Dimensions and edge finishing
- EN ISO 12543-6: Glass in building - Laminated glass and laminated safety glass - Part 6: Appearance

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 1998, and conflicting national standards shall be withdrawn at the latest by November 1998.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This Standard defines terms and describes component parts for laminated glass and laminated safety glass for use in building.

2 Normative references

This European Standard incorporates by dated or undated references, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

prEN 357-1	Glass in building - Transparent or translucent glass products for use in fire resisting glazed assemblies in building - Part 1: Specifications
EN 572-1	Glass in building - Basic soda lime silicate glass products - Part 1: Definitions and general physical and mechanical properties
EN 572-2	Glass in building - Basic soda lime silicate glass products - Part 2: Float glass
EN 572-3	Glass in building - Basic soda lime silicate glass products - Part 3: Polished wired glass
EN 572-4	Glass in building - Basic soda lime silicate glass products - Part 4: Drawn sheet glass
EN 572-5	Glass in building - Basic soda lime silicate glass products - Part 5: Patterned glass
EN 572-6	Glass in building - Basic soda lime silicate glass products - Part 6: Wired patterned glass
prEN 1096-1	Coated glass for use in buildings - Part 1: Characteristics and properties
EN 1748-1	Glass in building - Special basic products - Part 1: Borosilicate glasses
EN 1748-2	Glass in building - Special basic products - Part 2: Glass ceramics
prEN 1863	Glass in building - Heat strengthened glass
prEN 12150	Glass in building - Thermally toughened safety glass
prEN 12337	Glass in building - Chemically strengthened glass
prEN 13024-1	Glass in building - Thermally toughened borosilicate safety glass - Part 1: Specifications

3 Definitions

For the purposes of this standard the following definitions apply:

3.1 laminated glass: An assembly consisting of one sheet of glass with one or more sheets of glass and/or plastics glazing sheet material joined together with one or more interlayers (see annex A).

3.2 laminated glass with fire resistant properties: Laminated glass, which does not achieve its fire resistance by means of interlayers which react to high temperatures.

No glass product in itself can be classified as fire resistant. When the glass product is glazed into an appropriate frame system then the assembly can be tested and classified as fire resistant. This type of laminated glass can be used as a component in a fire resisting glazed assembly in conformity with prEN 357-1.

3.3 fire resistant laminated glass: Laminated glass where at least one interlayer reacts to the high temperature to give the product its fire resistance. This product may also contain glass components that are themselves fire resistant.

No glass product in itself can be classified as fire resistant. When the glass product is glazed into an appropriate frame system then the assembly can be tested and classified as fire resistant. This type of laminated glass can be used as a component in a fire resisting glazed assembly in conformity with prEN 357-1.

3.4 symmetrical laminated glass: Laminated glass in which, from both outer surfaces, the sequence of glass panes, plastics glazing sheet material and interlayer(s) by type, thickness, finish and/or general characteristics is the same.

3.5 asymmetrical laminated glass: Laminated glass in which, from both outer surfaces, the sequence of glass panes, plastics glazing sheet material and interlayer(s) by type, thickness, finish and/or general characteristics is different.

3.6 flat laminated glass: Laminated glass in which the constituent glass panes and plastics glazing sheet material have not been deliberately formed or bent in the course of manufacture.

3.7 curved laminated glass: Laminated glass in which the constituent glass panes and plastics glazing sheet material have been deliberately shaped by forming or bending prior to laminating.

3.8 laminated safety glass: Laminated glass where in the case of breakage the interlayer serves to retain the glass fragments, limits the size of opening, offers residual resistance and reduces the risk of cutting or piercing injuries.

3.9 stock sizes: Sizes which are intended to be recut or processed for final use.

3.10 finished sizes: Sizes which are either manufactured to size or cut from stock sizes, and may be further processed e.g. edgeworked, drilled or face decorated, etc.

3.11 interlayer: Layer or material acting as an adhesive and separator between plies of glass and/or plastics glazing sheet material. It can also give additional performance to the finished product e.g. impact resistance, resistance to fire, solar control, acoustic insulation.

3.12 folio lamination process: Lamination process where the interlayer is a solid film which is placed between the plies of glass or plastics glazing sheet material and is then subjected to heat and pressure to produce the final product.

3.13 cast-in-place lamination process: Lamination process where the interlayer is obtained by pouring a liquid between the plies of glass or plastics glazing sheet material and is then chemically cured to produce the final product.

NOTE: Other lamination processes than those defined in 3.12 and 3.13 are available which do not necessarily fit into either of the two methods described above.

4 Requirements

All glass components shall be in accordance with one or more of the following European Standards:

- EN 572-1 for coated glass
- EN 572-2 for float glass
- EN 572-3 for polished wired glass
- EN 572-4 for drawn sheet glass
- EN 572-5 for patterned glass
- EN 572-6 for wired patterned glass
- prEN 1096-1 for coated glass
- EN 1748-1 for borosilicate glasses
- EN 1748-2 for glass ceramics
- prEN 1863 for heat strengthened glass
- prEN 12150 for thermally toughened safety glass
- prEN 12337 for chemically strengthened glass
- prEN 13024-1 for thermally toughened borosilicate safety glass

NOTE 1: Other standards are in preparation:

“Glass in building - Heat soaked thermally toughened safety glass” (WI 00129055), “Glass in building - Heat strengthened borosilicate glass” (WI 00129057).

NOTE 2: Glass components can also comply with a European Technical Approval.

Annex A (informative)

Description of component parts

Laminated glass can be made from most combinations of glass, plastics glazing sheet material and interlayers described below (the list is not exhaustive):

- a) Glass:
- float glass
 - drawn sheet glass
 - patterned glass
 - polished wired glass
 - wired patterned glass

The glass may be:

- clear, tinted or coated
- transparent, translucent or opaque
- annealed, heat strengthened or toughened
- surface treated, e.g. by sandblast or acid etched

- b) Plastics glazing sheet material:
- polycarbonate
 - acrylic

The plastics glazing materials may be:

- clear, tinted or coated
- transparent or translucent

- c) Interlayers¹⁾ differ as regards:
- material type and composition
 - mechanical characteristics
 - optical characteristics

The interlayers¹⁾ may be:

- clear or coloured
- transparent, translucent or opaque
- coated

Glass materials are subject of product standards, see normative references.

When plastics glazing materials and interlayers are subject to standardization, see the normative references. When those materials are not subject of standardization, they will be subject of the laminated glass manufacturer's specifications, which appears in, or which are linked with, the quality procedures of the factory production control or of the quality assurance system.

¹⁾ When the lamination process is complete.