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Glass in building — Laminated glass and laminated safety glass —

Part 1: Vocabulary and description of component parts

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

Partie 1: Vocabulaire et description des composants

Reference number
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Contents

Page

Foreword ..... **iv**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **1**
3.1 General 1
3.2 Laminated glass and laminated safety glass 2

4 Description of component parts **4**
4.1 General 4
4.2 Glass composition and type 4
4.2.1 General 4
4.2.2 Glass composition 4
4.2.3 Glass type 4
4.2.4 Other characteristics of glass 5
4.3 Plastic glazing sheet material 5
4.4 Interlayers 5
4.5 Films, plates, wires and grids 5

Bibliography **6**

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 160, *Glass in building,* Subcommittee SC 1, *Product considerations,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 129, *Glass in building,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 12543-1:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

— editorial changes have been made;

— definitions in Clause 3 has been modified.

A list of all parts in the ISO 12543 series can be found on the ISO website.

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Glass in building — Laminated glass and laminated safety glass —

Part 1:
Vocabulary and description of component parts

1 Scope

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

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 12543-2, *Glass in building — Laminated glass and laminated safety glass — Part 2: Laminated safety glass*

ISO 12543-3, *Glass in building — Laminated glass and laminated safety glass — Part 3: Laminated glass*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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 http://www.electropedia.org/

3.1 General

3.1.1
laminated glass
assembly consisting of one sheet of glass with one or more sheets of glass and/or plastic glazing sheet material joined together with one or more *interlayers* (3.2.7)

Note 1 to entry: See ISO 12543-3.

3.1.2
laminated safety glass
laminated glass (3.1.1) classified in accordance with a soft body impact standard where in the case of breakage the *interlayer* (3.2.7) serves to retain the glass fragments, limits the size of opening, offers residual resistance and reduces the risk of cutting or piercing injuries

Note 1 to entry: See ISO 12543-2.

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3.2 Laminated glass and laminated safety glass

3.2.1
fire-resistant laminated glass
fire-resistant laminated glass with a fire-resistant interlayer
laminated glass (3.1.1) where at least one *interlayer* (3.2.7) reacts to the high temperature to give the product its fire resistance

Note 1 to entry: A glass product can only have its fire performance determined and classified when used in a fire-resistant glazed assembly.

Note 2 to entry: Laminated glass may achieve fire resistance by means of the performance of one or more of its glass components which are kept after lamination. This laminated glass has to be distinguished from the fire-resistant laminated glass with the fire resistant interlayer as defined above.

3.2.2
laminated glass with acoustic properties
laminated glass (3.1.1) where at least one *interlayer* (3.2.7) increases the sound transmission loss of the product

Note 1 to entry: The interlayer can be evaluated in accordance with ISO 16940, which measures the mechanical impedance of laminated glass.

3.2.3
symmetrical laminated glass
laminated glass (3.1.1) in which, from both outer surfaces, the sequence of glass panes, plastic glazing sheet material and *interlayer(s)* (3.2.7) by type, thickness, finish and general characteristics are the same

3.2.4
asymmetrical laminated glass
laminated glass (3.1.1) in which, from both outer surfaces, the sequence of glass panes, plastic glazing sheet material and *interlayer(s)* (3.2.7) by type, thickness, finish and/or general characteristics is different

3.2.5
flat laminated glass
laminated glass (3.1.1) in which the constituent glass panes and plastic glazing sheet material have not been formed or bent in the course of manufacture

3.2.6
curved laminated glass
laminated glass (3.1.1) in which the constituent glass panes and plastic glazing sheet material have been deliberately shaped by ending prior to lamination

3.2.7
interlayer
one or more layers of material acting as an adhesive between plies of glass and/or plastic glazing sheet material

Note 1 to entry: The interlayer can also give additional performance attributes to the finished product, such as impact resistance, resistance to fire, solar control and acoustic insulation.

Note 2 to entry: The interlayer itself can also encapsulate, for example, non-adhesive films and *plates* (3.2.10), wires, *grids* (3.2.11).

3.2.8
encapsulated material
non-adhesive material that is encapsulated by an *interlayer* (3.2.7) between the glass and/or plastic glazing material

Note 1 to entry: The non-adhesive material can be, for example, a film, *plate* (3.2.10), wire, *grid* (3.2.11).

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3.2.9
folio
thin planar product of arbitrarily limited maximum thickness in which the thickness is very small in proportion to length and width

Note 1 to entry: Folio is generally supplied in roll form.

Note 2 to entry: In some countries, "film" is used instead of "folio".

3.2.10
plate
smooth, flat piece of material of uniform limited thickness that can be perforated

3.2.11
grid
regular arrangement of wires

3.2.12
folio lamination process
lamination process where the *interlayer* (3.2.7) is a solid film which is placed between the plies of glass or plastic glazing sheet material and is then subjected to heat and pressure to produce the final product

3.2.13
cast-in-place lamination process
lamination process where the *interlayer* (3.2.7) is obtained by pouring a liquid between the plies of glass or plastic glazing sheet material and is then chemically or ultraviolet cured to produce the final product

Note 1 to entry: Lamination processes other than those defined in 3.2.12 and 3.2.13 are available, but they do not necessarily fit into either of the two methods defined in 3.2.12 and 3.2.13.

3.2.14
stock size
size which is intended to be recut or processed for final use

3.2.15
finished size
size which is either manufactured to size or cut from stock sizes and can be further processed

EXAMPLE Examples of further processing include edge-worked, drilled or face-decorated.

3.2.16
delamination
two-dimensional visual effect which is caused by local loss of adhesion between the glass or plastic glazing material and the *interlayer* (3.2.7)

3.2.17
bubble
three-dimensional visual effect which is caused by gaseous inclusions in the *interlayer* (3.2.7) or at the interface between glass and interlayer

3.2.18
haze
scattering of incident light by a specimen resulting in a reduction of direct light transmittance and the contrast of objects viewed through the glass

3.2.19
cloudiness
local variation in the scattering of incident light by a specimen resulting in a reduction of direct light transmittance and the contrast of objects viewed through the glass

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3.2.20
discoloration
significant change of colour of a *laminated glass* (3.1.1), caused by oxidization processes in the *interlayer* (3.2.7)

Note 1 to entry: In clear interlayers, discoloration is usually perceived as yellowing.

4 Description of component parts

4.1 General

Laminated glass and laminated safety glass shall be manufactured from the combinations of glass, plastic glazing sheet material and interlayers described in 4.2 to 4.5, as specified in ISO 12543-2 or ISO 12543-3.

NOTE The description of component parts in Clause 4 is not exhaustive.

Some plastic glazing materials, interlayers, films, plates, wires and grids are subject to standardization. If materials are not subject to standardization, they should be subject to the laminated glass manufacturer's specifications. These specifications are usually subject to the manufacturer's own quality procedures for factory production control or the quality assurance system.

4.2 Glass composition and type

4.2.1 General

Glass compositions and types are the subject of product standards (refer to the Bibliography for EN product standards or for ISO product standards).

4.2.2 Glass composition

Glass compositions of laminated glass and laminated safety glass may be one of the following:

— soda lime silicate glass;

— borosilicate glass;

— alkaline earth silicate glass;

— alumino silicate glass;

— glass ceramics.

4.2.3 Glass type

The type of glass used in laminated glass and laminated safety glass may be:

— float glass;

— drawn sheet glass;

— patterned glass;

— polished wired glass;

— wired patterned glass.

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