

Australian/New Zealand Standard™

Glossary of terms used in the glass and glazing industry



Standards Australia



STANDARDS

NEW ZEALAND

Te Kaitiaki Take Kōwhiri



Documents

Document Sharing Hub

AS/NZS 4668:2000

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-007, Glazing and Fixing of Glass. It was approved on behalf of the Council of Standards Australia on 17 November 2000 and on behalf of the Council of Standards New Zealand on 24 November 2000. It was published on 11 December 2000.

The following interests are represented on Committee BD-007:

Architectural Aluminium Fabricators Association
Australian Association of Certification Bodies
Australian Building Codes Board
Australian Chamber of Commerce and Industry
Australian Glass and Glazing Association
Australian Industry Group
Australian Institute of Building Surveyors
Australian Window Association
Building Research Association of New Zealand
CSIRO—Building, Construction and Engineering
Department of Local Government WA
Housing Industry Association
Institution of Engineers Australia
Master Builders Australia
Monash University
New Zealand Safety Glass Association
Plastics and Chemicals Industries Association
University of New South Wales
University of Sydney
Window Association of New Zealand

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Australia web site at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia International or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 99088.

Australian/New Zealand Standard™

Glossary of terms used in the glass and glazing industry

First published as AS/NZS 4668:2000

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 3700 5

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD/7, Glazing and Fixing of Glass.

The objective of this Standard is to provide manufacturers, suppliers and users of glass with definitions of terms used in the glass and glazing industry, specifically in building applications and includes definitions of terms used in glass-related Australian and New Zealand Standards.

The list is not exhaustive.

The terms in this Standard are arranged in alphabetical order.

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Glossary of terms used in the glass and glazing industry**

Term	Definition
abrasion	A wearing, grinding or rubbing away by friction.
abrasion resistance	The inherent ability of a coating or substrate to resist degradation or destruction by friction.
acid etching	The process of decorating glass, which involves the application of hydrofluoric acid to the glass surface.
acid polishing	A process used in the production of cut crystal to remove the opacity of etched surfaces where decoration has been applied. Items to be polished are immersed in a mixture of demineralized water, sulphuric acid and hydrofluoric acid, and then rinsed. There may be a single short immersion in a stronger solution, or a series of immersions in a weaker solution.
aciding	See acid etching
acuity	Sharpness
adhesion, intercoat	The ability of coatings to adhere one to another.
adhesion, intracoat	The ability of a coating film to maintain its internal integrity without separating or layering.
adhesion, mechanical	Attachment of a coating film to a surface by molecular attraction without altering the coated surface.
air line	An elongated bubble in glass.
anneal	To control the residual stresses in glass by controlled heating at, and cooling from, a suitable temperature.
annealed glass	Technical definition of the stress condition of ordinary glass.
annealing	Process designed to eliminate or limit stresses to glass by submitting the glass to strictly controlled cooling in a special oven known as a 'lehr'.
annealing point	Temperature at which the viscosity of the glass is approximately 10^{13} poises. At the annealing point of glass, internal stresses are substantially relieved in a matter of minutes.
anti-bandit glazing	A type of security glazing designed to resist manual attack and to delay access to the protected space for a short period of time.
antique glass	Glass with an uneven surface texture and bubbles inside, produced by using antique methods in order to obtain the appearance of glass made before the development of industrial processes.
anti-walk blocks	See edge blocks
application life	Period of time during which a sealant can be effectively applied to a joint. The timing is from completion of mixing and could be affected by temperature, humidity or a combination of both.

Term	Definition
arrised edge	The result of removing sharp edges.
artwork	A design developed primarily for reproduction.
aspect ratio	The ratio of the longer side of a panel to its shorter side.
asymmetrical material	Material is asymmetric when it is composite and some of the components are of different thicknesses.
autoclave	A vessel that allows materials to be subjected to a cycle of controlled temperature and/or pressure. Such a vessel may be used to bond glass and other laminates.
back clearance	Space between the surface of the glass and the back of the rebate.
back compound	See glazing compound
back putty	That portion of the compound remaining between the back of the rebate and glass after the glass has been pressed into position in the bedding putty.
backer rod	A material placed into a joint, primarily to control the depth of the sealant and to prevent adhesion at the base of the sealant bead.
baluster	A vertical member supporting a handrail and forming part of a balustrade.
balustrade	A series of balusters supporting a handrail or coping at the open side of a stair, ramp, elevated platform, landing, balcony, parapet, or bridge. Also used as the collective name for the entire framed enclosure between handrail and floor level (see also handrail).
batter	A surface defect that looks like hammered metal. Unless very heavy, it usually cannot be seen by the naked eye, although it can be clearly seen on the shadowgraph.
bead	A strip of wood, metal, sealant or other suitable material secured to the rebate to retain the glass. Also known as glazing bead or sealant bead.
bed or bedding	The glazing material used to seal between the glass and frame/bead.
bedding or stop	In glazing, the application of compound at the base of the channel, just before the stop is placed in position, or buttered (see buttering) on the inside face of the stop.
bending	The process of manufacturing bent glass.
bending curves	See Appendix A
bent glass	Glass produced by heating annealed glass to the point where it softens and which then can be pressed or sag-bent over formers. Bends can be created in one or two planes. Bending can be incorporated in the toughening process. Bent glass can also be laminated. NOTE: Glass bending is a specialist operation. Manufacturers' literature indicates availability of standard items and special orders (see Appendix A).
bevel	A sloping edge on a glass sheet commonly used on mirror glass.

Term	Definition
bevel bead	See top-up bead
bevel both surfaces	Both surface edges are bevelled to the usual standard bevel.
beveling	The process of producing a bevel by abrasion at the edge.
bite	The amount of overlap between the frame or fin and the glass pane.
bleeding	Migration of colour from the coating film onto or into a surface with which it comes in contact.
blemish	A noticeable imperfection.
blibe	An elongated bubble larger than seed.
blister	Relatively large bubbles or gaseous inclusions in the glass. Blisters differ only in degree from seeds, which are extremely small gaseous inclusions. Sometimes bubbles less than 2 mm in diameter are considered to be seeds, while anything larger is a blister. Except from the standpoint of appearance, seeds and blisters are usually quite harmless.
block	A small piece of lead, rubber or other suitable material used to position the glass in the frame.
bloom	A surface film on glass resulting from attack by the atmosphere, or by deposition of smoke or other vapours.
blow-in	A separation of glass and interlayer at or close to the laminate edge caused by penetration of the autoclaving medium into the edge during manufacturing.
blur	Smear; image lacks sharpness; out of focus.
body tinted glass	Glass produced by small additions to the melt of metal oxides, which do not materially affect the basic properties except for the colour and solar energy transmission.
bow	Deviation from straightness or flatness.
box frame	The hollow framing of a sash window constructed to receive the weights or springs balancing the sliding sashes.
box window	A segmented or semicircular bay window. Also known as faceted window.
break pattern	The resultant pattern formed by the cracks within an individual light of glass when broken.
brilliant cutting	The technique of producing decorative effects whereby glass is removed from the surface of an object by grinding it with a rotating wheel made of stone, wood, or metal, and an abrasive suspended in liquid.
British thermal units (BTUs)	The amount of energy (in imperial units) needed to raise one pound of water from 63°F to 64°F.
bronze glass	See tinted glass
bubble	Gas-filled cavity in the glass. If close to the surface it may appear as an 'open' bubble, i.e. a hemisphere at the surface. Bubbles may be spherical or elongated. Also called blister or seed.

Term	Definition
bulb edge	In float glass manufacture, the extreme lateral edge of the ribbon as drawn.
bullet-resisting glass	A flat or curved transparent panel manufactured for the protection of people and property from the penetration of projectiles.
buttering	Application of sealant or compound to the flat surface of some member before placing the member in position; for example, the buttering of a removable stop before fastening the stop in place.
calories	The amount of energy needed to raise one gram of water from 14.5°C to 15.5°C.
cap bead	See top-up bead
casement window	Window, pivoted or opening on side hinges.
cast glass	Glass produced by 'casting', in other words by pouring molten glass into a mould or by heating glass in the mould until the glass melts and assumes the shape of the mould.
casting	Process of shaping glass by pouring it into a mould or onto a table.
cast-in-place lamination	Lamination process where the interlayer is obtained by pouring a liquid between plies of glass or plastics glazing sheet material, which is then cured to produce the final product.
central area of sheet	The area that forms an oval or circle centred on the sheet, whose axis or diameter does not exceed 80% of the overall dimension. This allows a fairly large area at the corners, which may have imperfections that are not allowed in the central area.
centre tension	Residual tension stresses within the centre (core or zone) between the surface compression layers of thermally toughened and heat-strengthened glass plates.
ceramic enamel	An inorganic, essentially non-metallic, coating fused to a substrate, which consists primarily of a glass frit and inorganic pigments. May be mixed with an organic vehicle. Also known as ceramic ink.
cerium oxide	The oxide of the rare earth group, used alone or together with other substances as a polishing agent for glass.
chair rail	A fixed glazing bar or rigid push bar that provides protection from human impact. Also known as a crash rail.
channel depth	The measurement from the bottom of the channel to the top, or measurement from sight line to base of channel.
channel glazing	A three-sided, U-shaped opening in sash or frame to receive light or panel. Also known as perimeter channel.
channel opening	The internal dimension between the two upstands of glazing channel.
checking	Fine hairline cracks in a dried coating film, which begin at the surface and progress downward.
checks	Very small cracks in flat glass, usually at the edge. Though small, these are cause for concern since they can be intensified under strain (see edge vents).

Term	Definition
chemical durability	The lasting quality, both physical and chemical, of a glass surface. It is frequently evaluated after prolonged weathering or storage, in terms of physical and chemical changes in the glass surface (see weathering).
chemically strengthened glass	Chemical strengthening of glass is brought about through a process known as ion-exchange. Glass is submersed in a molten salt bath at temperatures below the annealing range of the glass. In the case of soda lime float or soda lime sheet glass, the salt bath consists of potassium nitrate. During the submersion cycle, the larger alkali potassium ions exchange places with the smaller alkali sodium ions in the surface of the glass. The larger alkali potassium ions 'wedge' their way into the voids in the surface created by the vacating smaller alkali sodium ions. This 'strengthened' surface may penetrate to a depth of only a few thousandths of an inch.
chip	A small piece of glass that has become detached from the surface or edge.
chipped edge	An imperfection due to the breaking of a small fragment from the cut edge of the glass. Generally this is not serious except in heat-absorbing glass.
cladding glass	Glass with coloured ceramic enamel fused on the surface. Normally used for curtain wall cladding.
clear glass	Architectural clear glass is almost invariably of the soda-lime-silica type. Composition varies with manufacturer but is generally silica (SiO_2) 70% to 74%, lime (CaO) 5% to 12% and soda (Na_2O) 12% to 16%, with small amounts of magnesium, aluminium, iron and other elements.
clips	Wire spring devices to hold glass in rebated sash, or frame without stops, and face glazed.
colonial bar	A member that is added to a standard window construction to change the appearance of the window. It can be in the form into which the glass is glazed, clipped or stuck onto either or both faces of the glass.
colonial glazed door (or window)	A framed door/window containing a number of glazed panels separated by glazing bars.
colour coordinated	A system that can be used to assign numbers to specify or describe the colour of glass or the colour of coating on glass.
colour variation	Noticeable colour differences between glass panels, or within one panel of glass or coated glass.
compound bead	See top-up bead
compression	Pressure exerted on the glazing compound sealant, tape or gasket by the glazing method.
conduction	Heat transfer in which there is a direct contact of molecules in a solid body, e.g. the passage of heat along a metal bar of which one end is inserted into a fire.

Term	Definition
consistency	Degree of softness or firmness of a compound as supplied in the container and varying according to method of application, such as gun, knife, tool, and the like.
convection	Heat transfer in which actual movement of the medium, gas or liquid occurs, e.g. heated air from a convection heater.
cords	Attenuated glassy inclusions that possess optical and other properties differing from those of the surrounding glass. Cords are the result of non-homogeneity. Low intensity cords are called strings, wire lines or ream.
corners on/off	Section of glass remaining on or removed from the corner of a sheet, caused by the score mark not continuing right through to the traverse mark.
covered edge	The perimetric area of the glass covered by the channel or sash when installed. Also known as edge cover.
crash rail	A rail, together with its fixings, capable of withstanding a load of 750N per metre length, acting in any direction without contact with the glazing material.
crater	Small, shallow areas, circular in shape, in a coating film which may or may not expose the underlying substrate.
crush	A lightly pitted area resulting in a dull grey appearance over the region.
cullet	Waste glass from the edges and from defective broken panes. This waste is further broken down and passed to the feeding end of the float glass manufacturing process, where it is returned to the tank together with fresh raw materials. The proportion of raw materials to cullet is controlled to give advantage in melting.
curing agent	One part of a two-part sealant, which, when added to the base, will cause the base to change its physical state by chemical reaction between the two parts.
curtain wall	A non-loadbearing wall of metal sections, glass and infill panels, which is carried directly by the structure of a building. Extensively used in modern high-rise office buildings.
curved glass	Glass that has been deliberately shaped by forming or bending (<i>see also bent glass</i>).
cut sizes	Any flat glass cut to specific dimensions. Also known as cut-to-size
cutter	(a) A person who cuts glass. (b) The tool used in cutting glass.
cutting	Scoring glass with a diamond, steel or hard alloy wheel and breaking along the score.
daylight size	The clear unsupported opening size that admits light.
decal	A specially prepared paper on which designs have been printed for the purpose of transferring to glass.
decolourizing	The process of producing a colourless appearance in glass.

Term	Definition
decolourizer	Material or agent used in the batch to remove colour, or to decolourize glass.
decorated glass	Clear or patterned glass processed by craftsmen for decorative effect. Stained glass, leadlights and sand-blasted, acid-etched, embossed and printed glass fall into this category. Decorative interlayers can also be incorporated in laminated glass.
decorating	(c) Firing enamels onto glassware. (d) Applying designs to formed glassware by means of etching, sandblasting, cutting, engraving or similar methods.
decorative glass	See patterned glass
delamination	A condition in which one or more of the glass plies of the laminate loses the bond with the interlayer.
desiccant	A dehydrant incorporated in the spacers used in an insulating glass unit to ensure a low water vapour pressure in the unit, reducing the likelihood of condensation forming in the unit.
desiccant salt	A hygroscopic salt that absorbs moisture from the air. Commonly used between the sheets of double or triple glazing.
devitrification	Crystallization in glass.
dice	The more or less cubicle pattern of fracture of fully tempered glass, the edges of the dice being roughly equal to the thickness of the glass (see break pattern).
dichroic coatings	Multi-layered coatings that exhibit different colours by reflection and transmission as a function of viewing angle.
dicing	See break pattern
dielectric coating	A flexible, electrically insulating coating suitable for application by spraying, dipping and syringe dispensing. NOTE: The range of performance available from the use of metallic coatings is limited because of the thickness of coating that has to be applied. The use of dielectric coatings, which produce interference effects, allows higher light transmission with increased selectivity; the range of colours is also increased.
dielectric constant	The ratio of the electric energy of the field set up in a dielectric material to that set up in a vacuum. At a given frequency, it is the ratio of the capacitance of the capacitor with the glass material as the dielectric to the capacitance of the same capacitor with a vacuum as the dielectric.
diffused reflection glass	Glass that is lightly stippled, either by chemical treatment or by a roller, for use in picture framing. Designed to improve viewing by reducing reflection.
diffusing	Scattering, dispersing, as the tendency to eliminate a direct beam of light.
digs	Deep, short scratches.
diminishing stop bevel	A bevel in which only a portion of the surface edges is bevelled, the bevel running out on a small radius.

Term	Definition
dimple	A shallow depression in a coating film. Related to craters.
direct radiation	The emitted solar heat energy that reaches us directly in varying intensity due to atmospheric conditions.
dirt	A small particle of foreign matter embedded in the glass surface.
discolouration	Areas of the interlayer that are blushed or whitish in appearance indicating excessive moisture content in the interlayer, which, consequently, have poor or no adhesion.
distance piece	Small blocks of resilient, non-absorbent material (such as extruded rubber) used to prevent the displacement of glazing compound or sealant by external loading. They are positioned opposite each other between the glass and rebate, and glass and bead.
distortion	Undulations in the glass, which cause reflected objects to appear distorted or wavy. NOTE: Undulations may be short wave or long wave.
door	A hinged, sliding, or otherwise supported openable barrier providing entrance to and exit from a building, corridor, or room. Doors may be framed or unframed.
dormer window	An upright window formed in a sloping roof.
double bevel	The surface edge of the glass on the face that is bevelled, the bevel consisting of two intersecting planes.
double glazing	Glazing that incorporates two panels, separated with an air space, for the purpose of sound insulation or thermal insulation, or both.
double windows	Double-glazing in which each panel is glazed in a separate frame superimposed in the same wall opening.
double-hung window	A window in which both the upper and lower sashes are capable of being raised and lowered.
drop height	The vertical distance used from the horizontal centre-line of the maximum diameter of the impacting object when it is released relative to the horizontal centre-line of the impacting object when it is at rest.
dry seal	A weather seal between the glass and frame using foam tapes or gasket materials. NOTE: A dry seal may not be completely watertight.
durometer	A machine to measure shore hardness (<i>see also shore hardness</i>).
edge blocks	Rubber blocks that prevent glass from moving sideways in the glazing rebate from thermal effects or vibration.
edge clearance	The space between the edge of the glass and frame rebate.
edge compression	The compression stresses (similar to surface compression) measured at the very edge of a heat-treated light of glass. The values of compressive stresses may vary on each edge of a given light.
edge cover	The distance between the edge of the glass and the sight line.
edge defects	Glass defects that include vents, shells, flakes, chips, wave, shark's teeth, nibs, corners on/off.