



**The AWA
Book of**



**Fenestration
Terms**

**AAMA**

American Architectural Manufacturers Association. A national trade association that establishes voluntary standards for the window, door and skylight industry.

ABCB

Australian Building Codes Board

Absorptance

The ratio of radiant energy absorbed to total incident radiant energy in a glazing system.

Acoustics

The science of sound and sound control.

Acrylic

A thermoplastic with good weather resistance, shatter resistance and optical clarity, used for glazing.

Adhesion

The ability of a coating or sealant to bond to the surface to which it is applied.

Adhesive Failure

Loss of bonding of a coating or sealant from the surface to which it was applied.

AFRC

Australian Fenestration Rating Council.

Air Gap, Airgap

Air space between the panes of glass in an insulating glass unit (IGU). Also known as cavity, airspace or spacer width, even when another gas (eg argon) is used in the cavity instead of air.

Air Infiltration

Term used to describe one of the tests required by AS2047. The window shall not exceed air leakage requirements as specified for either air conditioned buildings or non-air conditioned buildings.

Air Mass, AM

The ratio of the optical thickness of the atmosphere, through which beam radiation passes, to the optical thickness of the sun at its zenith.

Altitude, ALT

Angle of the sun measured upwards from the horizon.

Annealed Glass

Glass that is cooled gradually during manufacture in an annealing operation to reduce residual stresses and strains which can be produced during cooling. This is ordinary glass as used in windows.

ANSI

American National Standards Institute. Clearing house for all types of standards and specifications.

Arched Head

A curved and glazed portion of the window that is at the head of the window.

Argon

An inert, nontoxic gas used in insulating windows to reduce heat transfer.

Arrised edge

The result of removing sharp edges.

ASHRAE

American Society of Heating, Refrigerating and Air Conditioning Engineers.

ASTM

American Society for Testing and Materials. Organisation that sets standards for testing of materials.

Awning Sash

A sash which opens outwards at the bottom for ventilation. The fittings have their pivot axis in a horizontal plane at or near the top of the sash. Also called a projected sash.

Azimuth, AZI

Angle of sun measured in an anticlockwise clockwise direction from north on a horizontal plane

**Backer Rod**

Polyethylene or polyurethane foam material installed under compression and used to control sealant joint depth, provide a surface for sealant tooling, serve as a bond breaker to prevent

three-sided adhesion and provide an hourglass contour of the finished bead.

Balance

A mechanical device (normally spring loaded) used in single- and double-hung windows as a means of counterbalancing the weight of the sash during opening and closing.

BCA

Building Code of Australia. Forms part of the National Construction Code.

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. Can be aluminium, timber, rigid PVC or flexible PVC.

Bed, bedding

The glazing material used to seal between the glass and frame/bead.

Bite

Dimension by which the framing system overlaps the edge of the glazing infill.

Bleeding

Migration of a liquid to the surface of a component or into/onto an adjacent material.

Body-tinted Glass

Transparent float glass with a consistent colour throughout its depth.

Bottom Rail

The bottom horizontal sash bar.

Box Frame Sash

A double hung sash.

Box window

A segmented or semicircular bay window. Also known as faceted window.

Brick Opening

Opening size measured between the outside brick faces.

Brick Veneer

Construction where the outside skin of the wall is brickwork and the inside wall is timber stud frame.

Built-in

The window frame is installed as the building progresses. Window fitted into the wall as the wall is being built.

Butt-Joined Glazing

Installation of glass products where the vertical glass edges are

without structural supporting mullions.



Casement Sash

A sash which opens inwards or outwards from one side for ventilation. The fittings have their pivot axis in a vertical plane.

Catalogue Number

The code number appearing on the window brochure that denotes that particular window

Caulk

Compound/sealant used for sealing that has minimum joint movement capability: sometimes called low performance sealant.

Cavity

Space between the panes of glass in an insulating glass unit (see also Air Gap).

Cavity Brick

A construction where both the outside and inside skins are brickwork.

Cavity Closure

An applied section usually fitted to the inside of the jamb section that extends the frame depth so that the window section spans the cavity.

Centre of Glass, Centre of Pane

Referring to thermal or solar properties of a glazing system in the area of the system which is not influenced by (ie away from) the frame, glazing bars, mullions or other opaque or conducting members of the window. By WERS convention, any point more than 63.5 mm from such an element.

Centre-Hung Sash

Sash that pivots on pins in the middle of the sash stiles and sides of the window frame to allow access for cleaning from the inside.

Chair Rail

A horizontal rail fitted to windows or door (approx 750-1000 mm above floor level).

Chamfer Board

A term used in Queensland to describe their own type of

weatherboards.

Channel

(see Glazing Channel)

Channel depth

The measurement from the bottom of the channel to the top, or measurement from sight line to base of channel.

Chip

A small piece of glass that has become detached from the surface or edge.

Chipped Edge

Imperfection due to breakage of a small fragment from the cut edge of the glass. Generally this is not serious except in heat-absorbing glass.

CKD

Completely Knocked Down. A window or door supplied in component parts only.

Clerestory

A window in the upper part of a lofty room that admits light to the center of the room.

Colonial Bars

Horizontal and vertical bars fitted across window panes to give 'period' style effect.

Colonial Windows

A window that is configured with horizontal and vertical bars to recreate the early colonial style of windows. Can be achieved with applied bars adhered to the glass or individually glazed.

Compatibility

Ability of two or more materials to exist in close and permanent association for an indefinite period with no adverse effect of one upon the other.

Composite Frame

A frame consisting of two or more materials, eg an interior wood element with an exterior aluminium element.

Compound

Chemical formulation of ingredients used to produce caulking, elastomeric joint sealant, etc.

Condensation

Formation of water droplets on the surface of an object caused by warm moist air coming into contact with a cold object whose surface temperature is below the Dew Point.

Conduction

Heat transfer through a solid material by contact of one molecule with the next. Heat flows from a higher temperature area to a lower temperature one.

Convection

A heat transfer process involving motion in a fluid (such as air) caused by the difference in density of the fluid and the action of gravity. Convection affects heat transfer from the glass surface to room air and between two panes of glass.

Cool Daylight Glazing

Glazing having a high ratio of visible transmittance to solar head gain coefficient: $T_{vis}/SHGC$. Such glazing transmits more light (lumens) for each overall watt of solar heat gain (the latter unavoidably includes heat energy contained in the visible part of the sun's radiation). Also known as Light to solar gain ratio (LSG ratio) or luminous efficacy, sometimes denoted by k_e . The physical upper limit to LSG is approximately 2.

Coupling Mullion

A vertical coupling member used to join two windows together.

Cover Plates

Usually vertical cover plates used to join two windows together. Not a coupling mullion. Used with or without a pipe staunchion.

Crash rail

A rail, together with its fixings, capable of withstanding a load of 750 N per metre length, acting in any direction without contact with the glazing material. Usually used in crowd situations.

Cup

A deviation from a straight line drawn side to side; a curvature across the face of the door.

Curtain Wall

A non-load-bearing window wall that is not a panel wall.



Damage-Weighted Transmittance

A measure of solar transmittance that causes fading damage to interior furnishings, including ultraviolet and visible-light effects, for wavelengths between 280 and 500 nanometres (nm), where 1 nanometre = 10^{-9} metre. Weighted according to the Krochmann Damage Function.

Daylight Opening

The clear daylight size that is visible through a glazed window pane.

Daylight Transmittance

Ratio of the amount of light transmitted through a window system (glass frame) divided by the amount of light incident on its outside surface. Synonymous with Visible Transmittance.

Declination, DEC

Angle between the earth's equatorial plane and the earth-sun line.

Deflection (centre of glass)

Amount of bending movement of the centre of a glass panel perpendicular to the plane of the glass surface under an applied load.

Deflection (framing member)

The amount of bending movement of any part of a structural member perpendicular to the axis of the member under an applied load.

Deflection Ratio

Deflection expressed in terms of length divided by a particular number. The maximum allowed deflections vary between L/150 and L/250

Desiccant

Dehydrating agent within hollow spacer frames to absorb moisture from air within IGUs.

Dew Point

Temperature at which water vapour condenses when warm, moist air is cooled.

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

A window unit fitted in a space which protrudes from the roof of a house.

Double-Glazed Unit

Two panes of glass separated by an air or gas space to improve insulation against heat transfer and/or sound transmission. The air between the glass sheets is dried and the space is sealed, eliminating possible condensation and providing superior insulating properties.

Double-Hung Window

A two sash system where the bottom sash lifts up vertically passing on the inside of the top sash. The top sash lowers vertically.

Dowel

A small, round, wood unit with shaped ends, provided with a glue groove for joining together stiles and rails.

Drainage Slots

(see Weep Holes)

Drip Cap or Ledge

Horizontal moulding to divert water from the top casing so that water drips outside the frame.

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

Measurement of hardness of a material (see Shore "A" hardness). A gauge to measure the hardness of an elastomeric material.



Edge cover

The distance between the edge of the glass and the sight line.

Edge Clearance

Nominal spacing between edge of glass product and bottom of the glazing pocket (channel)

Edge defects

Glass defects that include vents, shells, flakes, chips, wave, shark's teeth, nibs, corners on/off.

Edge Effects

Two dimensional heat transfer at the edge of a glazing unit due to the thermal properties of spacers and sealants.

Edge Seal

Seal around the perimeter edge of an insulating glass unit and the panes of glass.

Elastomeric

(adj) Having the property of returning to its original shape and position after removal of load;

(n) An elastic rubber-like substance.

Emissivity

(see Emittance)

Emittance

Measures the ability of a surface to emit long-wave infrared radiation, compared with the emittance of a 'perfect black body', equal to 1.0. The emittance of uncoated, clear glass is 0.84. A very good low-emittance coating will have an emittance of 0.5 or less.

EPDM

Ethylene Propylene Diene Monomer, a synthetic rubber.

Etch

To alter the surface of glass with hydrofluoric acid or other caustic agents. Permanent etching of glass may occur from alkali and other runoff from surrounding building materials.

External Glaze

A design which permits the glass to be glazed from outside the building.

Extrusion

Aluminium or uPVC profiles used in a window. An extrusion is produced by pushing material through a die with an aperture of the shape of the section.

Exposed edge

A glass edge that is not covered.

NOTE: Glass with exposed edges has no protection from damage, and may cause injury to those who come in contact with it.



Factory Glaze

Windows that are glazed in the factory before delivery to site.

Federation Windows

A window that is configured to a style to recreate the early federation style of windows. Can be federation style glazing or profiled wide appearance framing or both.

Fenestration

The arrangement of windows and other openings on the external walls of buildings, especially the façade.

FFL

Finished Floor Level. The position of the finished floor level in buildings.

Fibreglass

A composite material made by embedding glass fibres in a polymer matrix. May be used as a diffusing material in sheet form, or as a standard sash and frame element.

Fin

A piece of glass positioned such as to provide lateral support.

Finger Joint

A joint consisting of a series of fingers, precision-machined on the ends of two separate pieces of timber, which mesh and are firmly held together by an adhesive.

Fixed Lite

An area of window where the glass cannot be opened.

Fixing

Any item that is used to secure members of a window assembly to each other, to secure an item of hardware to a window member, or to secure a completed window assembly into the building structure.

Fixing Lug

A bracket used to fasten the window frame into the building.

Fixture

An area where the glass or panel cannot be opened for ventilation.

Flanking

The mechanism of sound passing from one space to another. Flanking is the transfer of noise through paths around a building element rather than directly through the building element material.

Flashing

An impervious membrane installed to prevent ingress of water into the building.

Flashing Fin

See also Reveal Fin. A perimeter fin that is an integral part of the frame extrusions. It has been normal practice for brick veneer houses with a flashing fin do not normally require additional flashing.

Float Glass

Glass formed by floating on a bath of molten tin. The two surfaces are flat, parallel and polished, giving clear, undistorted vision and reflection.

Flyscreen

A screen of flywire and frame fitted to the opening portion of a window to keep out insects.

Fogging

A deposit of contamination left on the inside surface of a sealed

insulating glass unit due to extremes of temperatures or failed seals.

Fractures

A separation of the wood across the grain.

Frame

A support structure consisting of head, jambs and sill to form an opening into which glazing or door panels fit.

French Door

A hinged door (either single or double) that opens outwards. Traditionally they are narrow doors.

Frequency

All sounds can be described by their frequency or their mix of frequencies. Sounds have a mix of frequencies which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a mix of predominantly high frequencies and the sound of a bass drum or large truck has a mix of predominantly lower frequencies. Frequency is measured in units of Hertz (Hz).



Garden Window

A special design of window that projects out beyond the building line and has a sloping glazed roof and internal shelving. Most common application is in kitchen windows.

Gas Fill

A process in which argon or krypton is filled into the cavity of insulating glass to improve thermal performance.

Gaskets

Preformed shapes (eg strips) of rubber or rubber-like composition used to fill and seal a joint or opening alone or in conjunction with a supplemental application of a sealant.

G, g-factor

Same as Solar Heat Gain Coefficient (SHGC) and Total Solar Energy Transmittance (TSET).

Gas fill

The use of gases other than air (such as argon, krypton, xenon, etc) in a sealed insulating glazing unit, for the purpose of reducing conductive/convective heat transfer.

Glass

Hard brittle substance, usually transparent, made by fusing sand, limestone and soda ash under high temperature.

Glazing Bar

A member added to a standard window construction to change the appearance of the window. It can be in the form in which the glass is glazed, clipped, or stuck onto either or both faces of the Glass.

Glazing Bead

Strip or trim surrounding the edge of the glass in a window or door that holds the glass in place.

Glazing Channel

Three-sided, U-shaped detail into which a glass product is installed and retained.

Glazing Leg

The portion of the window section that is used to retain the glass in conjunction with the bead.

Glazing Rebate

Part of a frame, the cross-section of which forms an angle into which the edge of glass is glazed.

Glazing Tape

Glazing tape is the material used on the glazing leg to seal the glass against. May be a foam tape or similar.



Hardware

Equipment used in the opening, operating, closing, locking and stopping of sashes.

Hardwood

Generally, one of the botanical groups of trees that have broad leaves, in contrast to the conifers. The term has no relevance to the actual hardness of the wood.

Head Flashing

Flashing installed in a wall over a window.

Head

All horizontal members at the top of the window frame.

Head Rail

The top horizontal bar of a double-hung sash or of a door.

Heat-Absorption Glass

Glass that absorbs more solar energy than clear float glass.

Heat Gain

Solar radiant heat, transmitted or emitted by glazing into a building, contributing to the building up of heat.

Heat Loss

The transfer of heat from inside to outside by means of conduction, convection and radiation through all surfaces of a house.

Heat-Strengthened Glass

Heat-strengthened glass is approximately twice as strong as annealed glass of the same thickness when exposed to uniform static pressure loads. It is not considered safety glass, but is usually specified where thermal stresses are high.

High Rise

A multi-storey building.

Hopper Window

A window unit, hinged at the bottom to open inward (or outward) from the top.

Horizontal Pivots

A window which is pivoted at the jambs. Sash is reversible for cleaning. Architectural applications.

Horizontal Sliding Sash

A sash that moves horizontally to provide ventilation.

Hour Angle, HRA

Angular displacement of the sun, east or west of the local meridian, due to the rotation of the earth on its axis at 15° per hour (morning negative, afternoon positive).



Incidence Angle, INC

Angle between the direct ray from the sun on a surface and the normal to that surface.

Infiltration

The movement of outdoor air into the interior of a building through gaps around windows and doors or in walls, roofs and floors.

Installation

Erection and fixing of window frame on site.

Insulating Glass Unit, IGU

A hermetically sealed, multiple-pane glazing system consisting of two or more glazing layers held and bonded at their perimeter by a spacer bar. Termed "insulating" because thermal heat transfer is reduced compared to single glass.

Insulation

Construction materials used for protection from noise, heat, cold or fire.

Interlayer

Any material used to bond two panes of glass and/or plastic together to form laminated glass.

Interlocking Stile

An upright frame member of a panel in a sliding glass door which engages with a corresponding member in an adjacent panel when the door is closed.

Internal Glaze

A design which permits the glass to be glazed from inside the building.

Isotropic

Evenly distributed in all directions. When applied to diffuse radiation, the radiation has the same intensity from all directions of the 'skydome' (sky hemisphere as seen from earth's surface).



Jalousie

Window made up of horizontally mounted louvred glass slats that abut each other tightly when closed and rotate outward when cranked open.

Jamb

Sides of a window frame.

Joint

Space or opening between two or more adjoining surfaces.



Krypton

An inert, nontoxic gas used in insulating windows to reduce heat transfer.



Laminated Glass

Two or more layers of glass permanently bonded with one or more polymer interlayers to form a single, unified glazing with improved safety and/or ultra violet protection properties.

Lapped Glass

A permanent vent window which has two panes of glass overlapping to allow ventilation and weatherproofing.

Latitude, LAT

Angle subtended at the center of the earth between a location and the equator (north positive, south negative).

Left Hand

To describe a component or design. Always taken viewing the window from the outside.

Light

Electromagnetic radiation (solar or artificial) which is visible to the human eye. Invisible radiation (eg UV or infrared) should not be called 'light'.

Lining Board

The correct term is Timber Reveal.

Lintel

A horizontal framing member placed across the top of the rough opening of a window or door opening to prevent the weight of the wall or roof from resting on the window frame.

Lite

Alternative term for a pane of glass (sometimes spelled light).

Live Load

Loads produced by the use and occupancy of the building or other structure and do not include construction or environmental loads such as wind load, snow load, ice load, rain load, seismic load or dead load.

Longitude, LON

Angle subtended at the center of the earth by the local meridian and the Greenwich meridian, measured along the equator. Measured up to 180° east or west of Greenwich.

LOSP

Light Organic Solvent Preservative. It is a chemical treatment used on timber to protect it from fungi, mould, termites and other wood borers.

Louvre

A window unit comprising a series of blades of glass, or other material, lapping each other which allows ventilation. Can be either horizontal or vertical.

Low-e (Low Emissivity) Coating

A thin (<100 nm thick) metal, metal oxide or multilayer coating deposited on a glazing surface to reduce its thermal infrared emittance and thereby reduce radiative heat transfer. Near-infrared transmittance may also be reduced depending on whether solar heat is to be rejected or admitted. All low-e coatings behave as heat mirrors. A low-e coating increases a window's ability to insulate (lower U-value).

Low-e Glass

Low-emissivity glass (Low-e) is a clear glass, it has a microscopically-thin coating of metal oxide. This allows the sun's heat and light to pass through the glass into the building. At the same time it blocks heat from leaving the room, reducing the loss considerably.

Low Lite

The portion of the window that is below the transom.

Lug

Bracket used to fasten the window frame into building.



Masonry opening

The opening left in a masonry wall to receive a window or door unit.

Mastic

Descriptive of heavy-consistency compounds that may remain adhesive and pliable with age.

Meeting Rails

Horizontal intermediate sash members that meet when the window is closed such that they combine to act in unison.

Meeting Stiles

Vertical intermediate sash members that meet when the window is closed such that they combine to act in unison.

Meridian

Plane passing through the zenith in the north-south direction.

Micron

Measurement of length, often used for the wavelength of light. Equal to 10⁻⁶ metres. Under the SI system of units, usage of the term 'micrometre' is preferred.

Migration

Spreading or creeping of a constituent of a compound onto/into adjacent surfaces (see also Bleeding).

Mortise

A slot or rectangular cavity cut into a piece of wood to receive another part.

Mortise and Tenon Joint

One in which a projection, machined on one piece, snugly fits into a rectangular-shaped, recessed opening machined in a second piece, and is secured under pressure with an adhesive. In a "through mortise" joint, the mortise and tenon extend through the full width of the material. In a "blind mortise" the end of the tenon is not visible.

Mullion

Vertical framing member between window units.

Multi-Awnings

A bank of awning sashes which open together by use of a gearbox.

Muntin

Any bar with the frame other than the head, sill and side bars.



Nailing Fin

An integral extension of a window or patio door frame that generally laps over the conventional stud construction and through which nails are driven to secure the frame in place.

NCC

National Construction Code. The Building Code of Australia is part of the NCC.

Neoprene

Synthetic rubber having physical properties closely resembling those of natural rubber. Made by polymerizing chloroprenes. The latter compounds are produced from acetylene and hydrogen chloride.

Newton

The force which, when applied to a body having a mass of one kilogram, causes an acceleration of one metre per second squared in the direction of application of the force.

NFRC

National Fenestration Rating Council

Nickel Sulphide Inclusion

A rare, but naturally occurring impurity present in all glass that can, in certain circumstances, lead to spontaneous breakage of thermally toughened glass in service.

Normal

Direction at right angles to a surface.



Obscure glass

Any textured glass (frosted, etched, fluted, ground, etc) used for privacy, light diffusion or decorative effects.

Off-line Coatings

In this process a coating is applied under a vacuum to finished cold glass.

On-line Coatings

The process in which coatings are directly applied to the glass during production while the glass is still hot in the annealing lehr.

Operable Window

Window that can be opened for ventilation.

Organic

Any compound consisting of carbon and hydrogen with a restricted number of other elements, such as oxygen, nitrogen, sulphur, phosphorous, chlorine, etc.

Orientation, ORI

Of a surface, is the angle between north and the direction the surface is facing. Measured clockwise from north.



Pane

Framed sheet of glass

Panel Wall

A non-load-bearing window wall that is wholly supported at each storey.

Panning

In replacement window work, the outside aluminium trim that can extend around the perimeter of the window opening to cover the old window material. Panning can be installed in the opening before the window installation or attached directly to

the window before installation.

Pascal, Pa

The pressure or stress that arises when a force of one newton is applied uniformly over an area of one square metre.

Passive-solar gain

Direct admittance of solar heat to a building (usually in winter and deliberately) via equator-facing windows, to reduce or eliminate bought heating energy.

Peak Load

The maximum thermal load to be provided by a heating or cooling system in a house.

Permanent Vent

A part of the window that provides ventilation even when the sash is in the closed position.

Photochromics

Glazing with optical properties that change in response to the amount of incident light.

Picture Window

A large, fixed window framed so that it is usually, but not always, longer horizontally than vertically to provide a panoramic view.

Pipe Mullion

Used where two windows are joined together. Consists of a pipe staunchion and cover plates. Can be either 90° or 180°

Pipe Staunchion

A load bearing pipe support used between two windows.

Pivot Sash

Window units in which the sash hardware is located near the midpoint of the stile or rail to permit sash rotation.

Plastic Film

A thin plastic substrate, sometimes used as the inner layers in a triple- or quadruple-glazed window.

Plastics

Artificial substances made of organic polymers that can be extruded or molded into various shapes including window frames and sashes.

Plate Glass

Previously used to produce higher quality glass. This technology was completely outperformed by the float glass process.

Polyisobutylene

Typically the primary seal in a dual-seal IGU and the key component in restricting moisture vapour transmission.

Polysulphide Sealant

Polysulphide liquid polymer sealant which are mercaptan-terminated, long-chain aliphatic polymers containing disulphide linkages. Can be converted to rubbers at room temperature without shrinkage upon addition of a curing agent.

Polyurethane Sealant

Organic compound formed by the reaction of a glycol with an isocyanate.

Prepared Opening

An opening in a building made prior to the installation of the window.

Pressing

A folded sheet metal trim or folded cover plate.

Pressure Equalisation Tube

Insulating glass unit (IGU) with a tube factory-placed into the unit's spacer frame to accommodate pressure differences encountered while shipping due to change in elevation and the pressure differences encountered daily after installation.

Primer

Coating specifically designed to enhance the adhesion of sealant systems to certain surfaces, to form a barrier to prevent migration of components, or to seal a porous substrate.

Priming

Sealing of a porous surface so that compound will not stain, lose elasticity, shrink excessively, etc because of loss of oil or similar into the surround. A sealant primer or surface conditioner may be used to promote adhesion of a curing-type sealant to certain surfaces.

Primex

A finger-jointed, pre-primed, LOSP treated pine product with a high stress tolerance, suitable for window joinery.

Projected Sash

Awning sash.

PVB

Polyvinyl butryl. The plastic interlayer incorporated into laminated glass in order to ensure good adhesion and the mechanical and safety breakage characteristic of the glass.

PVC

Poly Vinyl Chloride. Material used for flexible (or rigid) glazing gaskets and weatherseals. Flexibles are soft and can take up variations in tolerances within the window.



Rail

Horizontal sash member.

Rating

The serviceability wind pressure in Pascals that, when applied to the window, will meet the deflection and water penetration requirements of AS2047.

Rebate

(see Glazing Rebate)

Reflectance

The ratio of reflected radiant energy to incident radiant energy.

Reflective Glass

Glass with a metallic coating to reduce solar heat gain (see also Solar Control Glass).

Relative Humidity

Air humidity expressed as a percentage of maximum possible humidity at a given temperature.

Refraction

The deflection of a light ray from a straight path when it passes at an oblique angle from one medium (such as air) to another (such as glass).

Relative Humidity

Percentage of moisture in the air in relationship to the amount of moisture the air could hold at that given temperature. At 100% relative humidity, moisture condenses and falls as rain.

Retrofitting

Adding or replacing items on existing buildings. Typical retrofit products are replacement doors and windows, insulation, storm windows, caulking, weatherstripping, vents, landscaping.

Reveal

The visible part of each side of a window opening not covered by the frame, or the recess between the frame and the face of the wall.

Right Hand

Describing a component or design. Always taken viewing the window from the outside.

Roll Form

The process whereby aluminium profiles are formed by the process of using pre-finished aluminium sheet and, through a series of rollers, the section shape is formed.

Roof Window

A fixed or operable window similar to a skylight placed in the sloping surface of a roof.

Rough Opening

The opening in a wall into which a door or window is to be installed.

R-value

Thermal resistance of a window, wall or other building element. Units are m².K/W [SI units] or ft².hr.°F/Btu [US units]. To convert US R-values to SI R-values, divide by 5.678.



Safety Glass

Glass constructed, treated or combined with other materials in order to reduce the likelihood of injuries if broken by human impact, etc. and meets relevant safety standards. Safety glass comprises toughened, laminated and wired glass.

Sash

Inner frame which holds glass in operable and fixed window units.

Sash Cord

In double-hung windows, the rope or chain which attaches the sash to the counter balance.

Sash Lift

A protruding handle screwed to the inside bottom rail of the lower sash on a double-hung window. In taller windows they may be fitted to the top rail of the lower sash for ease of use.

Sash Weights

In older double-hung windows, the concealed weights which are used to counterbalance the sash.

Scratches

Any marking or tearing of the surface appearing as though it had been done by either a sharp or rough instrument.

Seal

Accomplishment of weather-tight protection between glazing or framing materials, usually by combinations of gaskets and sealant.

Sealant

Elastomeric material with adhesive qualities applied between components of a similar or dissimilar nature to provide an effective barrier against the passage of the elements.

Sealed Unit

(see Insulating Glass Unit)

Segment Head

Aluminium panel fitted at top of window, cut out to a predetermined radius to give 'contemporary' style effect.

Setting Block

Strip of resilient non-absorbent material (eg neoprene) used under heavy panes of glass or insulating glass units. Two setting blocks are normally used, which support the glass and, by sufficient thickness, centralise it in the frame to prevent glass-to-frame contact or shear forces that might act to break the seal in an IGU. The size of the setting block is calculated in relation to the thickness and weight of the glass.

Shade Screen

A specially fabricated screen of sheet material with small narrow louvres formed in place to intercept solar radiation striking a window; the louvres are so small that only extremely small insects can pass through. Also called sun screen. Also, an awning with fixed louvres of metal or wood.

Shading Coefficient, SC

The ratio of the Solar Heat Gain Coefficient (SHGC) of a glazing system for a particular angle of incidence, referenced against clear single 3mm glass, under the same conditions. The latter has a Solar Heat Gain Coefficient of 0.87, so that the relationship between SC and SHGC is $SC = SHGC/0.87$.

Sheet Glass

A transparent, flat glass found in older windows, now largely replaced by float glass.

Shims

(see Spacer)

Shore "A" Hardness

Measure of firmness of a compound by means of a Durometer Hardness Gauge. (A hardness range of 20-25 is about the firmness of an art gum eraser. A hardness of 90 is about the firmness of a rubber heel).

Shortwave Infrared Radiation

Invisible radiation emitted by the sun and other hot objects.

SI

System Internationale. The international measurement system of metric units used in Australia.

Side Rail

The vertical bar in a sash.

Sight Size

The actual size of the opening that admits daylight.

Silicone Sealant

Sealant having a backbone of alternating silicon-oxygen atoms as its chemical composition

Sill

Horizontal member at the bottom of a window frame or door.

Sill Flap

A vinyl seal fitted to the underside of the window to take up variations due to building settlement.

Single Glazing

Single thickness of glass in a window or door.

Single-Hung Window

Window similar to double-hung window, except the top sash is stationary.

Site Glaze

Window glazed after installation of a window into a building.

Sliding Window

A window where the opening sash or sashes slide in a horizontal direction.

Smart Window

A window whose thermal, solar and light transmitting characteristics can be varied dynamically in response to the application of an electrical signal.

Soft Coat, Soft Coating

Generally refers to silver-based low-e coating (see above). So-called due to susceptibility to damage through abrasion. Generally a multiplayer structure of alternate dielectric and thin transparent metal layers.

Softwood

Generally, one of the botanical groups of trees that in most cases have needle or scale-like leaves; the conifers; also the wood produced by such trees. The term has no relevance to the actual hardness of the wood.

Solar Absorptance

Fraction of incident solar radiation energy absorbed by a glazing.

Solar Control Glass

Tinted and/or coated glass that reduces the amount of solar heat gain transmitted into a building.

Solar Energy Reflectance

In the solar spectrum, the percentage or gradation of solar energy that is reflected from the glass surface(s).

Solar Energy Transmittance

Percentage or fraction of ultra violet, visible and near infra red energy within the solar spectrum (300 to 2500 nanometres) that is transmitted through the glass.

Solar Heat Gain Coefficient, SHGC

The total solar heat gain divided by exterior solar irradiance. Composed of the solar direct transmittance plus the inward-flowing fraction of absorbed solar energy that is re-radiated, conducted or convected into the space. Also known as the Total Solar Energy Transmittance (TSET) or g-value (European usage). For reference clear 3 mm glass, SHGC = 0.87.

Solar Heat Gain Factor, SHGF

Hourly-averaged solar heat gain in W/m² through a single 3 mm clear glass. Based on average cloudless day and ground reflectance of 0.20 (US and Australian usage).

Solar Noon

When the sun is at its highest point in the sky, or when the sun crosses the meridian of the observer. At solar noon the angle between the zenith and the sun is DEC minus LAT.

Solar Transmittance

Fraction of direct-beam solar radiation energy transmitted by a glazing system. Does not include the inward-flowing fraction of the absorbed solar irradiance.

Sound Transmission Class, STC

The sound transmission loss rating of a material over a selected range of sound frequencies. The higher the number, the less sound is transmitted.

Spacer Frame

Component of an Insulating Glass Unit (IGU) which maintains the width of space between the panes of the unit (see also Air Gap).

Spacers, Shims

Small blocks of neoprene, EPDM, silicone or other suitable material, placed on each side of the glass product to provide glass centring, maintain uniform width of sealant bead and prevent excessive sealant distortion.

Spandrel

Panel(s) of a wall located between vision areas of windows that conceal structural columns and floors.

Special Window

A window with design or sizes different to the standard range.

Spectrally Selective Coating

A low-e coating, on one or more surfaces of a glazing, whose optical properties vary with wavelength, to transmit more visible radiation than near-infrared and longwave radiation.

Staining

Discoloration of either glass or framing material surface caused by alkalis that leach from surrounding materials such as concrete, sealant, pollutants or other contaminants.

Standard Window

A window that is manufactured to a standard design and size.

Stiffener

Any bar which is added to stiffen the framework.

Stile

A vertical side member of a sash.

Stop

The molding on the inside of a window frame against which the window sash closes. In the case of a double-hung window, the sash slides against the stop. Also called bead, side stop, window stop and parting stop.

Storm Mould

A section which is added externally to seal the frame against the building. Usually has an integral flashing fin.

Storm Mould Size

An incorrect term for brick opening.

Stress (Residual)

Any condition of tension or compression existing within the glass, particularly due to incomplete annealing, temperature gradient, or in homogeneity.

Structural Members

The elements, including mullions, transoms, meeting rails, and meeting stiles, that perform the function of transferring loads to the perimeter frame.

Note: Glazing bars, awning and casement sash stiles and rails are not considered structural.

Structural Silicone Glazing

Use of a silicone sealant for the structural transfer of loads from the glass to its perimeter support system and retention of the glass in the opening.

Stud Opening

Opening size between timber studs in a building. Applies to vertical and horizontal openings.

Sub Sill

An undersill section that is used to raise the height of the sill to suit a specific building-in requirement. This is not necessarily a sump drainage sill.

Sump Sill

An undersill section applied to a window to allow window to gain sill depth to improve the water performance of the window. Standard sill drains out through this sump sill.



Tape Sealant

Sealant having a pre-formed shape and intended to be used in a joint under compression.

Tempered Glass

(See Toughened Glass)

Tenon

Rectangular projection cut out of a piece of wood for insertion into a mortise.

Test Report

A report issued by a test laboratory detailing the tests that a window has undergone.

Thermal Break

An element of low conductance placed between elements of higher conductance to reduce the flow of heat. Often used in aluminium windows.

Thermal Emittance

(See also Emittance) The ability of a surface to emit longwave radiation relative to that of a perfect black body. Also known as the longwave infra-red emittance. A perfect black body has an emittance equal to 1.0. A perfect reflector has an emittance equal to zero.

Thermal Expansion

Change in dimension of a material as a result of temperature change.

Thermal Stress/Failure

Where an area of glass directly exposed to solar radiation absorbs heat, rises in temperature and expands. The edges of glass shielded from the solar radiation by framing, etc remain

cooler than the unshielded area. The resulting differential expansion causes stress, which will, should it reach the breaking stress of the glass, result in fracture.

Threshold

The member that lies at the bottom of a sliding glass door or swinging door; the sill of a doorway.

Tilt, TIL

Of a surface, is the angle between the horizontal plane and the plane of the surface.

Tilt Window

A single- or double-hung window whose operable sash can be tilted into the room for interior cleaning.

Timber Reveal

The timber surround that is factory fitted to aluminium windows.

Tinted Glass

Glass with colorants (pigments) added to the basic glass batch that gives the glass colour, as well as light and heat-absorbing capabilities. The colour extends throughout the thickness of the glass. Often referred to as body-tinted glass.

Toned Glass

Alternative name for Tinted Glass

Total Solar Energy Transmittance, TSET

(see Solar Heat Gain Coefficient)

Toughened Glass

Flat or bent glass that has been heat treated and quickly air-quenched to create compression in the outer surface and tension in the interior. If broken, it fractures into many small pieces. Toughened glass is approximately four to five times stronger than annealed glass of the same thickness when exposed to uniform static pressure loads and is classified as a safety glass.

Transmittance

The percentage of radiation that can pass through glazing. Transmittance can be defined for different types of light or energy, e.g. visible light transmittance, UV transmittance or total solar energy transmittance.

Transom

A horizontal intermediate framing member of a window assembly.

Triple Glazing

Three panes of glass or plastic with two air spaces between.

Two-Part (Multi-Component) Sealant

Product comprised of a base and curing agent or accelerator, necessarily packaged in two separate containers which are uniformly mixed just prior to use.



U-Factor

Preferred ASHRAE term for U-value (North America) (See U-Value)

Ultraviolet Radiation, UV

Electromagnetic radiation from the sun, with wavelengths shorter than visible light, ie below 380 nanometres.

Ultraviolet Transmittance (weighted)

A measure of non-visible solar transmittance between 280 and 380 nanometres in wavelength.

Ultraviolet

Name of the invisible portion of the light spectrum with wavelengths shorter than 380 nanometres.

Unglazed

Window supplied ex factory without glass.

Unit

Term normally used to refer to one single assembly of an Insulating Glass Unit (IGU).

uPVC

Unplasticised polyvinyl chloride, a rigid structural plastic which resists degradation under ultraviolet radiation; used for window frames and other building components. Same as PVC-u (European usage) and vinyl (North American usage).

UV Block

Measures the factor for reduction of damaging ultraviolet radiation that is blocked from being transmitted through glass. UV causes fading of furnishings, artwork, etc after prolonged exposure to direct sunlight.

UVA

Long-wavelength and least-damaging ultraviolet radiation, approximately 300-380 nm (center wavelength 340 nm). Believed to cause skin tanning and some permanent tissue damage. Note: Australian Standard AS2067-1990 for sunglass eye protection conservatively defines upper limit to be 400 nm.

U-Value (total)

Area-weighted average thermal transmittance of a complete window, including center-of-glass, edge-of-glass and frame U-values.

U-Value

Rate of heat flow through a window or other building element, driven by a temperature difference across the element. Measured as heat flow per unit area, per degree of temperature difference. Also called the thermal transmittance or overall heat transfer coefficient. Reciprocal of thermal resistance: $U = 1/R$. Units $W/m^2.K$ (SI System), $Btu/(hour.ft^2.oF)$ (Imperial or inch-pound system, chiefly USA). Note that 1 K refers to 1 Kelvin, equal to a temperature change of 1 degree Celsius. For windows, U-value is further differentiated for center-of-glass (U_{cog}), edge (U_e) and frame (U_f) regions. Overall total area-weighted U-value (U_{tot}) results. To convert US U-values to SI U-values, multiply by 5.678. The lower the value, the better the insulating value (thermal resistance or R-value).

UVB

Medium-wavelength ultraviolet radiation, approximately 300-320 nm (center wavelength 310 nm). Highly damaging to living tissue (eye cataracts, sunburn, melanomas) and fade-inducing to fabrics and interior furnishing.

UVC

Very short-wavelength ultraviolet radiation, approximately 100-300 nm wavelength (center wavelength ~270 nm). Extremely destructive to living tissue but absorbed by earth's ozone layer. Wavelength shorter than 100 nm are considered to be soft X-rays.



Vertical Pivot

A window that is pivoted at the head and sill. Sash is reversible for cleaning. Architectural applications.

Vertically Sliding Sash

A double hung sash.

Vents, Venting

Very small cracks in flat glass, usually at the edge.

Visible Face

Applies to extrusions and describes the visible area remaining on the section when the section is assembled into a window.

Visible Transmittance

Fraction of visible radiation transmitted by a glazing system between the limits of 380 and 770 nm $[0.38-0.77 \mu m]$ (micron,

micrometre]). Weighted according to the photopic response of the human eye (V_{λ} curve).

Visual Comfort

Refers to a set of qualities associated with the amenity of a window, such as freedom from glare and excessive contrast.

Vinyl

Polyvinyl chloride material which can be either rigid or flexible, used for window frames.

Vinyl-Clad Windows

A window with exterior wood parts covered with extruded vinyl.

Visible Light

The portion of the electromagnetic spectrum that produces light that can be seen. Wave-lengths range from 380 to 720 nanometres.



Warm Edge Technology

The use of low-conductance spacers to reduce heat transfer near the edge of insulated glazing.

Water Penetration

A term used to describe the water performance of a window. Part of the standard testing procedure on a window calls for a water test. A window shall not have water penetrate beyond the inner face after a 15 minute water test at a specified wind pressure. Minimum pressure is 150 Pa up to a maximum of 450 Pa.

Wavelength-Dependent Transmission

Transmission through a glazing system which is a function of the wavelength of the incident radiation, eg high visible transmittance and low solar near-infrared transmittance (behaviour of spectrally selective glazing).

Weather Flange

The portion of a section which acts as a weather barrier between opening sash and frame.

Weather Flap

A flap system within the sill of the window that is designed to allow water to escape and to prevent wind blowing directly back through the drain slots. Not to be confused with an undersill flap

which fits under the window sill to allow for building settlement.

Weather Seal

A material included in a window assembly to reduce the air infiltration or improve resistance to water penetration.

Weather Strip, Weatherstripping

Thin sections of compressible material used to prevent air leakage around operable windows and doors.

Weathering

(See also Stain) Attack of a glass surface by atmospheric elements.

Web

The portion of a section which joins the glazing leg to the weather flange and generally has the screw grooves or riveting tongues within its width.

Wedges

Wood (or metal) wedges used to secure the window or door unit in the rough opening in a plumb, level and square position during and after installation.

Weep Holes

(See also Drainage Slots) Drain holes or slots in sash or framing member to prevent accumulation of condensation and water.

WERS

Window Energy Rating Scheme. Enables windows to be rated and labelled for their annual energy impact on a whole house, in any climate of Australia.

Wind

Displacement of parallel members with respect to one another.

Wind Load

The wind pressure in Pascals that the window has to meet. Wind load varies according to location and exposure.

Window Assembly

A complete unit comprising frame, couplings, sashes, glazing infill panels and hardware.

Window Dimension

Window frame size as shown on brochure. Size is to overall frame size, not to overall reveal fin size. [H] refers to window height [W] refers to window width

Window Energy Balance

The net magnitude and direction of energy flow through a window.

Window Hardware

Various devices and mechanisms for the window including catches, fasteners and locks, hinges, pivots, lifts and pulls, pulleys and sash weights, sash balances and stays.

Window Labelling

Concept of implementation of standards and ratings for energy performance, weather-tightness, structural, acoustic and safety issues for window products.

Window Mould

Another term for Storm Mould.

Window Rating

(see Rating)

Window Wall

Series of multi-light windows, generally from floor to ceiling and often continuous horizontally.

Wired Glass

Patterned glass having a layer of meshed or stranded wire completely embedded as close as possible to the center of its thickness during manufacture. The wire restrains the fragments from falling out of a frame when broken.

Woolpile

A woven pile weather seal used to seal sliding sashes. Pile weather seals are highly resilient and will compensate for variations in tolerances.



Z, z-factor

Solar Heat Gain Coefficient for non-glazed components of window system (eg blinds, shaded, etc) (Germany). Conceived as a multiplicative factor for the modifying effect of window attachments.

Zenith Angle, ZEN

Angle between the sun's position and the zenith.

Zenith

The point in the sky directly overhead.