AGWA
Compliance Guide

An overview of requirements of the 2022 National Construction Code for:

- **Windows and external glazed doors**
- **Glass balustrades**
- **Glass pool fences**
- **Showerscreens**

AUSTRALIAN GLASS & WINDOW ASSOCIATION

Version 1

INTRODUCTION

As part of its commitment to raising the workmanship and built performance standard of windows and doors in Australia, the Australian Glass and Window Association (AGWA) is pleased to provide this Industry Guide for the Assessment of Compliance of Windows and Doors.

AGWA is the peak body for the Australian glass and window industry, made up of over 1000 Glass Processors, Glaziers, Window Manufacturers and Industry Suppliers throughout Australia and overseas. Members of the Association have products tested to Australian Standard AS 2047 Windows and external glazed doors in buildings and glass products in accordance with AS 1288 Glass in Buildings; as well as other relevant Australia Standards referred to in this Guide. When purchasing from an AGWA member, buyers can be confident that the products are made to withstand Australian conditions. Non-compliant products may not be suited to Australian conditions.

AGWA ACCREDITED

The Australian Glass and Window Association is a NATA Accredited Inspection Agency and undertakes annual audits of compliance to provide members with the means to independently demonstrate product performance and compliance with relevant Australian Standards.

The AGWA Accredited Company Program provides a comprehensive framework to develop and demonstrate the skills, experience and integrity of member company's production systems.

Compliance

Provide Accredited Companies with the means to independently demonstrate product performance and compliance with the National Construction Code, Australian Standard 2047 Windows and external glazed doors in buildings, Australian Standard 1288 Glass in buildings and other relevant Australian Standards.

Skills and Training

Ensure Accredited Companies have the technical 'know-how' to acheive consistent and reliable performance and provide a continuing professional development program that allows Accredited Companies to maintain the currency of their skills and improve competency within their workforce.

Safety

Assist Accredited Companies in providing a safe and healthy workplace for all employess and recognise best practice WHS management and employee engagement in promoting safety and well-being in the workplace.

ACCREDITED COMPANY 2024 - 2025

Accredited for compliance with ISO/IEC 17020

To promote the highest quality standards, AGWA Accredited Companies Program is independently administered and conducted without bias. AGWA is a NATA Accredited Inspection Agency and operates its Accredited Company Program in accordance with AS/ISO 17020

For more information

If you would like to learn more about AGWA Accredited Companies Program, please email **admin@agwa.com.au or call (02) 9498 2768** and one of our staff will answer any questions you might have.

The Australian Glass and Window Association (AGWA) is the peak association representing over 1,000 member companies covering window manufacturers, glass precessors, merchants, glaziers and suppliers of supporting machinery, services and materials. We endorse compliant, sustainable and fit-for-purpose products and provide services to members that support their efforts to operate successfully.

COMPLIANCE GUIDE OBJECTIVE

This Compliance Guide outlines the basic information that needs to be gathered and considered for assessing the suitability, compliance, and fitness for purpose of window and door products, glass barriers, glass pool fences and showerscreens for building projects and is intended to be used as a quick reference guide for certifiers and other professionals to ensure compliance with the National Construction Code (NCC).*

* subject to state and territory variations

HOW TO USE THIS GUIDE

This guide is divided into five parts:

- Windows and Doors for Class 1&10 buildings (housing)
- Windows and Doors for Class 2 to 9 buildings
- Glass Barriers (Balustrades)
- Glass Pool Fences
- Showerscreens

Requirements are arranged by Performance Requirement as prescribed by the NCC. Guidance is provided under each section, outlining specific product attributes, relevant to each product, that should be inspected or assessed to confirm conformance and key assessment criteria.

The orange panel at the top of each page outlines specific information relevant to each Performance Requirement, as follows:

- Objective
- Application
- DTS clauses
- Primary referenced standards
- Other standards

Below this, guidance is provided for each of the following categories:

Visual Inspections

Documentation

Key Assessment Criteria

AGWA Resources

GENERAL

Governing Requirement

A5G3 Evidence of Suitability

Objective:
Evidence needed to show that the NCC requirements are met and solution is "fit for purpose".
Examples of appropriate forms of evidence are listed against each Performance Requirement in the following sections, however general requirements are as follows:

Application:
Windows and external glazed doors
Glass Barriers (Balustrades)
Glass Pool Fences
Showerscreens

Visual Inspections Items should be sighted for applicability to evidence provided

Documentation Appropriate documentation should be supplied which adequately substantiates relevant performance attributes. These may include:

- Test Reports,
- Engineering assessment,
- Technical Manuals,

AUSTRALIAN GLASS & WINDOW ASSOCIATION
ACCREDITED COMPANY

Key Assessment Criteria

Relevance of evidence to project:
- product details and descriptors match those on-site
- site specific attributes such as wind-loads, bushfire & energy ratings are clearly defined
- specific locations of the products match those shown on the plans.

Competence & expertise of certifying person:
- assessment of individual and organisation competence & capacity to make declarations of conformity*

*AGWA recommends evidence of industry specific accreditation and/or independent third-party conformity assessment be provided to support claims.

AGWA Resources AGWA Accredited Brochure

WINDOWS AND DOORS FOR CLASS 1 & 10 BUILDINGS (HOUSING)

Performance Requirement

H1P1 Structural reliability and resistance
H2P2 Weatherproofing

Objective:
Windows and glazing are capable of resisting appropriate wind-actions. Glazing subject to human impact avoids undue risk of injury to people.

Application:
All external windows and glazed doors

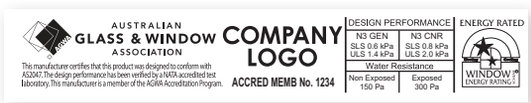
DTS Clauses:
H1D8, H2D7, HP Section 8

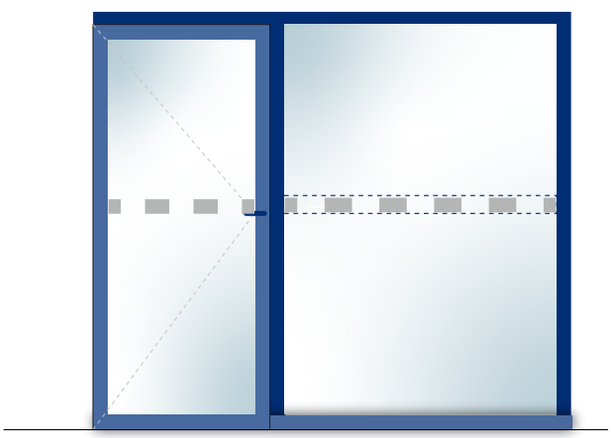
Primary Referenced Standard:
AS 4055 Windloads for housing
AS/NZS 1170.2 Structural Design actions - Part 2 Wind actions
AS 2047 Windows and external glazed doors in buildings
AS 1288 Glass in buildings

Other Standard:
AS 4420.1 Windows, external glazed, timber and composite doors - Methods of test
AS 2208 Safety glazing materials in buildings
AS/NZS 4284 Testing of building facades
AS 4666 Insulating glass units
AS/NZS 4667 Quality requirements for cut-to-size and processed glass

Visual Inspections

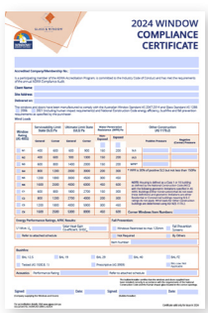
Window Labels
Safety Glass Labels
Manifestation (Decals / Motifs / Visual Indicators)

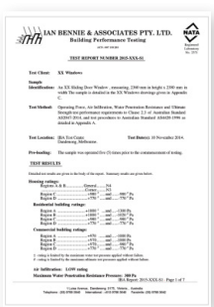




Documentation

Compliance Certificate / Declaration of Conformity,
NATA accredited AS 2047 test reports,
Manufacturer technical manuals,
Engineers Reports
Manufacturer certificate of accreditation





Key Assessment Criteria

Wind Loads

Verification that type testing of the window or door system demonstrates it meets (or exceeds) the Serviceability Limit State (SLS), Ultimate Limit State (ULS) wind pressures and Water Pentration Resistance (WPR) required by AS 2047 as nominated by the building designer, including:

- Corner pressures, and
- Exposed / Non-Exposed WPR

Glass selection is in accordance with AS 1288

Product Size & Configuration

Check that the test report supports the relevant product size (overall height and width), size of any operating sashes and sectional properties of load-bearing elements (mullions and transoms).

- note AS 2047 permits a maximum of 10% extrapolation in height or width (or 15% in total area)
- engineers report required for larger product configurations or more complex extrapolation (in-house engineering permissible)

Glass Type & Thickness for Human Impact

Establish that glazing is Grade A safety glass in accordance with AS 1288 for areas subject to human impact, such as doors, sidelights, stair and landings, kitchens & bathrooms

Wind Classification	Serviceability Limit State (SLS) Pressure Pa		Ultimate Limit State (SLS) Pressure Pa		Water Penetration Resistance (WPR) Pressure Pa	
	General	Corner	General	Corner	Non-Exposed	Exposed
N1	400	600	600	900	150	200
N2	400	600	900	1300	150	200
N3	600	800	1400	2000	150	300
N4	800	1200	2000	3000	200	300
N5	1200	1800	3000	4500	300	450
N6	1600	2500	4000	6000	450	600
C1	600	800	1800	2700	150	300
C2	800	1200	2700	4000	200	300
C3	1200	1800	4000	5900	300	450
C4	1600	2500	5300	8000	450	600

AS 1288 Grade A Safety Glass - Maximum Areas (4-edge support)

Glass Type \ Glass Thickness	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm
Toughened & Toughened Laminate	1.0 m^2	*2.2 m^2	3.0 m^2	4.0 m^2	6.0 m^2	8.0 m^2	10.0 m^2
Laminated & Heat-Strengthened Laminate	-	-	2.2 m^2	3.0 m^2	5.0 m^2	7.0 m^2	9.0 m^2
Safety Organic-Coated Glass	2.0 m^2	2.0 m^2	2.2 m2	3.0 m2	5.0 m2	7.0 m2	9.0 m^2
Organic-Backed Safety Mirror	-	3.0 m^2	3.5 m^2	4.0 m2	-	-	-

* Housing Provision Table 8.4.2 limits 4 mm toughened to 2.0 m2

AGWA Resources

A Guide to Window and Door Selection
A Guide to Glass and Glazing
AGWA TFS Windloads for Housing
AGWA TFS Corner Windows
AGWA TFS Exposed Sites
AGWA TFS Manifestation
AGWA TFS Safety Glass Labelling
AGWA TFS Water Penetration Resistance
AGWA TFS Glass in buildings
AGWA TFS Weatherproofing Of Buildings NCC Requirements








Performance Requirement

HSP2 Fall prevention barriers

Objective:
Prevention of falls (for children) through openable windows

Application:
Openable windows within 1.7 m of FFL protecting a height greater than:

- 2m in bedrooms
- 4m in all other cases

DTS Clauses:
D3D29

Primary Referenced Standard:
None

Other Standard:
AS 5203 Protection of openable windows fall prevention - Test sequence and compliance method

Visual Inspections

Where required:

- windows are restricted, or
- safety/security screens fitted

Documentation

Compliance Certificate / Declaration of Conformity

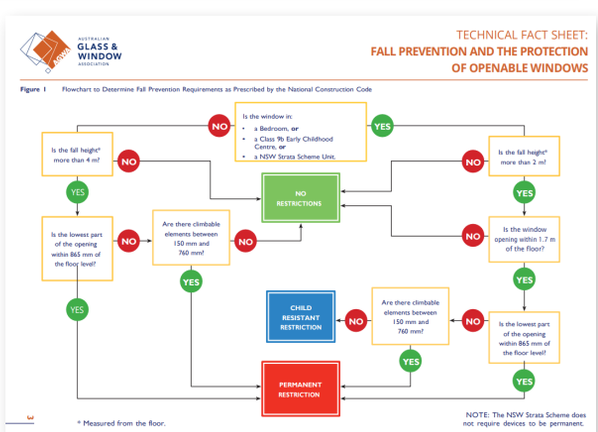
AS 5203 test report

Manufacturer Technical Manuals

Key Assessment Criteria

All windows in bedrooms with a height greater than 2m above ground level must be restricted to no more than 125mm opening or have fall prevention screens fitted.

Windows in other rooms, above 4m, where the lowest part of the opening is within 865mm of the floor must also be restricted or have fall prevention screens fitted.



AGWA Resources

AGWA TFS Fall Prevention

Performance Requirement

H6P1 Thermal Performance

Objective:
Windows and glazing designed to improve energy efficiency and occupant health and amenity as well as reduce greenhouse gas emmissions

Application:
All external windows and glazed doors in habitable areas

DTS Clauses:
HP 13.3, HP 13.4.4

Primary Standard:
None

Other Standard:
NatHERS

Visual Inspections

Visual check to ensure windows match specification:

- operating type
- glass type
  + single/insulated glass unit (eg. double-glazed)
  + low-e coatings
  + tone/tint

Documentation

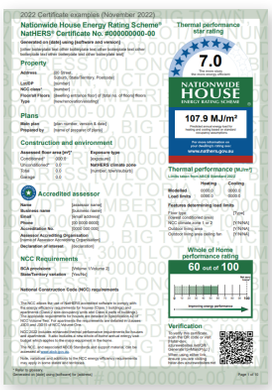
NatHERS Certificate or energy report

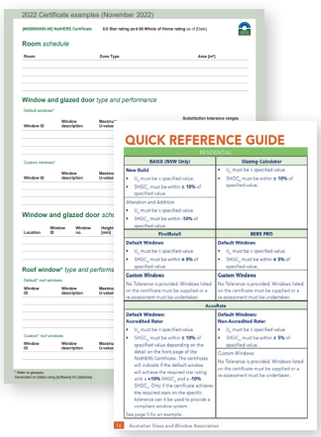
WERS Certificate

Key Assessment Criteria

U-value for each window is less than that nominated (eg NatHERS certificate or energy report)

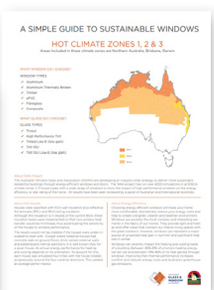
SHGC is within the permissible range nominated (eg NatHERS certificate or energy report)

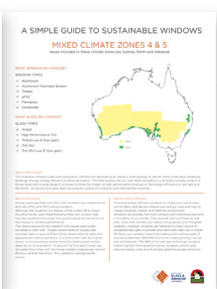


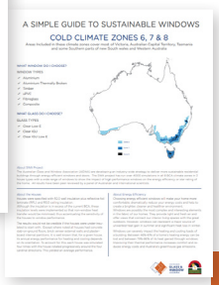


AGWA Resources

AGWA Guide to Energy Efficiency Compliance
SWA Climate Zones 123
SWA Climate Zones 45
SWA Climate Zones 678
www.wers.net







Performance Requirement

H7P5 Bushfire Areas

Objective:
Windows in buildings in designated bushfire prone areas are constructed to provide resistance to bushfires in order to reduce the danger to life and reduce the risk of the loss of the building.

Application:
Buildings in a designated bushfire prone areas

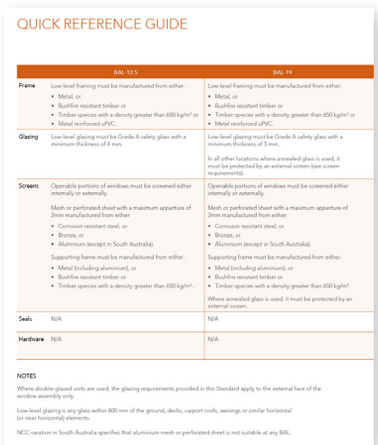
DTS Clauses:
H7D4

Primary Referenced Standard:
AS 3959 Construction of buildings in bushfire prone areas

Other Standard:
AS 1530.8.1 Methods for fire tests on building materials, components and structures Part 8.1: Tests on elements of construction for buildings exposed to simulate bushfire attack - radiant heat and small flaming sources

AS 1530.8.2 Methods for fire tests on building materials, components and structures Part 8.2: Tests on elements of construction for buildings exposed to simulated bushfire attack - Large flaming sources

Visual Inspections Visual check to ensure windows match requirements


QUICK REFERENCE GUIDE

	BAL-12.5	BAL-19
Frame	Low-level framing must be manufactured from either: • Metal, or • Bushfire resistant timber or • Timber species with a density greater than 650 kg/m³ or • Metal reinforced uPVC.	Low-level framing must be manufactured from either: • Metal, or • Bushfire resistant timber or • Timber species with a density greater than 650 kg/m³ or • Metal reinforced uPVC.
Glazing	Low-level glazing must be Grade A safety glass with a minimum thickness of 4 mm.	Low-level glazing must be Grade A safety glass with a minimum thickness of 5 mm. In all other locations where annealed glass is used, it must be protected by an external screen (see screen requirements).
Screens	Openable portions of windows must be screened either internally or externally. Mesh or perforated sheet with a maximum aperture of 2mm manufactured from either: • Corrosion resistant steel, or • Bronze, or • Aluminium (except in South Australia). Supporting frame must be manufactured from either: • Metal (including aluminium), or • Bushfire resistant timber or • Timber species with a density greater than 650 kg/m³.	Openable portions of windows must be screened either internally or externally. Mesh or perforated sheet with a maximum aperture of 2mm manufactured from either: • Corrosion resistant steel, or • Bronze, or • Aluminium (except in South Australia). Supporting frame must be manufactured from either: • Metal (including aluminium), or • Bushfire resistant timber or • Timber species with a density greater than 650 kg/m³. Where annealed glass is used, it must be protected by an external screen.
Seals	N/A	N/A
Hardware	N/A	N/A

NOTES

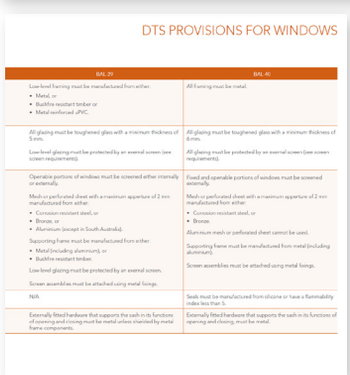
Where double-glazed units are used, the glazing requirements provided in this Standard apply to the external face of the window assembly only.

Low-level glazing is any glass within 400 mm of the ground, decks, carport roofs, awnings or similar horizontal (or near horizontal) elements.

NCC variation in South Australia specifies that aluminium mesh or perforated sheet is not suitable at any BAL.

Documentation Compliance Certificate / Declaration of Conformity

AS 1530.8.1 or AS 1530.8.2 test report (as appropriate)


DTS PROVISIONS FOR WINDOWS

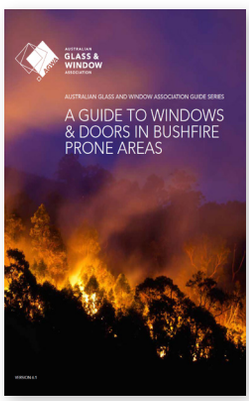
BAL-29	BAL-40
Low-level framing must be manufactured from either: • Metal, or • Bushfire resistant timber or • Metal reinforced uPVC.	All framing must be metal.
All glazing must be toughened glass with a minimum thickness of 5 mm. Low-level glazing must be protected by an external screen (see screen requirements).	All glazing must be toughened glass with a minimum thickness of 6 mm. All glazing must be protected by an external screen (see screen requirements).
Openable portions of windows must be screened either internally or externally. Mesh or perforated sheet with a maximum aperture of 2 mm manufactured from either: • Corrosion resistant steel, or • Bronze, or • Aluminium (except in South Australia). Supporting frame must be manufactured from either: • Metal (including aluminium), or • Bushfire resistant timber. Low-level glazing must be protected by an external screen. Screen assemblies must be attached using metal fixings.	Fixed and openable portions of windows must be screened externally. Mesh or perforated sheet with a maximum aperture of 2 mm manufactured from either: • Corrosion resistant steel, or • Bronze. Aluminium mesh or perforated sheet cannot be used. Supporting frame must be manufactured from metal (including aluminium). Screen assemblies must be attached using metal fixings.
N/A	Seals must be manufactured from silicone or have a flammability index less than 5.
Externally fitted hardware that supports the sash in its functions of opening and closing must be metal unless shielded by metal frame components.	Externally fitted hardware that supports the sash in its functions of opening and closing, must be metal.

Key Assessment Criteria

Requirements vary by BAL, but commonly require:

- metal screens to all openable windows
- toughened glass of the appropriate thickness where required
- appropriate frame materials

AGWA Resources AGWA Guide to Windows in Bushfire Prone Areas



Performance Requirement

H8P1 Livable Housing Design

Objective:
Homes are designed to be easy to enter and navigate, and are capable of easy and cost-effective adaptation in response to the changing needs of occupants

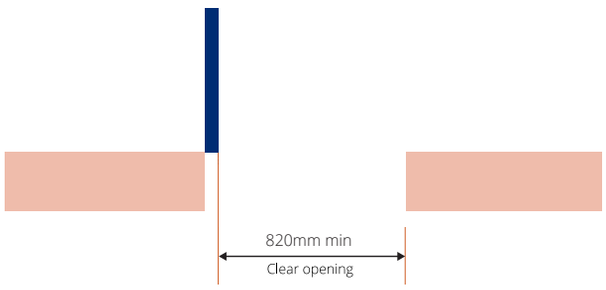
Application:
All houses not subject to exemption

DTS Clauses:
H8D2

Primary Referenced Standard:
ABCB Livable housing design standard

Other Standard:
None

Visual Inspections Entry doors and showers



Documentation

Compliance Certificate / Declaration of Conformity

Key Assessment Criteria

Verify Entry Doors are 'step-free' and have a minimum clear opening width of 820 mm

Verify Showers are 'step-free'

WINDOWS AND DOORS FOR CLASS 2 TO 9 BUILDINGS

Performance Requirement

B1P1 Structural reliability and resistance
B1P3 Glass installations at risk of human impact

Objective:
Windows and glazing are capable of resisting appropriate wind-loads.
Glazing subject to human impact avoids undue risk of injury to people.

Application:
All windows and glazed door
All glass subject to human impact

DTS Clauses:
B1D3, B1D4

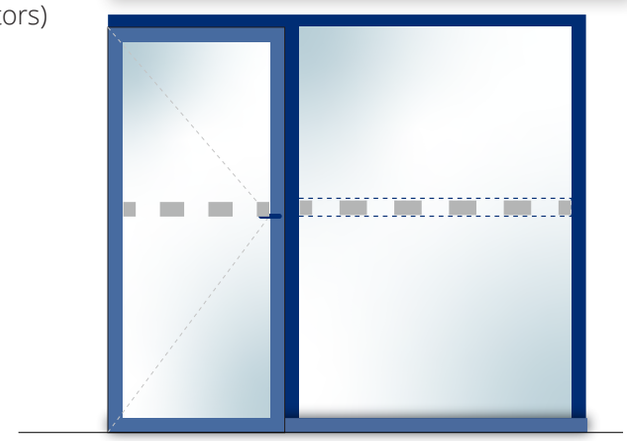
Primary Referenced Standard:
AS/NZ 1170.2 Structural Design actions - Part 2 Wind actions
AS 2047 Windows and external glazed doors in buildings
AS 1288 Glass in buildings

Other Standard:
AS 4420.1 Windows, external glazed, timber and composite doors - Methods of test
AS 2208 Safety glazing materials in buildings
AS/NZS 4284 Testing of building facades
AS 4666 Insulating glass units
AS/NZS 4667 Quality requirements for cut-to-size and processed glass

Visual Inspections Window Labels (where fitted)

Safety Glass Labels

Manifestation (Decals / Motifs / Visual Indicators)



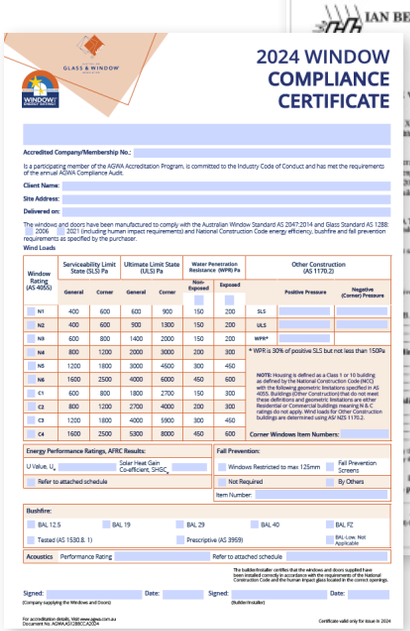
Documentation AGWA Compliance Certificate / Declaration of Conformity,

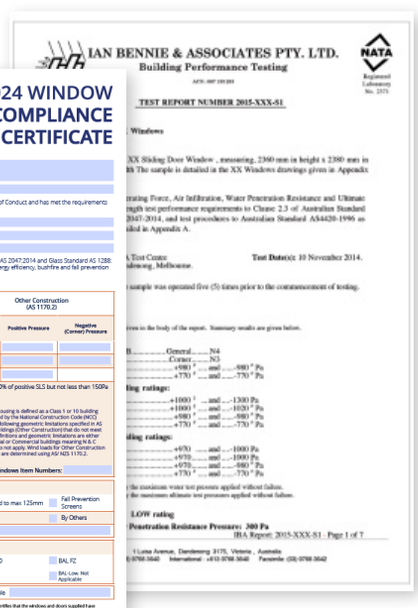
NATA accredited AS 2047 test reports,

Manufacturer technical manuals,

Engineers Reports

Manufacturer certificate of accreditation





Key Assessment Criteria

Wind Loads

Verification that type testing of the window or door system demonstrates it meets (or exceeds) the Serviceability Limit State (SLS), Ultimate Limit State (ULS) wind pressures and Water Pentration Resistance (WPR) required by AS 2047 as nominated by the building designer, including:

- location specific SLS & ULS (acounting for local pressure factors)
- WPR 30% positive SLS (min 150Pa)

Glass selection is in accordance with AS 1288

Product Size & Configuration

Check that the test report supports the relevant product size (overall height and width), size of any operating sashes and sectional properties of load-bearing elements (mullions and transoms).

- note AS 2047 permits a maximum of 10% extrapolation in height or width (or 15% in total area)
- engineers report required for larger product or more complex extrapolation (in-house engineering permissible)

Glass Type & Thickness for Human Impact

Establish that glazing is Grade A safety glass in accordance with AS 1288 for areas subject to human impact, such as doors, sidelights, stair and landings, kitchens & bathrooms. Monolithic toughened glass more than 5m above FFL or ground-level must be heat-soaked (unless suitable protection is provided such as a balcony)

1.4 Determination of Wind Actions

Values of wind actions (W) for use in design shall be established. The values shall be appropriate for the type of structure or structural element, its intended use, design working life and exposure to wind action.

The following wind actions, determined in accordance with this standard (using the procedures detailed in Section 2 and the values given in the remaining sections), shall be deemed to comply with the requirements of this Clause:

(a) W_u determined using a regional wind speed appropriate to the annual probability of exceedance (P) specified for **ultimate limit states** as given in AS/NZS 1170.0, or the Building Code of Australia.

(b) W_s determined using a regional wind speed appropriate to the annual probability of exceedance for the **serviceability limit states.**

AS 1288 Grade A Safety Glass - Maximum Areas (4-edge support)

Glass Type	Glass Thickness 3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm
Toughened & Toughened Laminate	1.0 m^2	*2.2 m^2	3.0 m^2	4.0 m^2	6.0 m^2	8.0 m^2	10.0 m^2
Laminated & Heat-Strengthened Laminate	-	-	2.2 m^2	3.0 m^2	5.0 m^2	7.0 m^2	9.0 m^2
Safety Organic-Coated Glass	2.0 m^2	2.0 m^2	2.2 m2	3.0 m2	5.0 m2	7.0 m2	9.0 m^2
Organic-Backed Safety Mirror	-	3.0 m^2	3.5 m^2	4.0 m2	-	-	-

* Housing Provision Table 8.4.2 limits 4 mm toughened to 2.0 m2

AGWA Resources

AGWA A Guide to Window and Door Selection
AGWA A Guide to Glass and Glazing
AGWA TFS Wind Loads
AGWA TFS Manifestation
AGWA TFS Safety Glass Labelling
AGWA TFS Glass in buildings

Performance Requirement

C1P2 Spread of fire
C1P8 Fire protection of openings and penetrations

Objective:
Building elements and safeguards to prevent the spread of fire

Application:
Windows in Type A or Type B construction

DTS Clauses:
C2D2, C2D10, C4D5

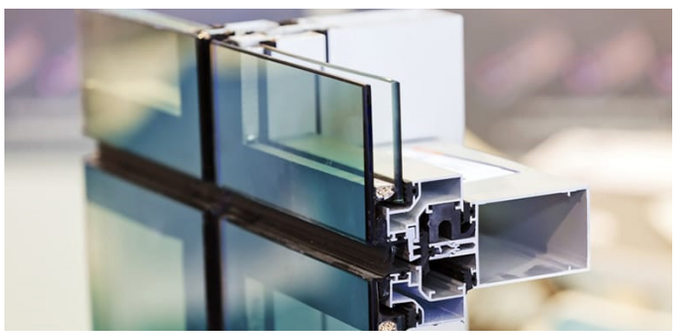
Primary Referenced Standard:
AS 1530.1 Methods of fire tests on building materials, components and structures Part 1: Combustibility test for materials

Other Standard:
None

Visual Inspections

Identify that, where required:

- windows are made of non-combustible materials
- certain exemptions listed in C2D10 (4) or deemed non-combusible in C2D10 (5)



Documentation

AS 1530.1 Test report (for materials or systems not permitted under C2D10 (4) & (5)

Key Assessment Criteria

All windows in Class 2, 3, or 9 buildings 2 storeys or more in height, or in Class 5, 6, 7, or 8 buildings 3 storeys or more in height must be made of non-combustible materials.

Certain materials are deemed non-combustible or exempted including:

- Aluminium (framing)
- Gaskets
- Sealants
- Glass (including laminates and associated adhesives and tapes)
- Thermal breaks associated with glazing systems
- Isolated construction packers, shims and fixings (used in locating and supporting window systems)

Window requirements as specified in fire engineers report / PBDB

AGWA Resources

AGWA TFS Non combustible elements

Performance Requirement

D1P1 Access for people with a disability
D1P2 Safe movement to and within a building

Objective:
Provide safe, dignified and equitable access to and within a building, and means for evacuation in an emergency

Application:
Doors within a required exit or continuous path of travel

DTS Clauses:
D2D7, D2D9, D3D16, D3D24, D3D25, D3D26, D4D3, D4D13

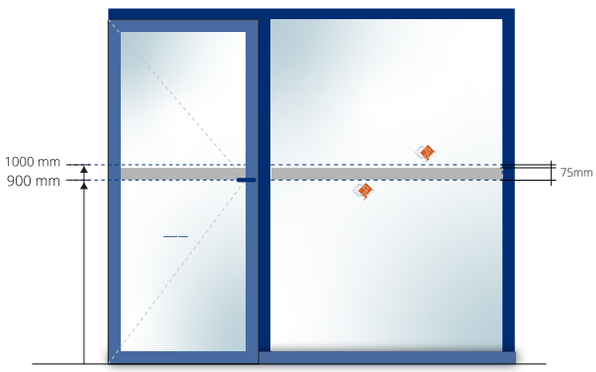
Primary Referenced Standard:
AS 1428.1 Design for access and mobility

Other Standard:
None

Visual Inspections

Where required:

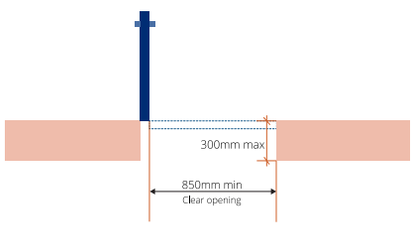
- minimum clear opening of doorways
- door thresholds & ramps
- abutment of surfaces
- drainage grates
- visual indicators on glass
- door locks, latches & handles



Key Assessment Criteria

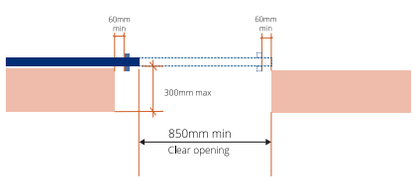
In a required exit doors must:

- have a clear opening of no less that 850 mm, including all fitments such as hinges, handles, etc
- if fitted with a threshold ramp, have no more than a 1:8 gradient and a maximum rise of 35 mm
- have handles, locks or latches fitted between 900 mm and 1100 mm above FFL and that comply with the dimensional requirements of AS 1428.1
- handles must conform with specific dimensional requirements in AS 1428.1
- have no more than 20N operating forced (when fitted with a door closer)



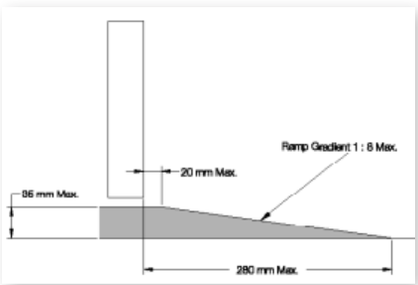
All glazing along a continuous path of travel, including glazing which may be mistaken for a doorway or opening, must be marked with a 75mm solid contrasting band compliant with AS 1428.1:

- between 900 mm and 1100 mm above FFL
- with a luminance contrast of at least 30% against the floor surface or background surfaces with 2m



Any drainage grates must meet the following criteria:

- circular openings must be no more than 13 mm in diameter
- slotted opening not greater than 13 mm wide and oriented transverse to the direction of travel



AGWA Resources

AGWA TFS Doors and Disability

Performance Requirement

D1P3 Fall prevention barriers

Objective: Prevention of falls (for children) through openable windows

Application:
Openable windows above:
- 2m in a Class 9b early childhood centre or a bedroom of a Class 2 or 3 building or a Class 4 part of a building; or
- 4m in all other cases

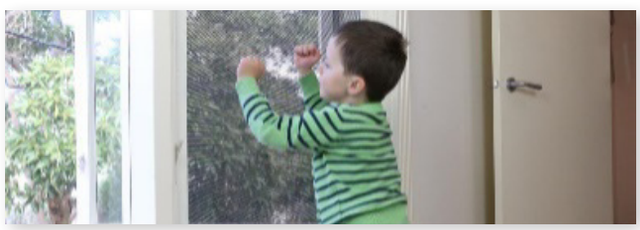
DTS Clauses:
D3D29

Primary Referenced Standard:
None

Other Standard:
AS 5203 Protection of openable windows fall prevention - Test sequence and compliance method

Visual Inspections

Where required:
- windows are restricted, or
- safety/security screens fitted



Documentation

Compliance Certificate / Declaration of Conformity

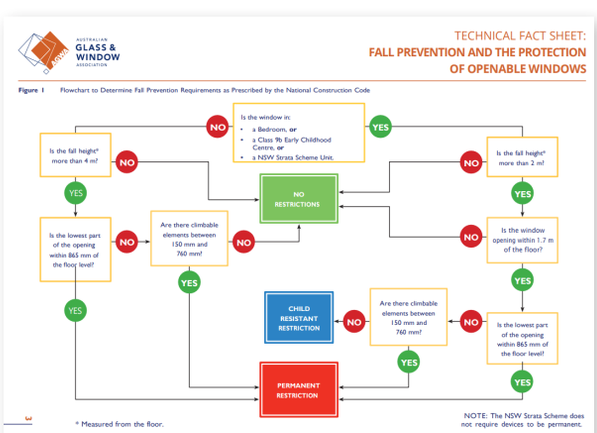
AS 5203 test report

Manufacturer Technical Manuals

Key Assessment Criteria

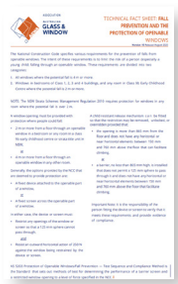
All windows in bedrooms and early childhood centres with a height greater than 2m above ground level must be restricted to no more than 125mm opening or have fall prevention screens fitted.

Windows in other rooms, above 4m, where the lowest part of the opening is within 865mm of the floor must also be restricted or have fall prevention screens fitted.



AGWA Resources

AGWA TFS Fall Prevention



Performance Requirement

F1P2 Preventing rainwater from entering buildings
F3P1 Weatherproofing

Objective:
Provide resistance to rain or surface water to protect occupants from illness or injury and the building from damage caused by water ingress

Application:
All external windows and glazed doors

DTS Clauses:
F1D5, F3D4

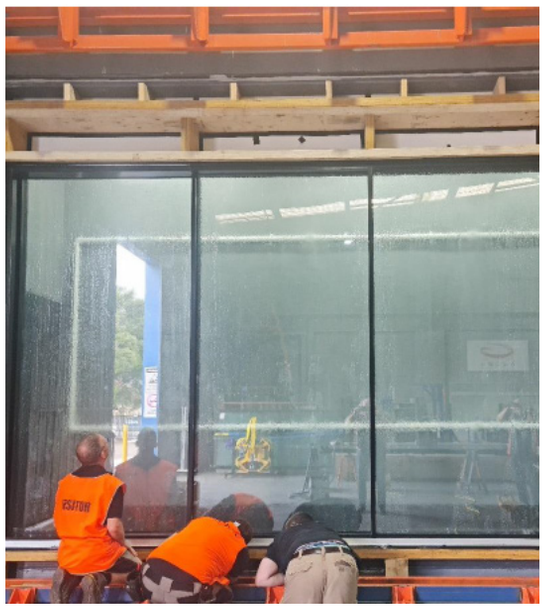
Primary Referenced Standard:
AS 2047 Windows and external glazed doors in buildings
AS 4654.2 Waterproofing membranes for external above-ground use

Other Standard:
AS 4420.1 Windows, external glazed, timber and composite doors - Methods of test
AS/NZS 4284 Testing of building facades

Visual Inspections

Window labels (where fitted)

Waterproofing membrane, sill placement, waterstop angle and termination heights in accordance with AS 4654.2



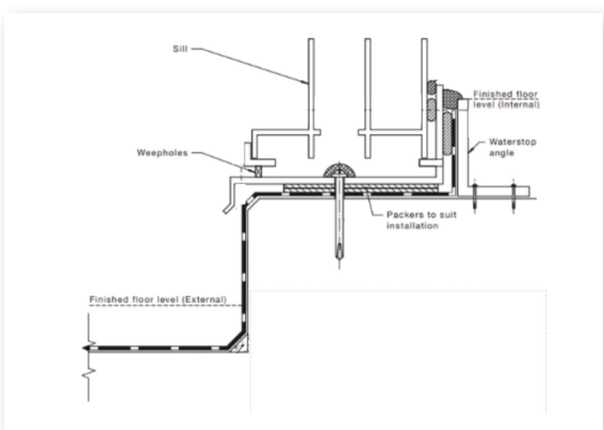
Documentation

Compliance Certificate / Declaration of Conformity,
AS 2047 Test Reports,
AS/NZS 4284 Test Report (in accordance with F3V1 if appropriate)
Technical Manuals,
Engineers Reports

Key Assessment Criteria

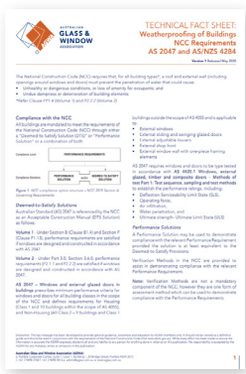
Water Penetration Resistance
Verification that type testing of the window or door system demonstrates it meets (or exceeds) the Water Pentration Resistance (WPR) level equivalent to 30% of the positive SLS wind pressure (min 150 Pa)

Waterproofing and Sill Installation
Verification the requirements for AS 4654.2 for sill installation, water-stop angles and termination heights have been met



AGWA Resources

AGWA TFS Weather Proofing of Buildings NCC Requirements



Performance Requirement

G5P1 Bushfire Resistance

Objective:
Windows in buildings in designated bushfire prone areas are constructed to provide resistance to bushfires in order to reduce the danger to life and reduce the risk of the loss of the building.

Application:
Buildings in a designated bushfire prone areas

DTS Clauses:
G5D3, G5D4

Primary Referenced Standard:
AS 3959 Construction of buildings in bushfire prone areas

Other Standard:

AS 1530.8.1 Methods for fire tests on building materials, components and structures Part 8.1: Tests on elements of construction for buildings exposed to simulate bushfire attack - radiant heat and small flaming sources

AS 1530.8.2 Methods for fire tests on building materials, components and structures Part 8.2: Tests on elements of construction for buildings exposed to simulated bushfire attack - Large flaming sources

Visual Inspections Visual check to ensure windows match requirements

Documentation Compliance Certificate / Declaration of Conformity

AS 1530.8.1 or AS 1530.8.2 test report (as appropriate)


QUICK REFERENCE GUIDE

	BAL-12.5	BAL-19
Frame	Low-level framing must be manufactured from either: • Metal, or • Bushfire resistant timber or • Timber species with a density greater than 650 kg/m³ or • Metal reinforced uPVC.	Low-level framing must be manufactured from either: • Metal, or • Bushfire resistant timber or • Timber species with a density greater than 650 kg/m³ or • Metal reinforced uPVC.
Glazing	Low-level glazing must be Grade A safety glass with a minimum thickness of 4 mm.	Low-level glazing must be Grade A safety glass with a minimum thickness of 5 mm. In all other locations where annealed glass is used, it must be protected by an external screen (see screen requirements).
Screens	Openable portions of windows must be screened either internally or externally. Mesh or perforated sheet with a maximum apperture of 2mm manufactured from either: • Corrosion resistant steel, or • Bronze, or • Aluminium (except in South Australia). Supporting frame must be manufactured from either: • Metal (including aluminium), or • Bushfire resistant timber or • Timber species with a density greater than 650 kg/m³.	Openable portions of windows must be screened either internally or externally. Mesh or perforated sheet with a maximum apperture of 2mm manufactured from either: • Corrosion resistant steel, or • Bronze, or • Aluminium (except in South Australia). Supporting frame must be manufactured from either: • Metal (including aluminium), or • Bushfire resistant timber or • Timber species with a density greater than 650 kg/m³. Where annealed glass is used, it must be protected by an external screen.
Seals	N/A	N/A
Hardware	N/A	N/A

NOTES

Where double-glazed units are used, the glazing requirements provided in this Standard apply to the external face of the window assembly only.

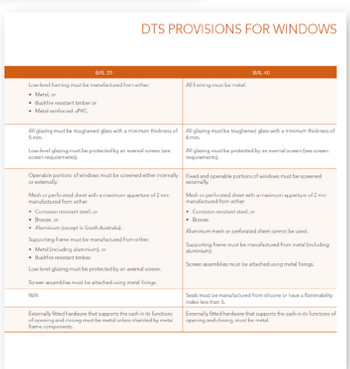
Low-level glazing is any glass within 400 mm of the ground, decks, carport roofs, awnings, or similar horizontal (or near horizontal) elements.

NCC variation in South Australia specifies that aluminium mesh or perforated sheet is not suitable at any BAL.

Key Assessment Criteria

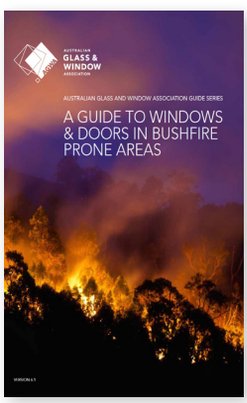
Requirements vary by BAL, but commonly require:

- metal screens to all openable windows
- toughened glass of the appropriate thickness where required
- appropriate frame materials


DTS PROVISIONS FOR WINDOWS

BAL-29	BAL-40
Low-level framing must be manufactured from either: • Metal, or • Bushfire resistant timber or • Metal-reinforced uPVC.	All framing must be metal.
All glazing must be toughened glass with a minimum thickness of 5 mm. Low-level glazing must be protected by an external screen (see screen requirements).	All glazing must be toughened glass with a minimum thickness of 6 mm. All glazing must be protected by an external screen (see screen requirements).
Operable portions of windows must be screened either internally or externally. Mesh or perforated sheet with a maximum apperture of 2 mm manufactured from either: • Corrosion resistant steel, or • Bronze, or • Aluminium (except in South Australia). Supporting frame must be manufactured from either: • Metal (including aluminium), or • Bushfire resistant timber. Low-level glazing must be protected by an external screen. Screen assemblies must be attached using metal fixings.	Fixed and openable portions of windows must be screened externally. Mesh or perforated sheet with a maximum apperture of 2 mm manufactured from either: • Corrosion resistant steel, or • Bronze. Aluminium mesh or perforated sheet cannot be used. Supporting frame must be manufactured from metal (including aluminium). Screen assemblies must be attached using metal fixings.
N/A	Seals must be manufactured from silicone or have a flammability index less than 5.
Externally fitted hardware that supports the sash in its functions of opening and closing must be metal unless shielded by metal frame components.	Externally fitted hardware that supports the sash in its functions of opening and closing, must be metal.

AGWA Resources AGWA Guide to Windows in Bushfire Prone Areas



Performance Requirement

G7P1 Livable Housing Design

Objective:
Sole occupancy units are designed to be easy to enter and navigate, and are capable of easy and cost-effective adaptation in response to the changing needs of occupants

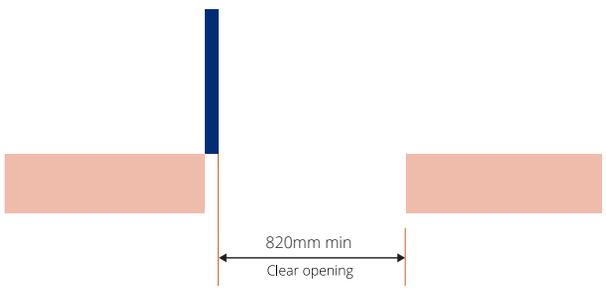
Application:
Class 2 SOU's

DTS Clauses:
G7D2

Primary Referenced Standard:
ABCB Livable housing design standard

Other Standard:
None

Visual Inspections Entry doors and showers



Documentation Compliance Certificate / Declaration of Conformity

Key Assessment Criteria

Verify Entry Doors are 'step-free' and have a minimum clear opening width of 820 mm

Verify Showers are 'step-free'

Performance Requirement

J1P1 Energy use
J2P2 Thermal performance of a sole-occupancy unit of a Class 2 building or a Class 4 part of a building

Objective:
Windows and glazing designed to improve energy efficiency and occupant health and amenity as well as reduce greenhouse gas emissions

Application:
All external windows and glazed doors in habitable areas

DTS Clauses:
J3D9, J3D11, J3D12, J4D6

Primary Referenced Standard:
None

Other Standard: NatHERS

Visual Inspections Visual check to ensure windows match specifications

- operating type
- glass type

+ single/insulated glass unit (eg. double-glazed)
+ low-e coatings
+tone/tint

WINDOW ENERGY RATING SCHEME
PRODUCT PERFOMANCE CERTIFICATE

Client:	Windows 'R Us	Certificate #:	0000001987
Site Address:	123 mystreet	Created by:	Russell Harris
City/Suburb:	mysuburb	Email:	Russell.Harris@agwa.com.au
State:	NSW	Date:	Tue Sep 24 2024

Window ID	Manufacturer	Frame Description	Frame Material	Operating Type	Glass Description	Uw	SHGCw	Tvw	Ai
HAAWD-035-041	WERSLink Default Window Library	Housing Aluminium Awning Window Double Glazed	Aluminium	Awning Window	DG - ALU	3.5	0.41	0.56	5.00
HABDD-040-045	WERSLink Default Window Library	Housing Aluminium Bifold Door Double Glazed	Aluminium	Bifold Door	DG - ALU	4.0	0.48	0.49	5.00
HAFWD-030-041	WERSLink Default Window Library	Housing Aluminium Fixed Window Double Glazed	Aluminium	Fixed Window	DG - ALU	3.0	0.42	0.36	5.00
HASDD-030-045	WERSLink Default Window Library	Housing Aluminium Sliding Door Double Glazed	Aluminium	Sliding Door	DG - ALU	3.0	0.46	0.59	5.00
HASWD-030-050	WERSLink Default Window Library	Housing Aluminium Sliding Window Double Glazed	Aluminium	Sliding Window	DG - ALU	3.0	0.48	0.65	5.00

The performance attributes above have been generated from the WERS database [Date] and certified to be AFRC Compliant.

The AFRC is the Australian Fenestration Rating Council and is responsible for the maintenance of the protocols by which energy ratings are conducted in Australia. AFRC protocols and procedures are referenced by the Building Code of Australia.

The Window Energy Rating Scheme is managed by the Australian Glass and Window Association (AGWA).

Page 1 of 1

Documentation AGWA Compliance Certificate / Declaration of Conformity

ESD or energy report

NatHERS Certificate (Class 2)

Key Assessment Criteria U-value for each window is less than that required

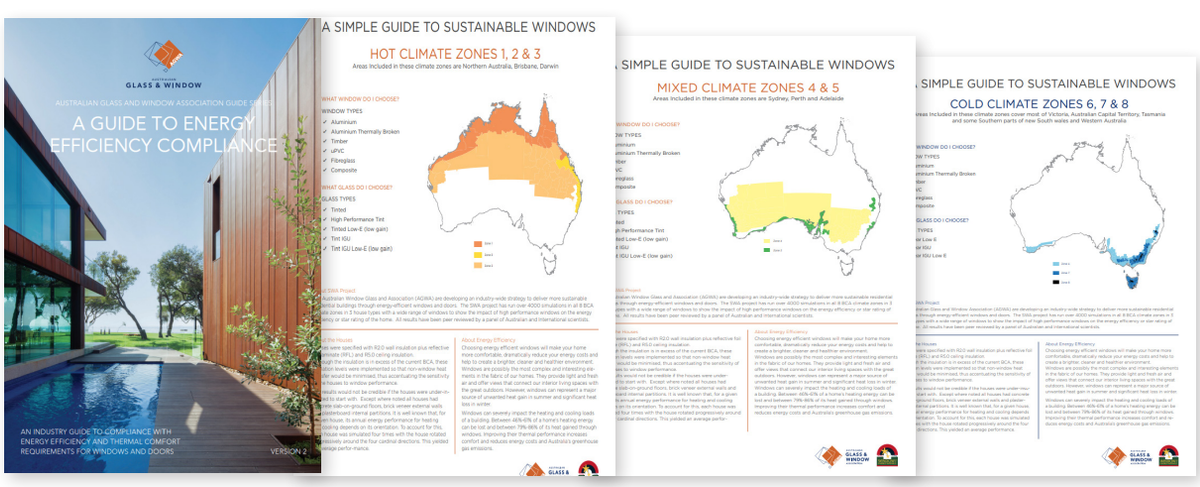
SHGC is less than that specified

AGWA Resources AGWA Guide to Energy Efficiency Compliance

SWA Climate Zones123

SWA Climate Zones 45

SWA Climate Zones 678



GLASS BALUSTRADES

Performance Requirements

H1P1/B1P1 Structural reliability and resistance
B1P3 Glass installations at risk of human impact
D1P2 Safe movement to and within a building
D1P3/H5P2 Fall Prevention Barriers

Objective:
Barriers and glazing are capable of preventing a fall. Glazing prevents undue risk of injury to people.

Application:
All glazed barriers

DTS Clauses:
B1D3, B1D3, B1D4, D3D17, D3D18, D3D19, D3D20, D3D22, H1D8, HP Section 11

Primary Referenced Standard:
AS 1288 Glass In Buildings
AS/NZS 1170.0 Structural design actions - Part 0: General principles
AS/NZS 1170.1 Structural design actions - Part 1: Permanent imposed and other actions
AS/NZS 1170.2 Structural design actions - Part 2: Wind actions

Other Standard:
AS 2208 Safety glazing materials in buildings
AS/NZS 4667 Quality requirements for cut-to-size and processed glass

Visual Inspections

Barrier height/dimensions

Safety Glass Labels

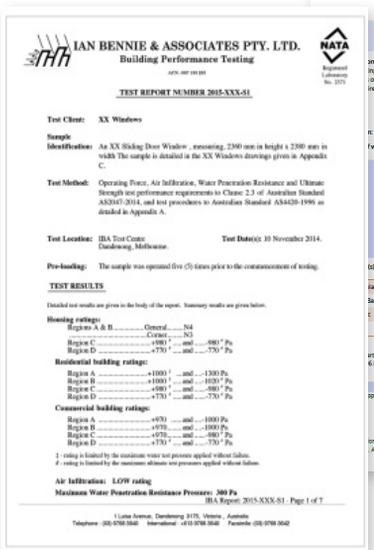
Gaps - horizontal and vertical

Documentation

AGWA Compliance Certificate / Declaration of Conformity

AS 1288 Appendix H (and Appendix I where appropriate) test reports

Engineers Reports

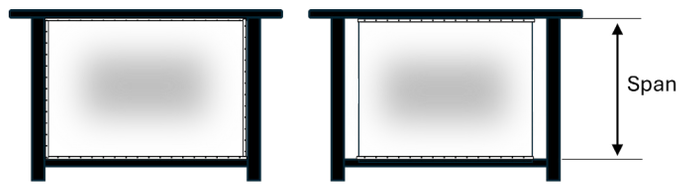


Key Assessment Criteria

Loads

Verification that type testing of the barrier system demonstrates it meets:

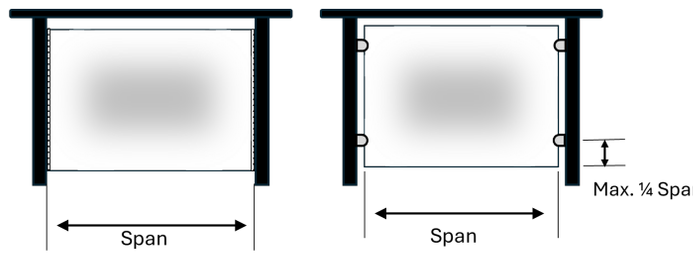
- barrier requirements as per Section 7 of AS 1288
- imposed live loads as per AS/NZS 1170.1
- wind loads as per AS/NZS 1170.2



Product Size & Configuration

Check that the test report supports the relevant product size (overall height and width), location of fixings, distance between supports:

- test report in accordance with Appendix H (and Appendix I) where appropriate) of AS 1288
- engineer report/specifications

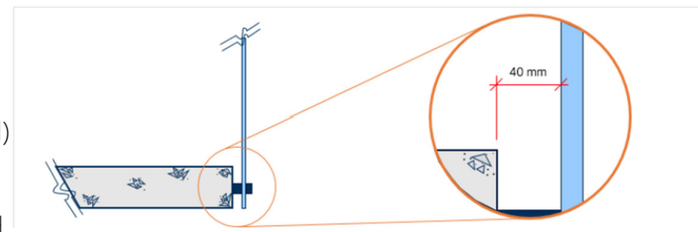


Glass Type & Thickness

Establish that glazing is in accordance with Section 7 of AS 1288

Gaps

No more than 125mm gap anywhere
No more than 40mm horizontally (face fixed)



Monolithic toughened glass

Monolithic toughened glass is not permitted more than 5m above FFL or ground-level, or in structural barrier without an interlinking or load-supporting handrail

AGWA Resources

AGWA TFS Safety Glass Labelling

AGWA TFS Barrier Quick Reference Guide

AUSTRALIAN GLASS & WINDOW ASSOCIATION

TECHNICAL FACT SHEET:
Barrier Quick Reference Guide

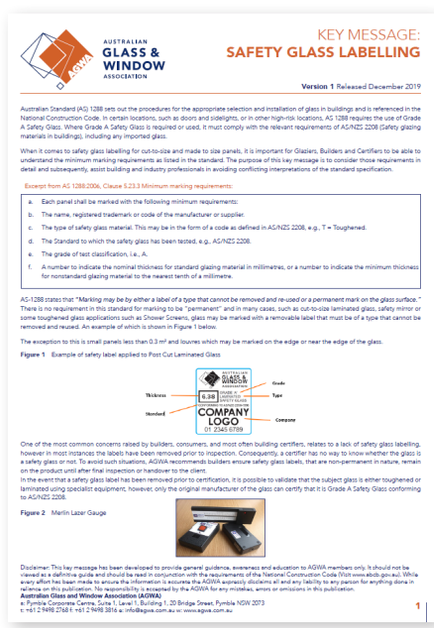
VERSION 1 MAY 2024

The intent of this document is to provide a quick reference guide on the compliance requirements, as per AS 1288:2021, for barriers in relation to human impact (imposed live loads) protecting a difference in height greater or equal to 1m. This guide is broken up by common barrier type.

Key Information

Barrier Types:

- **Load Supporting Handrail :**
  The handrail supports the loads and is mechanically fixed to the structure or posts without reliance on the glass for structural support. The glass infill panel may or may not be connected to the handrail. These are commonly referred to as **Infill Barriers.**
- **Interlinking Handrail:**
  The handrail is connected to adjacent glass panels, the building or both and relies on the glass in combination for structural support.
- **Non-Load-Supporting Handrail:**
  These handrails are not designed to provide any structural support. The glass is solely relied upon for structural support. These are commonly referred to as **Capping Rails**
- **No Handrail or Non-Load Supporting Handrail :**
  These barriers have no handrail or a non-load-supporting handrail and rely solely on the glass for structural support. These are commonly referred to as **Frameless Barriers.**



AUSTRALIAN GLASS & WINDOW ASSOCIATION

KEY MESSAGE:
SAFETY GLASS LABELLING

Version 1 Released December 2019

Australian Standard (AS) 1288 sets out the procedures for the appropriate selection and installation of glass in buildings and is referenced in the National Construction Code. In certain locations, such as doors and sidelights, or in other high-risk locations, AS 1288 requires the use of Grade A Safety Glass. Where Grade A Safety Glass is required or used, it must comply with the relevant requirements of AS/NZS 2208 (Safety glazing materials in buildings), including any imported glass.

When it comes to safety glass labelling for cut-to-size and made to size panels, it is important for Glaziers, Builders and Certifiers to be able to understand the minimum marking requirements as listed in the standard. The purpose of this key message is to consider those requirements in detail and subsequently, assist building and industry professionals in avoiding conflicting interpretations of the standard specification.

Excerpt from AS 1288:2006, Clause 5.23.3 Minimum marking requirements:

a. Each panel shall be marked with the following minimum requirements:
b. The name, registered trademark or code of the manufacturer or supplier.
c. The type of safety glass material. This may be in the form of a code as defined in AS/NZS 2208, e.g., T = Toughened.
d. The Standard to which the safety glass has been tested, e.g., AS/NZS 2208.
e. The grade of test classification, i.e., A.
f. A number to indicate the nominal thickness for standard glazing material in millimetres, or a number to indicate the minimum thickness for nonstandard glazing material to the nearest tenth of a millimetre.

AG-1288 states that "*Marking may be by either a label of a type that cannot be removed and re-used or a permanent mark on the glass surface.*" There is no requirement in this standard for marking to be "permanent" and in many cases, such as cut-to-size laminated glass, safety mirror or some toughened glass applications such as Shower Screens, glass may be marked with a removable label that must be of a type that cannot be removed and reused. An example of which is shown in Figure 1 below.

The exception to this is small panels less than 0.3 m² and louvres which may be marked on the edge or near the edge of the glass.

Figure 1 Example of safety label applied to Post Cut Laminated Glass

Thickness 6.38 Standard AUSTRALIAN GLASS & WINDOW ASSOCIATION MEMBER COMPANY LOGO 01 2345 6789 Grade Type Company

One of the most common concerns raised by builders, consumers, and most often building certifiers, relates to a lack of safety glass labelling, however in most instances the labels have been removed prior to inspection. Consequently, a certifier has no way to know whether the glass is a safety glass or not. To avoid such situations, AGWA recommends builders ensure safety glass labels, that are non-permanent in nature, remain on the product until after final inspection or handover to the client.

In the event that a safety glass label has been removed prior to certification, it is possible to validate that the subject glass is either toughened or laminated using specialist equipment, however, only the original manufacturer of the glass can certify that it is Grade A Safety Glass conforming to AS/NZS 2208.

Figure 2 Merlin Laser Gauge

Disclaimer: This key message has been developed to provide general guidance, awareness and education to AGWA members only. It should not be viewed as a definitive guide and should be read in conjunction with the requirements of the National Construction Code/Volume one which sits with www.abcb.gov.au). While every effort has been made to ensure the information is accurate the AGWA expressly disclaims all and any liability to any person for anything done in reliance on this publication. No responsibility is accepted by the AGWA for any mistakes, errors or omissions in this publication.
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GLASS POOL FENCES

Performance Requirement

H1P1/B1P1 Structural reliability and resistance
B1P3 Glass installations at risk of human impact
G1P2/H7P1 Swimming Pool Access

Objective:
Pool Barriers and glazing are capable of resisting appropriate loads.
Glazing subject to human impact avoids undue risk of injury to people.

Application:
All glazed pool fences

DTS Clauses:
B1D3, B1D4, G1D2, H1D8, H7D2

Primary Referenced Standard:
AS 1288 Glass In Building
AS 1926.1 Swimming pool safety - Safety barriers for swimming pools

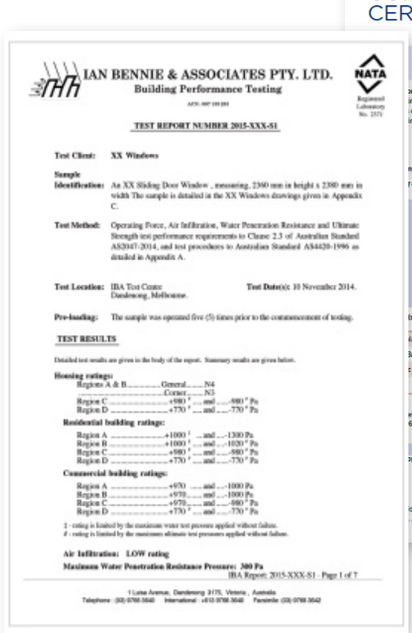
Other Standard:
AS 2208 Safety glazing materials in buildings
AS/NZS 4667 Quality requirements for cut-to-size and processed glass
AS/NZS 3000 Electrical installations

Visual Inspections

- Barrier height/dimensions
- Safety Glass Labels
- Gaps - horizontal and vertical
- Non-climbable Zones
- Hand and foot holds
- Access gates

Documentation

- AGWA Compliance Certificate / Declaration of Conformity,
- NATA accredited AS 1926 Appendix G test reports,
- NATA accredited AS 1288 Appendix H test reports,
- Engineers Reports



Key Assessment Criteria

Product Size & Configuration

- Height of fence
- Non-climbable zones
- Gates and latched
- Hand and foot holds

Applied Loads

- Verification that type testing of the barrier system demonstrates it meets (or exceeds) the criteria as laid out in AS 1926.1 (Appendix G test report)
- Wind Loads

Glass Type & Thickness

Establish that glazing is Grade A safety glass and in accordance with AS 1926.1

Verify conductive metal components within 1.25m of the pool edge have been earthed in accordance with AS 3000 Clause 5.6.2.6

Note: windows opening directly into pool areas are subject to additional requirements

Note: pool fences protecting a fall greater than 1m are subject to additional fall prevention barrier requirements

AGWA Resources

AGWA TFS Safety Glass Labelling

AGWA TFS Barrier Quick Reference Guide

AUSTRALIAN GLASS & WINDOW ASSOCIATION

TECHNICAL FACT SHEET:
Barrier Quick Reference Guide

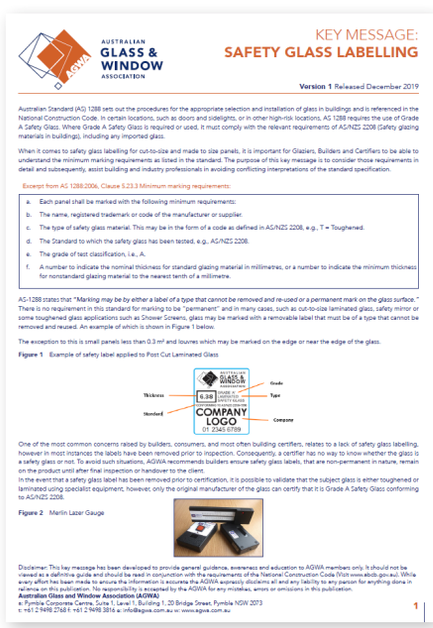
VERSION 1 MAY 2024

The intent of this document is to provide a quick reference guide on the compliance requirements, as per AS 1288:2021, for barriers in relation to human impact (imposed live loads) protecting a difference in height greater or equal to 1m. This guide is broken up by common barrier type.

Key Information

Barrier Types:

- **Load Supporting Handrail :**
  The handrail supports the loads and is mechanically fixed to the structure or posts without reliance on the glass for structural support. The glass infill panel may or may not be connected to the handrail. These are commonly referred to as **Infill Barriers.**
- **Interlinking Handrail:**
  The handrail is connected to adjacent glass panels, the building or both and relies on the glass in combination for structural support.
- **Non-Load-Supporting Handrail:**
  These handrails are not designed to provide any structural support. The glass is solely relied upon for structural support. These are commonly referred to as **Capping Rails**
- **No Handrail or Non-Load Supporting Handrail :**
  These barriers have no handrail or a non-load-supporting handrail and rely solely on the glass for structural support. These are commonly referred to as **Frameless Barriers.**



AUSTRALIAN GLASS & WINDOW ASSOCIATION

KEY MESSAGE:
SAFETY GLASS LABELLING

Version 1 Released December 2019

Australian Standard (AS) 1288 sets out the procedures for the appropriate selection and installation of glass in buildings and is referenced in the National Construction Code. In certain locations, such as doors and sidelights, or in other high-risk locations, AS 1288 requires the use of Grade A Safety Glass. Where Grade A Safety Glass is required or used, it must comply with the relevant requirements of AS/NZS 2208 (Safety glazing materials in buildings), including any imported glass.

When it comes to safety glass labelling for cut-to-size and made to size panels, it is important for Glaziers, Builders and Certifiers to be able to understand the minimum marking requirements as listed in the standard. The purpose of this key message is to consider those requirements in detail and subsequently, assist building and industry professionals in avoiding conflicting interpretations of the standard specification.

Excerpt from AS 1288:2006, Clause 5.23.3 Minimum marking requirements:

a. Each panel shall be marked with the following minimum requirements:
b. The name, registered trademark or code of the manufacturer or supplier.
c. The type of safety glass material. This may be in the form of a code as defined in AS/NZS 2208, e.g., T = Toughened.
d. The Standard to which the safety glass has been tested, e.g., AS/NZS 2208.
e. The grade of test classification, i.e., A.
f. A number to indicate the nominal thickness for standard glazing material in millimetres, or a number to indicate the minimum thickness for nonstandard glazing material to the nearest tenth of a millimetre.

AS-1288 states that *"Marking may be by either a label of a type that cannot be removed and re-used or a permanent mark on the glass surface."* There is no requirement in this standard for marking to be "permanent" and in many cases, such as cut-to-size laminated glass, safety mirror or some toughened glass applications such as Shower Screens, glass may be marked with a removable label that must be of a type that cannot be removed and reused. An example of which is shown in Figure 1 below.

The exception to this is small panels less than 0.3 m² and louvres which may be marked on the edge or near the edge of the glass.

Figure 1 Example of safety label applied to Post Cut Laminated Glass

Thickness
Standard
6.38
GLASS & WINDOW ASSOCIATION
COMPANY LOGO
03 2345 6789
Grade
Type
Compone

One of the most common concerns raised by builders, consumers, and most often building certifiers, relates to a lack of safety glass labelling, however in most instances the labels have been removed prior to inspection. Consequently, a certifier has no way to know whether the glass is a safety glass or not. To avoid such situations, AGWA recommends builders ensure safety glass labels, that are non-permanent in nature, remain on the product until after final inspection or handover to the client.

In the event that a safety glass label has been removed prior to certification, it is possible to validate that the subject glass is either toughened or laminated using specialist equipment, however, only the original manufacturer of the glass can certify that it is Grade A Safety Glass conforming to AS/NZS 2208.

Figure 2 Merlin Lazer Gauge

Disclaimer: This key message has been developed to provide general guidance, awareness and education to AGWA members only. It should not be viewed as a definitive guide and should be read in conjunction with the requirements of the National Construction Code (NCC) www.abcb.gov.au). While every effort has been made to ensure the information is accurate the AGWA expressly disclaims all and any liability to any person for anything done in reliance on this publication. No responsibility is accepted by the AGWA for any mistakes, errors or omissions in this publication.

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SHOWERSCREENS

Performance Requirement

H1P1/B1P1 Structural reliability and resistance

B1P3 Glass installations at risk of human impact

Objective:
Glazing subject to human impact avoids undue risk of injury to people.

Application:
All Glazed Showerscreens

DTS Clauses:
B1D4, H1D8, HP Section 8.4 & 10.2

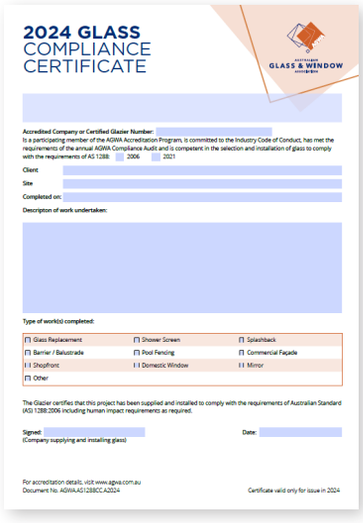
Primary Referenced Standard:
AS 1288 Glass In Building
AS 3740 Waterproofing of Domestic Wet Areas

Other Standard:
AS 2208 Safety glazing materials in buildings
AS/NZS 4667 Quality requirements for cut-to-size and processed glass

Visual Inspections Safety Glass Labels

Documentation Compliance Certificate / Declaration of Conformity

Manufacturer technical manuals



Key Assessment Criteria

Glass Type & Thickness
Establish that glazing is in accordance with AS 1288 and glazed with Grade A safety glass

Water-stop angle and waterproofing in accordance with AS 3740 for enclosed or un-enclosed shower area

AGWA Resources

AGWA TFS Shower Screen Installation
AGWA TFS Safety Glass Labelling
AGWA TFS Unframed Shower Screens
AGWA TFS Shower Screen Care & Maintenance