



WHAT IS CERTIFICATION?

The Building Code of Australia requires that all doors and windows and their installation complies to the relevant Australian Standards. A building certifier will require that these items be certified as complying to the code upon completion of your new building or renovation.

WHO IS RESPONSIBLE FOR CERTIFICATION?

The joinery supplier is responsible for the certification of AS1288 (glazing compliance) and partially for AS2047 (performance) but the installer is ultimately responsible for the full compliance to AS2047 as it is the code that deals with the design of the building and the installation of the joinery. The supplier (ie: Woodworkers) is only responsible to certify that the joinery complies with the performance standards of the specified wind rating as provided by the purchaser.

DOES WOODWORKERS DO INSTALLATIONS?

NO – installations must be carried out by a BSA (Building Services Authority) registered contractor.

MY HOUSE PROBABLY DOESN'T MEET ANY OF THE CURRENT STANDARDS. HOW DOES CERTIFICATION AFFECT ME?

Rental and commercial properties must retrospectively meet the new and changing standards such as updating glazing. The main impact to the average owner/occupier will be on any renovations and/or extensions to the home which may not be able to match existing work due to higher standards being required for items like glass. Rules governing minimum ventilation/daylight to rooms may also impact on choices available for new works. The upgrading of standards means that the supply of traditional timber joinery is becoming expensive to consumers due to compliance with wind ratings, glass codes, bushfire codes and energy codes.

WHAT EFFECT DOES CERTIFICATION HAVE ON MY CHOICE OF WINDOWS AND DOORS?

To be able to supply compliant joinery Woodworkers needs to be made aware of information relating to the wind rating of your site (obtainable from your engineer or architect) and the placement of joinery in the house. This information can also help us advise you on suitable alternatives to achieve compliance. As a guide, the window rating selection chart at the end of this FAQ sheet gives generalised information on the wind pressure/water penetration resistance requirements that may be applicable.

WHAT DOES A COMPLIANCE CERTIFICATE LOOK LIKE?

| Form 15 Compliance certificate for building design or specification | | Queensland Government | |
|---|--|--|--|
| <p>This form is the approved form that must be used in accordance with section 10 of the Building Act 1975 and sections 73 and 77 of the Building Regulation 2021 (Design-specification certificate) stating that an aspect of building work or specification will, if installed or carried out as stated in this form, comply with the building assessment provisions.</p> <p>Additional explanatory information is included in the Appendix at the end of this form.</p> | | | |
| <p>1. Property description</p> <p>This section must be completed if details of street address and property description are applicable. E.g. in the case of standard/generic pool design/pool manufacture and/or other and receptor systems this section may not be applicable. Where applicable, the description must identify all key components of the installation. The lot and plan details (e.g. STRATA) or other (e.g. title documents) or a rates notice. If the plan is not registered by title provide previous lot and plan details.</p> | <p>Street address (include number, street, suburb/locality and postcode)</p> <p>State Postcode</p> <p>Lot and plan details (attach list if necessary)</p> <p>Local government area the land is situated in</p> | <p>4. Reference documentation</p> <p>Clearly identify any relevant documentation, e.g. structural engineering plans.</p> | |
| <p>2. Description of aspect/s certified</p> <p>Clearly describe the person or work covered by this certificate, e.g. all components of the glass and frame.</p> | | <p>5. Building certifier reference number and building development application number</p> <p>Building certifier reference number</p> <p>Building development application number (if available)</p> | |
| <p>3. Basis of certification</p> <p>Detail the basis for giving this certificate and the extent to which rules, specifications, rules, standards, codes of practice and other regulations were relied upon.</p> | | <p>6. Appointed competent person details</p> <p>Under Part 6 of the Building Regulation 2021, a person must be assessed or a competent for the type of work (design-specification) by the relevant building certifier.</p> <p>Name (in full)</p> <p>Company name (if applicable) Contact person</p> <p>Business phone number Mobile number</p> <p>Email address</p> <p>Postal address</p> <p>State Postcode</p> <p>Licence class or registration type (if applicable)</p> <p>Licence or registration number (if applicable)</p> | |
| | | <p>7. Signature of appointed competent person</p> <p>This certificate must be signed by the individual assessors and approved by the building certifier as competent to give design-specification help.</p> <p>Signature Date</p> | |
| <p>LOCAL GOVERNMENT USE ONLY</p> <p>Date received Reference number/s</p> | | | |

Woodworkers is responsible for supplying you with Form 15 certifying the glass to AS1288 and the manufacture of the joinery items to AS2047.

IF A FORM 43 IS REQUIRED IT IS THE RESPONSIBILITY OF THE BUILDER/INSTALLER TO CERTIFY THIS ASPECT OF THE WORKS AS WOODWORKERS CANNOT CERTIFY THE CORRECT INSTALLATION OF JOINERY AND/OR DESIGN OF YOUR BUILDING.

our joinery has been NATA tested

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WHAT STANDARDS APPLY?

The following standards and legislation have the effect of setting minimum guidelines for the manufacture and installation of your windows and doors.

- **AS1288** is the Australian Standard that stipulates the minimum performance of the GLAZING to satisfy the human impact requirements and the wind ratings of your specific site.
- **AS2047** is the Australian Standard that covers the structural & water penetration PERFORMANCE of your joinery to the wind rating of the site.
- **AS4055** is the Australian Standard that determines what a class 1a residential building is for the purposes of the previous standards
- **AS3959** is the Australian Standard that covers bushfire ratings. - See FAQ 26
- **WERS** is the Window Energy Rating System that may become part of the building code.
- **BASIX** -in New South Wales you are required to submit a BASIX certificate with your development application to foster more energy and water efficient sustainable buildings.

ARE STANDARDS MANDATORY?

The Building Code of Australia requires compliance to these standards for all new building works. Most reputable joinery companies (including Woodworkers) have had their standard joinery items tested by an accredited NATA facility to confirm compliance with structural strength and water penetration requirements.

Woodworkers will be able to supply a compliance certificate to the level to which the joinery has been tested. It is important that the purchaser provide any relevant information if the building falls outside the normal parameters

AS1288 THE GLASS CODE - HOW DOES THIS AFFECT ME?

Glass choices can be restricted by human impact, wind, energy and bushfire ratings. For normal residential applications, glass choices are mostly only limited by human impact requirements but the issue is becoming more complex. See our separate FAQ 4 on Glass and Timber choices.

THE KEY CONSIDERATIONS ARE -

Human Impact

Human Impact deals with the placement and type of glass relative to the position in the house and the height from the floor. It is determined by the likelihood of people injuring themselves by running or falling into the glass panel.

Human Impact requirements apply (generally) to -

All doors

Door sidelights within 300mm of the door in any plane

Kitchens, bathrooms or any room with a spa or bath

Stairwells

Window seats (Bay windows/Dormer windows)

Low level glazing - i.e. Glass within 500mm of the floor

Where Human Impact restrictions apply there are strict regulations which usually require safety glass to be used.

TO COMPLY WITH THIS STANDARD OUR STAFF NEED TO BE MADE AWARE OF PROPOSED POSITIONING OF YOUR JOINERY.

If not informed of special circumstances it is our policy to supply glazed items for normal circumstances and to certify only to that level. If you are buying from our joinery orphanage you must enquire about the glass type to see if it complies for your circumstances as we will not be able to certify the item without this information.

Most complete items will be adequate for standard wind loads but windows may not be suitable for human impact areas unless specifically glazed for that purpose. For items in kit form, apart from the glazing, compliance is the responsibility of the assembler. For items purchased unglazed, compliance is the responsibility of the glazier.

Manifestation (making glass visible)

The glass code requires that any glass pane capable of being mistaken for a doorway and that has a sightline wider than 500mm must have manifestation (a visible marking on the glass) for safety reasons. The exceptions are where the glass is made apparent by its obscure nature or by means of glazing bar patterns or timber rails (over 500mm from the floor). The glass in these circumstances needs to be marked between 700mm and 1200mm from the floor, but there is no stipulation on the width of the band or it's placement within the width of the piece of glass.

Many door and window suppliers impose a standard irremovable pattern across the glass that may not suit your tastes. Woodworkers does not factory fix manifestation as we believe it is better fitted as a self adhesive after the joinery is installed and cleaned on site at the completion of the project.



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Our reasons for this policy are:

- Our stock joinery often has a film over toughened glass to protect it during transport and site works. This film, if removed, is not able to be re-adhered to the glass and tempered glass is prone to scratching during these times.
- We don't always know the height and position of any single piece of glass on a job and obviously manifestation looks better if it all lines up. You may have a preference as to its placement – eg: If you are trying to line up its height across different joinery types and/or different head or sill heights (as in a split level home).
- You may have a preference as to the style. There is a vast range of self adhesive manifestation types available on the market and Woodworkers do not presume to automatically provide you with our default style. Some sample patterns are shown below.

WOODWORKERS GLASS STICKER



There is a legal obligation for manifestation to be installed where required by the code. Woodworkers can supply its own form of stickers to be applied by the builder or owner to the glass after final site cleaning for you to gain approval from your certifier.

OTHER COMMERCIALY AVAILABLE GLASS STICKER DESIGNS



IS ANY GLASS SCRATCHING PERMISSIBLE?

AS4667-2000 : Quality Requirements for cut to size and processed glass” stipulates to what extent marking or scratches are allowed in glass before they are deemed to be defects. Australian standard AS4667 defines scratches, scars and rubs in glass to be unacceptable only if they can be observed from 3 metres away when the glass is perpendicular in daylight without direct sunlight.

AS2047 WIND PERFORMANCE CODE – HOW DOES THIS AFFECT ME?

This code aims to set standards for structural performance and water penetration of windows and sliding doors. The crucial part of the code requires certification that the joinery supplied has been tested to withstand wind loads appropriate to the site. This is done by determining a Wind Classification level (defined by AS4055-1992) known as an N or C rating.

WHAT IS AN N OR C RATING?

This rating is specific to your house type and your site and takes into account your geographic region, wind speed, shielding, topography and terrain to determine a rating which is classified as N (normal or non-cyclonic) or C (cyclonic). These ratings are determined before your plans meet Council approval. **IT IS THE RESPONSIBILITY OF THE PURCHASER TO INFORM THE SUPPLIER OF THE SITE SPECIFIC WIND RATING IF COMPLIANCE IS TO BE ACHIEVED.** If you are having a problem with specifying the wind rating remember that to have achieved council approval someone has specified this rating (probably your engineer or architect). The chart in the next section covering AS4055 of this FAQ sheet is intended only as a guide that can be overridden by your engineers if they consider the site to have greater susceptibility to strong wind forces. If the rating is not supplied to Woodworkers it is our general policy to supply joinery rated to N2 and certify only to that level. The N & C ratings broadly compare to the superceded W windload classifications as per the chart at right.

Once the N or C rating has been ascertained, the joinery must be supplied suitable for its exposure. Stock joinery from Woodworkers will mostly be suitable for N2 with design wind pressure of 700 pa and water penetration resistance of 150 pa.

If higher exposures are expected, seals may need to be installed to limit water penetration. These higher levels of performance will involve additional costs for manufacture and increased precautions with installations and it is essential that you advise Woodworkers where you believe heavy exposure is likely to be a problem.

| Pa rating | K1m/hr | N value | W value | Water rating | Ultimate |
|-----------|--------|---------------|------------|--------------|----------|
| 500Pa | 103 | N1 | ----- | 150Pa | 700Pa |
| 700Pa | 123 | N2 | W33 | 150Pa | 1000Pa |
| 1000Pa | 147 | N3, C1 | W41 | 150Pa | 1500Pa |
| 1500Pa | 180 | N4, C2 | W50 | 200Pa | 2300Pa |
| 2200Pa | 218 | N5, C3 | W60 | 300Pa | 3300Pa |
| 3000Pa | 254 | N6, C4 | W70 | 450Pa | 4500Pa |



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WINDOW GLASS WITHIN 500mm OF THE FLOOR

a. Grade 'A' Safety glass = Area over 1.2m²
 b. 5mm Annealed Glass = Area up to 1.2m²
 c. 4mm Annealed Glass = Area less than 0.1m² (leadlight 0.05m²)
 d. 3mm Annealed Glass = Area less than 0.1m² (leadlight 0.05m²)
 e. Ordinary Annealed Glass to withstand design wind load, refer AS1288

GLASS WITHIN 300mm OF THE DOOR OPENING

a. Grade 'A' Safety glass = Area over 0.3m²
 b. 5mm Annealed Glass = Area up to 0.3m²
 e. Ordinary Annealed Glass to withstand design wind load, refer AS1288
 f. Ordinary Annealed Glass to withstand design wind load, refer AS1288

DOORS AND SIDELITES

a. 3mm Glass = Area less than 0.1m²
 b. 4mm Glass = Area less than 0.1m²
 c. 5mm Glass = Area less than 0.26m²
 d. 6mm Glass = Area less than 0.5m²
 e. Grade A safety glass

DOORS GENERALLY

a. Grade 'A' Safety glass = Area over 0.5m²
 b. 5/6mm Annealed Glass = Area greater than 0.1m² & less than 0.26m² - max span 300
 c. 3/4mm Annealed Glass = Area less than 0.1m² (including leadlight) - max span 125
 d. 3/4mm Annealed Glass = Area less than 0.1m² (including leadlight)

GLASS WITHIN 300mm OF THE OPENING SASH OF THE DOOR

a. Grade 'A' Safety glass = Area over 0.3m²
 b. 5mm Annealed Glass = Area up to 0.3m²
 e. Ordinary Annealed Glass to withstand design wind load, refer AS1288
 f. Ordinary Annealed Glass to withstand design wind load, refer AS1288

KITCHEN AND BATHROOM WINDOWS

All glass within 2000mm height of the bottom of the bath to be Grade A Safety

wind load **Glass thickness: Annealed Glass Guide**
 @ 400 Pa SWP/1000 Pa UWP

| EDGE 2 (mm) | EDGE 1 (mm) | | | | | | | | | |
|-------------|-------------|-----|-----|-----|-----|------|------|------|------|------|
| | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1650 |
| N2 | | | | | | | | | | |
| 300 | | | | | | | | | | |
| 450 | | | | | | | | | | |
| 600 | | | | | | | | | | |
| 750 | | | | | | | | | | |
| 900 | | | | | | | | | | |
| 1050 | | | | | | | | | | |
| 1200 | | | | | | | | | | |
| 1350 | | | | | | | | | | |
| 1500 | | | | | | | | | | |
| 1650 | | | | | | | | | | |
| 1800 | | | | | | | | | | |
| 1950 | | | | | | | | | | |
| 2100 | | | | | | | | | | |
| 2250 | | | | | | | | | | |
| 2400 | | | | | | | | | | |
| 2550 | | | | | | | | | | |
| 2700 | | | | | | | | | | |

wind load **Glass thickness: Annealed Glass Guide**
 @ 600 Pa SWP/1500 Pa UWP

| EDGE 2 (mm) | EDGE 1 (mm) | | | | | | | | | |
|-------------|-------------|-----|-----|-----|-----|------|------|------|------|------|
| | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1650 |
| N3 | | | | | | | | | | |
| 300 | | | | | | | | | | |
| 450 | | | | | | | | | | |
| 600 | | | | | | | | | | |
| 750 | | | | | | | | | | |
| 900 | | | | | | | | | | |
| 1050 | | | | | | | | | | |
| 1200 | | | | | | | | | | |
| 1350 | | | | | | | | | | |
| 1500 | | | | | | | | | | |
| 1650 | | | | | | | | | | |
| 1800 | | | | | | | | | | |
| 1950 | | | | | | | | | | |
| 2100 | | | | | | | | | | |
| 2250 | | | | | | | | | | |
| 2400 | | | | | | | | | | |
| 2550 | | | | | | | | | | |
| 2700 | | | | | | | | | | |

wind load **Glass thickness: Annealed Glass Guide**
 @ 900 Pa SWP/2200 Pa UWP

| EDGE 2 (mm) | EDGE 1 (mm) | | | | | | | | | |
|-------------|-------------|-----|-----|-----|-----|------|------|------|------|------|
| | 300 | 450 | 600 | 750 | 900 | 1050 | 1200 | 1350 | 1500 | 1650 |
| N4 | | | | | | | | | | |
| 300 | | | | | | | | | | |
| 450 | | | | | | | | | | |
| 600 | | | | | | | | | | |
| 750 | | | | | | | | | | |
| 900 | | | | | | | | | | |
| 1050 | | | | | | | | | | |
| 1200 | | | | | | | | | | |
| 1350 | | | | | | | | | | |
| 1500 | | | | | | | | | | |
| 1650 | | | | | | | | | | |
| 1800 | | | | | | | | | | |
| 1950 | | | | | | | | | | |
| 2100 | | | | | | | | | | |
| 2250 | | | | | | | | | | |
| 2400 | | | | | | | | | | |
| 2550 | | | | | | | | | | |
| 2700 | | | | | | | | | | |

LEGEND

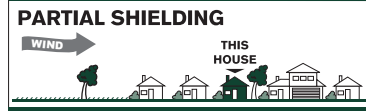
| | | | | |
|-----|-----|-----|-----|-----|
| 3mm | 4mm | 5mm | 6mm | 8mm |
|-----|-----|-----|-----|-----|

AS4055 – Wind loads for housing. How do I get a wind rating?

step 1
select your Region from the map
eg: Region A

REGION A

step 2
select the Terrain Category
eg: Terrain Category 3



| WIND RATING | TOPOGRAPHY | | |
|-------------------------------------|------------|---------|---------|
| | T1 | T2 | T3 |
| Wind Classification | N1 | N1 | N2 |
| Serviceability Design Wind Pressure | 500Pa. | 500Pa. | 700Pa. |
| Ultimate Limit State Wind Pressure | 700Pa. | 700Pa. | 1000Pa. |
| Water Penetration | 150Pa. | 150Pa. | 150Pa. |
| Wind Classification | N1 | N2 | N3 |
| Serviceability Design Wind Pressure | 500Pa. | 700Pa. | 1000Pa. |
| Ultimate Limit State Wind Pressure | 700Pa. | 1000Pa. | 1500Pa. |
| Water Penetration | 150Pa. | 150Pa. | 150Pa. |
| Wind Classification | N2 | N2 | N3 |
| Serviceability Design Wind Pressure | 700Pa. | 700Pa. | 1000Pa. |
| Ultimate Limit State Wind Pressure | 1000Pa. | 1000Pa. | 1500Pa. |
| Water Penetration | 150Pa. | 150Pa. | 150Pa. |

step 3
select your Shielding Classification
eg: Partial Shielding

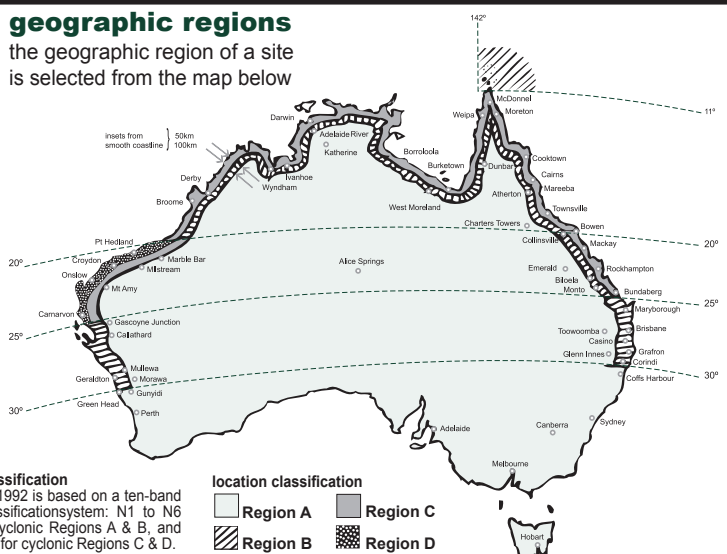
step 4
select your Topographic Classification
eg: T1

RESULT

RESULT
N1
500Pa.
700Pa.
150Pa.

STEP 1 geographic regions

the geographic region of a site is selected from the map below



wind classification
AS4055-1992 is based on a ten-band wind classification system: N1 to N6 for non-cyclonic Regions A & B, and C1 to C4 for cyclonic Regions C & D.

location classification
Region A (white), Region B (hatched), Region C (grey), Region D (checkered)

NOTE
The wind classification of a building is dependent on a variety of elements including geographical location, surrounding topography, terrain, and protection provided by surrounding buildings and trees.

STEP 3 shielding classification

The shielding classification takes into account any localised protection which may be provided by surrounding trees & buildings.



A minimum of two rows of houses or comparably sized permanent obstructions surround the house being considered. In regions A and B, densely wooded areas offer full shielding. Effects of open areas or roads with a distance measured in any direction less than 100m will be ignored.



Intermediate situations, such as those with a minimum of 2.5 houses, sheds or trees per hectare, e.g. wooded parkland or an acreage type suburban development. Heavily wooded areas of Regions C and D are judged to have partial shielding.



Situations with fewer than 2.5 obstructions per hectare or with no permanent obstructions, for example, the first two rows of houses adjoining open parkland, airfields or water.

NOTE: Shielding classification is to be based on the likely situation in five years

STEP 2 terrain category

The terrain category for a housing site is a measure of the surface roughness of the ground within a distance of 500m of the site.

Terrain category 3 (TC3)

Terrain with many closely spaced house-sized obstructions. The minimum density of housing and trees will equal that of ten house size obstructions per hectare, except for regions C and D. Sizeable well established trees are considered to be obstructions except in regions C and D. In these regions a maximum of TC2.5 will apply for the equivalent house size obstructions per hectare.

TC3 includes:

Roads, rivers, canals less than 200m wide in urban situations.
Parklands and open spaces less than 250,000m²

Terrain category 2.5 (TC2.5)

Terrain with isolated obstructions, occasional trees, such as cane fields, farmland or long grass, up to 600mm high.

This terrain represents that of developing outer urban areas, terrain between TC2 and TC3

Terrain category 2 (TC2)

This category includes airfields, coastal areas, grassed fields with occasional well scattered obstructions such as trees and uncut grass from 1.5m to 10m, generally, open terrain.

NOTE

If a housing site is within 500m of a terrain boundary it will be given the classification of the terrain adjoining it. The category is based on the likely terrain in five years time.

STEP 4 topographic classification

Topographic classification will determine the effect of wind on a housing site, due to its location on a hill, ridge or escarpment, and the gradient of the upper section of the slope.

T1 - topography 1

All slopes \leq 1:10 and the lower two thirds of slopes \leq 1:15. Most sites fall within these limits.



T2 - topography 2

Top third of slopes between 1:10 and 1:7.5.



T3 - topography 3

Top third of slopes between 1:7.5 and 1:5.



NOTE

The topography is determined by the average of the sheerest and mildest overall slopes occurring around the top half of a hill and not the specific gradient of the site. Generally for residential developments the average slope is less than 1:10 and is therefore negligible.

Practical restrictions for housing estate developments combined with Australia's geography ensure that sites even in hillier areas rarely present an average slope for the upper half of the hill of greater than 1:5. Within these limits, the effect of topography is negligible on housing situated on the lower two thirds of hillsides.

Sites on cliff top escarpments and those on hillsides with average slopes greater than 1:5 will usually require engineering design for other reasons.

The Standards should be used to calculate the exact wind rating for such houses. Refer to the required wind ratings for the relevant topographic classification.

22 AS4055 WIND LOADS FOR HOUSING

| TERRAIN CATEGORY 3 | | WIND RATING | TOPOGRAPHY REGION A | | | TOPOGRAPHY REGION B | | | TOPOGRAPHY REGION C | | |
|---------------------------------|---|-------------|---------------------|---------|---------|---------------------|---------|---------|---------------------|---------|---------|
| | | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 |
| <p>FULL SHIELDING</p> | Wind classification Serviceability design wind pressure Ultimate limit state wind pressure Water penetration | N1 | N2 | N2 | N2 | N2 | N2 | C1 | C2 | C2 | |
| | | 500Pa. | 500Pa. | 700Pa. | 700Pa. | 700Pa. | 700Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. |
| | | 700Pa. | 700Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. | 2300Pa. | 2300Pa. |
| | | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 200Pa. | 200Pa. |
| <p>PARTIAL SHIELDING</p> | Wind classification Serviceability design wind pressure Ultimate limit state wind pressure Water penetration | N1 | N2 | N3 | N2 | N3 | N3 | C1 | C2 | C2 | |
| | | 500Pa. | 700Pa. | 1000Pa. | 700Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. |
| | | 700Pa. | 1000Pa. | 1500Pa. | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2300Pa. | 2300Pa. |
| | | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 200Pa. | 200Pa. |
| <p>NO SHIELDING</p> | Wind classification Serviceability design wind pressure Ultimate limit state wind pressure Water penetration | N2 | N2 | N3 | N3 | N3 | N4 | C2 | C2 | C3 | |
| | | 700Pa. | 700Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2200Pa. |
| | | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2300Pa. | 2300Pa. | 2300Pa. | 3300Pa. |
| | | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 200Pa. | 200Pa. | 200Pa. | 300Pa. |
| TERRAIN CATEGORY 2.5 | | WIND RATING | TOPOGRAPHY REGION A | | | TOPOGRAPHY REGION B | | | TOPOGRAPHY REGION C | | |
| | | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 |
| <p>FULL SHIELDING</p> | Wind classification Serviceability design wind pressure Ultimate limit state wind pressure Water penetration | N1 | N2 | N2 | N2 | N3 | N3 | C1 | C2 | C2 | |
| | | 500Pa. | 700Pa. | 700Pa. | 700Pa. | 700Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. |
| | | 700Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2300Pa. | 2300Pa. |
| | | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 200Pa. | 200Pa. |
| <p>PARTIAL SHIELDING</p> | Wind classification Serviceability design wind pressure Ultimate limit state wind pressure Water penetration | N2 | N3 | N3 | N3 | N3 | N4 | C2 | C2 | C3 | |
| | | 700Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2200Pa. |
| | | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2300Pa. | 2300Pa. | 2300Pa. | 3300Pa. |
| | | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 200Pa. | 200Pa. | 200Pa. | 300Pa. |
| <p>NO SHIELDING</p> | Wind classification Serviceability design wind pressure Ultimate limit state wind pressure Water penetration | N2 | N3 | N3 | N3 | N4 | N4 | C2 | C3 | C3 | |
| | | 700Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2200Pa. | 2200Pa. |
| | | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2300Pa. | 2300Pa. | 2300Pa. | 2300Pa. | 3300Pa. | 3300Pa. |
| | | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 200Pa. | 200Pa. | 200Pa. | 300Pa. | 300Pa. |
| TERRAIN CATEGORY 2 | | WIND RATING | TOPOGRAPHY REGION A | | | TOPOGRAPHY REGION B | | | TOPOGRAPHY REGION C | | |
| | | | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 |
| <p>FULL SHIELDING</p> | Wind classification Serviceability design wind pressure Ultimate limit state wind pressure Water penetration | N2 | N3 | N3 | N3 | N3 | N4 | C2 | C2 | C3 | |
| | | 700Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2200Pa. |
| | | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2300Pa. | 2300Pa. | 2300Pa. | 3300Pa. |
| | | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 200Pa. | 200Pa. | 200Pa. | 300Pa. |
| <p>PARTIAL SHIELDING</p> | Wind classification Serviceability design wind pressure Ultimate limit state wind pressure Water penetration | N2 | N3 | N3 | N3 | N4 | N4 | C2 | C3 | C3 | |
| | | 700Pa. | 1000Pa. | 1000Pa. | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2200Pa. | 2200Pa. |
| | | 1000Pa. | 1500Pa. | 1500Pa. | 1500Pa. | 2300Pa. | 2300Pa. | 2300Pa. | 2300Pa. | 3300Pa. | 3300Pa. |
| | | 150Pa. | 150Pa. | 150Pa. | 150Pa. | 200Pa. | 200Pa. | 200Pa. | 200Pa. | 300Pa. | 300Pa. |
| <p>NO SHIELDING</p> | Wind classification Serviceability design wind pressure Ultimate limit state wind pressure Water penetration | N3 | N3 | N4 | N3 | N4 | N5 | C2 | C3 | C4 | |
| | | 1000Pa. | 1000Pa. | 1500Pa. | 1000Pa. | 1500Pa. | 2200Pa. | 1500Pa. | 2200Pa. | 2200Pa. | 3000Pa. |
| | | 1500Pa. | 1500Pa. | 2300Pa. | 1500Pa. | 2300Pa. | 3300Pa. | 2300Pa. | 3300Pa. | 3300Pa. | 4500Pa. |
| | | 150Pa. | 150Pa. | 200Pa. | 150Pa. | 200Pa. | 300Pa. | 200Pa. | 300Pa. | 200Pa. | 450Pa. |

MY HOUSE IS IN A HEAVILY EXPOSED AREA – HOW DOES THIS AFFECT MY CHOICE?

Certain joinery systems are inherently more prone to water penetration and will be unsuitable in some applications. For example, sliding doors are not advisable in highly exposed positions as any rain pushed by high wind pressures for a sustained amount of time will be likely to be forced under the doors and overflow the sill. Refer our FAQ sheet 6 on window performance and FAQ 7 on door combos for more information. If your home falls outside the parameters set in AS4055 then a stricter regime of conditions applies. Effectively if your home is greater than 8.5m high and/or 16m wide it is not considered a class 1a building (residential), in which case you will need to provide the door and window manufacturer with additional information and your joinery will need to be custom engineered.

HOW WATERTIGHT IS WOODWORKERS JOINERY?

This varies across the range and some items are not watertight in their standard form without seals being fitted or other modifications. This is also where the design of the home plays an important role with large overhangs, porticos and window hoods used to protect the building envelope from water ingress. For example, a bifold window with a servery sill is not a weathertight item but is usually placed under a deck in a position of little exposure except in the event of driving rain.

DOES WOODWORKERS FACTORY FIT SEALS TO JOINERY?

Woodworkers do not fit weatherseals as standard to joinery except where they form part of a proprietary system such as bifolding doors. However if we are advised that a higher wind rating is required, seals will be factory fitted to achieve the required performance level at slightly higher cost.

we avoid using weather seals where possible as they deteriorate over time.



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AS3959 BUSHFIRE RATINGS - HOW DO THESE AFFECT ME?

AS 3959: Construction of Buildings in Bush Fire Prone Areas (AS3959) incorporates measures for the design of buildings to provide protection against the two main forms of bush fire attack, those being:

1. ember attack
2. radiant heat

A building is categorised in one of six classes according to a combination of the classification of vegetation type: distance from vegetation to the building; slope leading to the building. Check our FAQ 26 for more information.

WERS - WHAT'S THE WINDOW ENERGY RATING SCHEME (WERS)?

Much like the energy ratings used on household appliances, it rates the energy efficiency of joinery units. WERS is a 5 - star rating system that ranks residential windows in terms of their annual energy performance. The rating process produces star ratings for heating and cooling performance. The WERS star ratings are performance rankings based on the predicted annual energy demand of the "model house" when fitted with the chosen windows. The WERS scheme is privately operated as a commercial entity and is seeking to be written into building legislation. It is currently not mandatory and Woodworkers does not subscribe to the scheme.

Until recently in Queensland new homes must only rate to 3 ½ stars but this may be upgraded in the future. Above 5 stars is generally the point at which your joinery items begin to have an impact on the energy rating of the house as a whole. WERS ranks the window in terms of its annual energy impact on a house. The energy loads are the amount of annual (heating) energy that must be added to a house and the amount of annual (cooling) energy that must be removed to keep the house within a comfortable temperature range. This generates star ratings for cooling (summer and solar control performance) and heating (winter performance). The system uses separate scales of 0-5 stars for heating and cooling impact, in half star increments. The star ratings are based on the relative, whole-house energy improvement caused by the use of a given window compared with using the base-case product (single glazed clear, standard aluminium frame).

BASIX - HOW DOES THE NSW ENERGY AND WATER EFFICIENCY PROGRAM EFFECT ME?

Essentially, BASIX aims to ensure that home alterations and additions are built to be more energy and water efficient with the target of offering more sustainable buildings. The system only operates in New South Wales. BASIX is an on-line program that assesses a house or unit design and compares it against energy and water reduction targets. The design must meet these targets before a BASIX Certificate can be printed. Every development application for a new home must be submitted to Council with a BASIX Certificate. Refer <https://pp.planningportal.nsw.gov.au/basix/contact-basix>. BASIX uses information such as site location, house size, type of building materials and fittings for hot water, cooling and heating. The commitments made during the BASIX process are shown on the final certificate and must be adhered to during the building process.

The primary influence BASIX has on window and door design is in the positioning of glazing to have a least some facing north into living areas and to reduce glazing or use performance 'low E' glass on openings facing west or south.

THERMAL EFFICIENCY

In all states there are certifiers to calculate any special requirements of glazed doors and windows to meet the energy efficiency rating of the building.

Generally windows and/or doors will be required to meet specific energy ratings. The values chosen to determine the efficiency are normally

The U value - or the watts/m² celcius of heat transfer through the glass.

The SHGC (solar heat gain co-efficient) or the heat that radiates through the glass as a result of direct sunlight.

Different aspects (eg: North vs South) may have different requirements, but the certifier will normally nominate the values required for each item. A generic industry standard timber window (as a whole window unit - not just the glass) will generally achieve values of -

| | U | SHGC |
|----------------------------|-----|------|
| With 4mm clear glass | 5.5 | .66 |
| With standard tinted glass | 5.4 | .5 |
| With low E glass | 3.7 | .4 |

The lower these values, the better the thermal performance of the window.

Product performance: Effect of Configuration

Results are averages of 2009/2010 test results for each product type from up to 8 companies.

| Glazing ID | Frame | COOLING | HEATING | Total Window System Values - NFRC | |
|------------|---------------------|---------|---------|-----------------------------------|-------|
| | | o/impr. | o/impr. | Uw | SHGCw |
| 3Clr | Generic: Aluminium | 0% | 0% | 7.7 | 0.78 |
| 3Clr | Timber: Sliding | 29% | 29% | 4.9 | 0.63 |
| 3Clr | Timber: Double Hung | 30% | 31% | 5.0 | 0.62 |
| 3Clr | Timber: Awning | 35% | 50% | 4.8 | 0.57 |
| 3Clr | Timber: Casement | 38% | 53% | 4.6 | 0.56 |



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