

0451P ALSPEC ALUMINIUM WINDOWS AND DOORS**Branded worksection**

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Worksection abstract

This branded worksection *Template* is applicable to complete commercial and residential aluminium systems manufactured by ALSPEC including commercial framing, windows and doors, louvres and solar control assemblies, security doors and screens, and internal partitions. It includes glazing, hardware and installation accessories such as fasteners, flashings, sealants and seals, caulking and weatherstripping, necessary for the satisfactory functioning of the whole system.

How to use this worksection

Customise this worksection *Template* for each project. See A guide to NATSPEC worksections (www.natspec.com.au) for information on *Template* structure, word styles, and completing a worksection.

Related material located elsewhere in NATSPEC

If a listed worksection is not part of your subscription package and you wish to purchase it, contact NATSPEC.

Related material may be found in other worksections. See for example:

- *0421 Roofing – combined* for skylights and roof windows.
- *0432 Curtain walls*.
- *0456 Louvre windows*.
- *0457 External screens*.
- *0461 Glazing* for glazing for curtain walls and glazing in framed openings.
- *0462 Structural silicone glazing* for adhesive fixed glazing.
- *0463 Glass blockwork*.
- *0524 Partitions – glazed*.

Material not provided by ALSPEC

This branded worksection does not include:

- Integral blinds.
- Frameless glazing.

Documenting this and related work

You may document this and related work as follows:

- Schedule windows, doors and hardware to your office documentation policy.
- In bushfire-prone areas, document bushfire protection requirements to AS 3959 (2018) and the NCC. If documenting bushfire shutters, see AS 3959 (2018) clause 3.7 and *0457 External screens*. See NATSPEC TECHnote DES 018 on bushfire protection.
- For protection of openable windows conforming to BCA (2022) D3D29 and BCA (2022) H5D3, document a device to restrict the window opening, a screen with secure fittings or a barrier to the window, as required.
- Operation of window sashes to satisfy maintenance requirements.
- See NATSPEC TECHnote PRO 006 for glass types used in buildings.
- For smoke and heat venting, see AS 2665 (2001), which is cited in the NCC.
- For information on the Window Energy Rating Scheme (WERS), see www.agwa.com.au.
- For information on the Australian Glass and Window Association (AGWA) Accreditation Program, see Accreditation Schemes (agwa.com.au).
- For information on timber windows and doors, refer to WoodSolutions 10 (2015).

The *Normal* style text of this worksection may refer to items as being documented elsewhere in the contract documentation. Make sure they are documented.

For example:

- Maintenance requirements for performance of product design.

Search acumen.architecture.com.au, the Australian Institute of Architects' practice advisory subscription service, for notes on the following:

- Daylighting of buildings.
- Guarantees and warranties.
- Properties and rating systems for glazing, windows and skylights.
- Revisiting energy efficiency in commercial buildings.
- Site planning and design for bushfire.

Specifying ESD

The following may be specified by retaining default text:

- Louvre assemblies for natural ventilation.
- Insulating glass units (IGUs).
- Window seals to minimise air leakage when windows are shut.

The following may be specified by using included options:

- Thermal performance to reduce heating/cooling load by specifying the required Total system U-Value, Total system SHGC, frame material (e.g. metal has higher conductivity than timber).
- Operable shutter or window hardware for natural ventilation.
- Glass and frame selection with an acceptable visible transmittance for natural lighting.
- High performance glass, e.g. Low-E.

The following may be specified by including additional text:

- Aluminium products using lower carbon aluminium.
- Re-use of salvaged windows.
- Recycled material content, e.g. Aluminium frames.

Refer to NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

Established in 1974, ALSPEC are the market leaders in the design and distribution of innovative, high performance aluminium systems to the architectural, industrial and home improvement markets. The extensive range of window and door systems is suitable for all commercial applications and is complemented by the Carinya residential range and Invisi-Gard Stainless Steel Mesh Security System. ALSPEC systems are synonymous with excellence in design and superior performance.

1.1 RESPONSIBILITIES

General

Requirement: Provide ALSPEC aluminium systems, as documented.

Documented is defined in *0171 General requirements* as meaning contained in the contract documents.

Maintenance

Design and document the window openings so that external faces of glazing can be cleaned from within the building and that the location, size, and types of openings allows for satisfactory cleaning while also conforming to appropriate WHS requirements.

Product selection: Select ALSPEC aluminium systems windows with sashes capable of being opened to satisfy the documented maintenance requirements.

1.2 COMPANY CONTACTS

ALSPEC Aluminium Systems technical contacts

Website: www.alspec.com.au/contact/.

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements*.

0171 General requirements contains umbrella requirements for all building and services worksections.

List the worksections cross referenced by this worksection. *0171 General requirements* references the *018 Common requirements* subgroup of worksections. It is not necessary to repeat them here. However, you may also wish to direct the contractor to other worksections where there may be work that is closely associated with this work.

NATSPEC uses generic worksection titles, whether or not there are branded equivalents. If you use a branded worksection, change the cross reference here.

1.4 STANDARDS

General

Selection and installation: To AS 2047 (2014).

Building classification: [complete/delete]

Nominate the building class as follows, as required by AS 2047 (2014):

- Housing: NCC Class 1 and 10.
- Residential: NCC Class 2, 3 and 4.
- Commercial: NCC Class 5, 6, 7, 8 and 9.

Glazing

Glass type and thickness: To AS 1288 (2021), if no glass type or thickness is nominated.

For glass type and minimum thickness, refer to AS 1288 (2021) Table 4.1.

Glass thickness may be governed by human safety and other requirements – see AS 1288 (2021) Sections 5, 6 and 7. Maximum spans for various thicknesses of glass types subject to wind loading are shown in the figures in AS 1288 (2021) Section 4.

Nominate a thickness if:

- The glass is to be thicker than required by AS 1288 (2021) or applicable regulations.
- There are unusual conditions requiring detailed calculations for which the designer should be responsible.

In other cases, the determination of thickness is usually within the competence of the glazing contractor.

Where thickness is determined by loading from wind actions, the design wind pressure needs to be known in order to interpret the figures and tables of glass sizes and thicknesses in AS 1288 (2021).

See AS/NZS 1170.2 (2021) or AS 4055 (2021) as appropriate for design wind pressure.

Materials and installation: To AS 1288 (2021).

Quality requirements for cut-to-size and processed glass: To AS/NZS 4667 (2000).

The standard specifies requirements for the following:

- Cut sizes of flat, clear ordinary annealed and tinted heat-absorbing glass with glossy, apparently plane and smooth surfaces, which are used for general and architectural glazing or similar.
- Cut sizes of flat, clear ordinary annealed and tinted heat-absorbing processing glass used for Grade A safety requirements (i.e. toughened or laminated).
- Cut sizes of ordinary annealed, patterned and wired glass used in decorative and general glazing applications.
- Cut sizes of wired glass used for Grade B safety and general glazing applications.
- Processed laminated and toughened glass.

1.5 MANUFACTURER'S DOCUMENTS

Technical manuals

Commercial Systems - ALSPEC Aluminium Systems: www.alspec.com.au.

Residential Systems - Carinya Residential Windows and Doors: www.carinyawindows.com.au.

Security Systems - Invisi-Gard Stainless Steel Security: www.invisi-gard.com.au.

Window fall prevention – KidScreen: www.kidscreen.com.au.

Specifiers' guides and CAD drawings: www.alspec.com.au.

1.6 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the following abbreviations apply:

- AGWA: Australian Glass and Window Association.
- WERS: Window Energy Rating Scheme.

Edit the **Abbreviations** subclause to suit the project or delete if not required. List alphabetically.

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 4668 (2000) and the following apply:

- Aluminium joinery: The collective term used for aluminium framed and glazed windows and doors.
- Hardware: To AS 4145.1 (2008) Section 2.

- Louvres - continuous: Louvres that run continuously past, and are supported by, concealed framing or brackets.
- Louvres - horizontal: Louvres that span horizontally between frame stiles, mullions or vertical supports.
- Louvres - vertical: Louvres that span vertically between frame heads and sills, or horizontal supports.
- Total system SHGC: Solar heat gain coefficient as defined by the NCC and tested in conformance with NFRC 200 (2023).
- Total system U-Value: Thermal transmittance as defined by the NCC and tested in conformance with NFRC 100 (2023).
- Weathering: Inclined upper external surface, such as of a coping, sill, or top of a buttress or chimney, designed to shed rainwater quickly and throw it clear of the facing material below.

Edit the **Definitions** subclause to suit the project or delete if not required. List alphabetically.

1.7 SUBMISSIONS

Certification

Windows and glazed doors: Submit evidence of conformity to AS 2047 (2014).

See AS 2047 (2014) clause 8.3.

Sealant compatibility: Submit statements from all parties to the installation certifying the compatibility of sealants and glazing systems to all substrates.

Opacified glass: Submit a report, from the manufacturer, certifying that the proposed method of opacifying the glass will not be detrimental to the glass or affect the glass product warranty.

Toughened glass: For each batch of glass, submit certification from the manufacturer of heat soaking.

Certification by the manufacturer is an alternative to marking heat soaked glass to EN 14179-1 (2016). Delete if marking is to be provided. If required, document glass for heat soaking in SELECTIONS.

Fire performance

Fire-resistance level: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE, Fire-resistance of building elements.**

Operation and maintenance manuals

Requirement: Submit manual to **COMPLETION, Operation and maintenance manuals.**

Products and materials

Safety glazing materials: Submit evidence of conformity to AS/NZS 2208 (1996) Appendix A.

Type tests: Submit results, as follows:

- Acoustic performance of windows and doors.

Double glazed systems: Interpolation between test results for similar systems is acceptable, provided dimensional (thickness or width) differences do not exceed a ratio of 1:1.5, and each tested system differs from the proposed system by not more than one variable of one of the following elements:

- Cavity: Width dimension.
- Cavity reveal: Acoustic absorption treatment.
- First panel: Glass type, glass thickness.
- Mounting: Type, seal type.
- Second panel: Glass type, glass thickness.

- Protection of openable windows.

Type tests are carried out off-site. However, submission of evidence of a successful type test may be called up here for requirements specified in SELECTIONS or PRODUCTS, when there are no SELECTIONS.

Evidence of delivery: Submit delivery docket as evidence of delivery of [complete/delete]

If evidence of delivery to site is required for particular products, consider including this *Optional* style text by changing to *Normal* style.

Prototypes

Use only for large projects where appropriate. Several prototypes may be required where there are different window systems. Show the prototype location and extent on the drawings.

Sample installations: Install the designated typical aluminium joinery assemblies in their final position incorporating at least one example of each component in the system, including attachments to the structure, flashing, caulking, sealing, glazing, operating hardware, locks and keys.

Required prototypes: [complete/delete]

Nominate a designated window assembly by description or by reference to drawings of an area marked on an elevation.

Samples in prototypes: Install required samples in prototypes.

Delete if not required.

Samples

General: Submit samples labelled with the series code reference and date of manufacture.

Aluminium joinery: Submit samples of the following:

- Prefinished production materials showing the limits of the range of variation in the documented colour.
- Joints made by proposed techniques.
- Sections for frames, sashes, louvres and slats.

Glazing: Submit samples of glazing materials, each at least 200 x 200 mm, showing the visual properties and range of variation, if any, for each of the following:

- Tinted or coloured glass or plastics glazing.
- Surface modified or surface coated glass.
- Patterned or obscured glass or plastics glazing.
- Ceramic-coated glass.
- Wired glass.
- Mirror glass.

Hardware and accessories: Submit samples of the following:

- Window manufacturer's standard hardware and accessories including locks, latches, handles, catches, sash operators, anchor brackets and attachments, masonry anchors and weatherseals (pile or extruded).
- Generic hardware: Submit samples of generic hardware not documented as proprietary items.

Shop drawings

General: Submit shop drawings, to a scale that best describes the detail, showing the following:

- Full size sections of members.
- Hardware, fittings and accessories including fixing details.
- Junctions and trim to adjoining surfaces.
- Layout (sectional plan and elevation) of the window assembly.
- Methods of assembly.
- Methods of installation, including fixing, caulking and flashing.

See BCA (2022) J5D5 and BCA (2022) H6D2(1)(b)(iii) for the sealing of windows and doors.

- Provision for vertical and horizontal expansion.
- Method of glazing, including the following:
 - . Rebate depth.
 - . Edge restraint.
 - . Clearances and tolerances.
 - . Glazing gaskets and sealant beads.

Subcontractors

General: Submit names and contact details of proposed subcontractors endorsed by ALSPEC.

Evidence of experience: [complete/delete]

ALSPEC have a fabricator network for supply and installation. Delete if manufacturer/installer details are not required.

Tests

Detail the tests required in PRODUCTS or EXECUTION, as appropriate, and list the submissions required here.

Fall prevention tests: Submit test results to TESTING, Fall prevention tests.

If on-site fall prevention tests are documented, include this *Optional* style text by changing to *Normal* style text.

Warranties

Requirement: Submit ALSPEC warranty to **COMPLETION, Warranties**.

1.8 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Prototypes constructed and ready for inspection.
- Openings prepared to receive windows.
- Fabricated window assemblies at the factory ready for delivery to the site.
- Fabricated window assemblies delivered to the site, before installation.
- Commencement of window installation.

Amend to suit the project, adding critical stage inspections required.

Hold points, if required, should be inserted here.

2 PRODUCTS

2.1 GENERAL

Product substitution

Other products: Conform to **SUBSTITUTIONS** in *0171 General requirements*.

SUBSTITUTIONS in *0171 General requirements* sets out the submissions required if the contractor proposes alternative products. Refer also to NATSPEC TECHnote GEN 006 for more information on proprietary specification.

Storage and handling

Storage: Store in a clean, dry area unaffected by weather, to the manufacturer's recommendations. Protect from building materials and loose debris such as wet plaster, mortar, paint and welding splatter.

Handling: Handle frames to the manufacturer's recommendations and as follows:

- Stack upright, off the ground and against a flat, vertical surface.
- Carry in the vertical position with sashes locked.
- Do not rack frames out of square.
- Do not remove any bands and corner bracing until after installation.

Acoustic performance

Windows and doors: Rating to AS/NZS ISO 717.1 (2004), as documented.

Document the required rating in the **Window and glazed door performance schedule**.

Protection of openable windows

Fall prevention: To BCA (2022) D3D29 and BCA (2022) H5D3.

Product identification

General: Marked to show the following:

- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.

Edit the list to suit the project or delete if not required.

Marking

Window assemblies: To AS 2047 (2014) Section 8.

Window assemblies for housing are required to be labelled to AS 2047 (2014) clause 8.2. Timber window assemblies for housing and window assemblies other than for housing may conform to AS 2047 (2014) clause 8.2 or be provided with a certificate to AS 2047 (2014) clause 8.3.

2.2 FIRE PERFORMANCE

Fire-resistance of building elements

Fire-resistance level: Tested to AS 1530.4 (2014).

Fire-resistance level (FRL) applies only to specialist windows, usually supplied by passive fire protection product manufacturers. See NATSPEC TECHnote DES 020 on fire behaviour of building materials and assemblies.

2.3 ALSPEC SECURITY SYSTEMS

General

Requirement: Provide metal security screens, or operable screen and frame, fixed to the building structure with tamper resistant fastenings.

Security screens: To AS 5039 (2008).

AS 5039 (2008) acknowledges that the security window grilles described are not intruder proof. See the foreword to this standard. The dynamic impact, knifeshear, jemmy, pull and shear tests scheduled for compliance in AS 5039 (2008) Table 1 are described in AS 5041 (2003).

Invisi-Gard Security Screens

Application: Patented security solutions for residential, commercial, education, aged care, defence and mining housing, correctional facilities, bushfire-prone areas, cyclonic zones, balustrade applications and swimming pool fences.

Description: Security screens for doors and windows incorporating stainless steel type 316 mesh retained in a heavy duty extruded aluminium perimeter frame with concealed fixings.

Invisi-Maxx High Performance Security and Cyclonic Debris Screen

Application: Security screen for protection from windborne debris in cyclonic regions C and D.

Description: Security screens for doors and windows incorporating stainless steel type 316 mesh retained in a heavy duty extruded aluminium perimeter frame with concealed fixings, tested to resist debris impact generated by regional wind speed V_{10000} in Cyclonic regions C and D, to AS/NZS 1170.2 (2021) Section 3.

Test results are available from ALSPEC. See AS/NZS 1170.2 (2021) Figure 3.1(A) for location of cyclonic areas determined as wind regions C and D.

2.4 ALSPEC COMMERCIAL WINDOWS AND DOORS

Hawkesbury E2/E3 Commercial Multi-Fold Door

Application: Designed with large floor-to-ceiling applications in mind, the Hawkesbury multi-fold door range combines full sized perimeter framing with specially designed commercial door stiles. A functional alternative to traditional door units for commercial and residential projects.

Description: Inward or outward stacking, aluminium multi-fold door framing system with top rolling operating hardware:

- Maximum panel height: 3000 mm.
- Maximum panel width: 1200 mm.
- Maximum number of panels in each direction: 8.

Operating hardware:

- Panels up to 60 kg: Stainless steel E2A.
- Panels over 60 kg and up to 115 kg: Stainless steel E3A.

Powered by exclusive hardware from Centor Architectural, the Hawkesbury door features top-rolling operation for smooth, trouble-free operation whether configured for inward or outward stacking or with an odd or even number of door stiles. Tyred floor guides run effortlessly in channels neatly concealed beneath closed doors, while effective Weatherseal technology keeps wind, rain and cold air where it belongs. The stabilising centre hinge controls door stile deflection and bowing on tall doors, whilst the exclusive Surelock™ system allows for simple vertical height adjustment with a screwdriver.

Hawkesbury Top Hung Commercial Sliding Door

Application: High performance large panel top-hung sliding door system able to accommodate up to 28 mm double glazed units to suit thermal and acoustic requirements for residential, high rise apartment and commercial projects. A weather resistant sill is included for wheel chair access conformity to the *Disability Discrimination Act 1992 (Cth)* and AS 1428.1 (2009). The NCC cites AS 1428.1 (2001) and AS 1428.1 (2009). The current edition is AS 1428.1 (2021).

Description: Commercial top-hung multi-track sliding door system:

- Maximum panel height: 3000 mm.

- Maximum panel width: 2500 mm.
- Maximum panel weight: 300 kg.

ProGlide High Performance Sliding Door

Application: High performance large panel sliding door system able to accommodate up to 28 mm double glazed units to suit the most demanding thermal and acoustic requirements for high rise apartment and commercial projects.

Description: Commercial multi-track sliding door system:

- Maximum panel height: 3150 mm.
- Maximum panel width: 2250 mm.
- Maximum panel weight: 200 kg.

ProGlide UltraFlat High Performance Wheelchair Accessible Sliding Door

Application: High performance large panel sliding door system able to accommodate up to 28 mm double glazed units to suit the most demanding thermal and acoustic requirements for high rise apartment and commercial projects. A weather resistant sill is included for wheel chair access conformity to the *Disability Discrimination Act 1992 (Cth)* and AS 1428.1 (2009). The NCC cites AS 1428.1 (2001) and AS 1428.1 (2009). The current edition is AS 1428.1 (2021).

Description: Commercial multi-track sliding door system:

- Maximum panel height: 3150 mm.
- Maximum panel width: 1800 mm.
- Maximum panel weight: 200 kg.

Altitude Apartment Sliding Door

Application: For expansive openings without compromise on performance or aesthetics for high rise apartment and commercial applications. Can be used with 76 mm, 101.6 mm and 150 mm framing systems.

Description: Aluminium sliding door framing system with fully integrated flyscreen tracks and concealed drainage slots:

- Maximum panel height: 2700 mm.
- Maximum panel width: 1500 mm.
- Maximum panel weight: 160 kg.

Vista+ Minimalist Sliding Door

Application: For expansive openings without compromise on performance or aesthetics for high rise apartment and commercial applications. Can be used with 76 mm, 101.6 mm and 150 mm framing systems.

Description: Minimalist aluminium sliding door framing system with ultra-thin interlocks and embedded frames:

- Single glazing: 6 mm to 13.5 mm thick.
- Double glazing: 24 mm to 32 mm thick.

Panel dimensions:

- Maximum panel height: 3000 mm.
- Maximum panel width: 2250 mm.
- Maximum panel weight: 400 kg.

Swan Evo 45 mm Commercial Shopfront Door

Application: Can be used in a hinged, pivoted or sliding application for glazed entrances to shopfronts, offices and other commercial and industrial premises. Centre pocket glazing eliminates vertical glazing beads with horizontal beads on one side only, to provide improved security, appearance and lower manufacturing costs.

Description: 45 mm centre pocket glazed door:

- Single glazing: 6 mm to 13.5 mm thick.
- Double glazing: 18 mm to 28 mm thick.

Hinged doors:

- Maximum panel height: 3000 mm.
- Maximum panel width: 1100 mm.
- Maximum panel weight: 100 kg.

Pivot doors:

- Maximum panel height: 3000 mm.

- Maximum panel width: 1250 mm.
- Maximum panel weight: 100 kg.

Sliding doors:

- Maximum panel height: 3000 mm.
- Maximum panel width: 2400 mm.
- Maximum panel weight: 225 kg.

Swan Evo 70 mm Commercial Shopfront Door

Application: Can be used in a hinged, pivoted or sliding application for glazed entrances to shopfronts, offices and other commercial and industrial premises. Centre pocket glazing eliminates vertical glazing beads with horizontal beads on one side only, to provide improved security, appearance and lower manufacturing costs.

Description: 70 mm centre pocket glazed door:

- Double glazing: 32 mm to 38 mm thick.

Hinged doors:

- Maximum panel height: 3200 mm.
- Maximum panel width: 1200 mm.
- Maximum panel weight: 133 kg.

Torrens 45 mm Commercial Shopfront Door

Application: Can be used in a hinged, pivoted or sliding application for glazed entrances to shopfronts, offices and other commercial and industrial premises. Frame sections feature snap on beads to all sides and are suitable for a range of glass thicknesses. A double glazed option is also available.

Description: 45 mm double bead glazed door.

Hinged and pivot doors:

- Maximum panel height: 2700 mm.
- Maximum panel width: 1000 mm.

Sliding doors:

- Maximum panel height: 2500 mm.
- Maximum panel width: 2700 mm.

ProVista Sashless Double Hung Window

Application: Superior weather, thermal and acoustic performance developed specifically for multi-storey residential and architecturally designed housing. The ProVista sashless double-hung window integrates a number of design initiatives unique to ALSPEC such as the vent and key locking options.

Description: Single and double glazed sashless double-hung windows for integration with ALSPEC commercial framing systems:

- Single glazing: 6 mm and 10 mm thick.
- Double glazing: 18 mm thick.

Panel dimensions:

- Maximum sash height: 1800 mm.
- Maximum sash weight: 100 kg.

EvoPlus Double Hung Window

Application: Superior weather, thermal and acoustic performance developed specifically for multi-storey residential and architecturally designed housing. The EvoPlus Double Hung window integrates a number of design initiatives unique to ALSPEC such as the vent and key locking options.

Description: Single and double glazed double-hung windows for residential and commercial framing systems:

- Single glazing: 4 mm and 10.38 mm thick.
- Double glazing: 17.5 mm to 18.5 mm thick.

Panel dimensions:

- Maximum sash height: 1090 mm.
- Maximum sash width: 1200 mm
- Maximum sash weight: 20 kg.

View-Max Commercial Windows

Application: Superior weather, thermal and acoustic performance developed specifically for multi-storey residential and architecturally designed housing. The View-Max window integrates a number of design initiatives unique to ALSPEC such as the proprietary locking, roller and drainage systems.

Description: Single or double glazed sliding and double-hung windows for integration with ALSPEC commercial framing systems.

Sash framing: 76 mm or 101.6 mm.

- Single glazing: 4 mm and 10.38 mm thick.
- Double glazing: 18 mm thick.

Panel dimensions:

- Maximum panel height: 1600 mm.
- Maximum panel width: 1200 mm
- Maximum panel weight: 50 kg.

Altitude Sliding Windows

Application: Superior weather, thermal and acoustic performance developed specifically for multi-storey residential and architecturally designed housing. The Altitude Sliding window integrates a number of design initiatives unique to ALSPEC such as the proprietary locking, roller and drainage systems.

Description: Single or double glazed sliding windows for integration with ALSPEC commercial framing systems.

Sash framing: 76 mm, 101.6 mm or 150 mm.

- Single glazing: 4 mm and 12.4 mm thick.
- Double glazing: 18 mm thick.

Panel dimensions:

- Maximum panel height: 1800 mm.
- Maximum panel width: 1500 mm.
- Maximum panel weight: 160 kg.

Pro Tilt High Performance Awning and Casement Windows

Application: Housing, multi-unit residential, hotels and commercial applications. Overlapping internal and external seals achieve superior weather performance.

Hardware:

- Available in a range of stays and operated with a proprietary winder.
- Multi-point locking options.
- Insect and security screens can be added from the inside of the building.

Description: Single or double glazed awning and casement windows for integration with ALSPEC commercial framing systems.

Pro Tilt dimensions and properties table

Product	Without multipoint locks	With multipoint locks
Awning window:		
Max height (mm)	1500	2000
Min height (mm)	400	900
Max width (mm)	1200	1500
Min width (mm)	500	500
Max area (m ²)	1.8	2.4
Max weight (kg)	80	136
Casement window:		
Max height (mm)		2100
Min height (mm)		900
Max width (mm)		1000
Min width (mm)		500
Max area (m ²)		2.0

Product	Without multipoint locks	With multipoint locks
Max weight (kg)		49

Awning and Casement Windows

Application: Housing, multi-unit residential, hotels and commercial applications. Overlapping internal and external seals achieve superior weather performance.

Hardware: Available in a range of stays and operated with Chainwinders or Cam handles, locking or non-locking. ALSPEC Chainwinder adaptor insect and security screens can be added from the inside of the building.

Description: Single or double glazed awning and casement windows for integration with ALSPEC commercial framing systems.

Sash framing: 30 mm.

- Single glazing: 6 mm thick.
- Double glazing: 18 mm thick.
- Maximum panel height: 1000 mm.
- Maximum panel width: 1000 mm.
- Maximum panel weight: 18 kg.

Sash framing: 35 mm.

- Single glazing: 4 mm to 12 mm thick.
- Double glazing: 18 mm to 24 mm thick.
- Maximum panel height: 1500 mm.
- Maximum panel width: 2000 mm.
- Maximum panel weight: 35 kg.

Sash framing: 50 mm.

- Single glazing: 4 mm to 16 mm thick.
- Double glazing: 24 mm to 32 mm thick.
- Maximum panel height: 1800 mm.
- Maximum panel width: 1200 mm.
- Maximum panel weight: 90 kg.

Top Hung Awning Windows

Application: Housing, multi-unit residential, hotels and commercial applications.

Description: Single or double glazed top-hung awning windows for integration with ALSPEC commercial framing systems.

Sash framing: 35 mm available as an overlapping or inset sash.

The 443 series 30 mm sash is inset in the framing for a flush appearance.

Hardware: Chainwinder with optional adaptor for added insect and security screens that can be added from the inside of the building.

Gas Strut Servery Window

Application: Kitchen servery window available with sill or no sill. Includes a self-latching locking system without the need for holes to be cut into the frame or bench.

Description: Single or double glazed gas strut servery window:

- Single glazing: 6 mm to 13.5 mm thick.
- Double glazing: 18 mm to 28 mm thick.

Panel dimensions:

- Maximum panel height: 1500 mm.
- Maximum panel width: 2000 mm.

2.5 ALSPEC COMMERCIAL FRAMING

Derwent 76 mm Centre Pocket Framing

Application: Economical fixed glazing suite suitable for internal and external locations e.g., residential entrance ways, arcades, glass partitions and offices. The Derwent is the lightest and most slim line of the multi-purpose ALSPEC architectural suites.

Description: Single glazed centre pocket framing system.

Framing section: 76 mm x 35 mm.

- Single glazing: 4 mm to 10.38 mm thick.
- Maximum panel height: 2400 mm.
- Maximum panel width: 2000 mm.

McArthur Evo Commercial Centre Pocket Framing

Application: The most popular and flexible of the ALSPEC commercial range, suitable for shopfront and general commercial use. Suitable for a range of glass thicknesses.

Description: Single glazed centre pocket framing system with self-draining subsill.

Framing section: 101.6 mm x 44.4 mm.

- Single glazing: 6 mm to 14.5 mm thick.
- Maximum panel height: 4200 mm.
- Maximum panel width: 2200 mm.

Framing section: 150 mm x 44.4 mm.

- Single glazing: 6 mm to 14.5 mm thick.
- Maximum panel height: 5100 mm.
- Maximum panel width: 2400 mm.

ecoFRAMEplus Centre Pocket Double Glazed Framing

Application: To address energy efficiency requirements for general commercial projects, ecoFRAMEplus allows a frame to transform from double to single glazing with many diverse glass options. With the use of heavy duty mullions the ecoFRAMEplus 150 mm can allow heights to reach and surpass 4.0 m depending upon wind loading conditions. Subsills are recommended for optimum weathering with all ecoFRAMEplus systems.

Description: Single or double glazed centre pocket framing system with self-draining subsill.

Framing section: 76 mm x 45 mm.

- Single glazing: 4 mm to 14 mm thick.
- Double glazing: 16 mm to 18 mm thick.
- Maximum panel height: 3000 mm.
- Maximum panel width: 1200 mm.

Framing section: 101.6 mm x 50 mm.

- Single glazing: 4 mm to 14 mm thick.
- Double glazing: 16 mm to 43 mm thick.
- Maximum panel height: 4200 mm.
- Maximum panel width: 2400 mm.

Framing section: 150 mm x 50 mm.

- Single glazing: 4 mm to 14 mm thick.
- Double glazing: 16 mm to 28 mm thick.
- Maximum panel height: 4800 mm.
- Maximum panel width: 2400 mm.

Hunter Evo Flush Glazed Framing

Application: The most versatile and flexible of the ALSPEC commercial range, suitable for shopfronts and low-rise curtain walling.

Description: Single or double flush glazed framing system.

Framing section: 101.6 mm x 50 mm.

- Single glazing: 4 mm to 14 mm thick.
- Double glazing: 15 mm to 30 mm thick.
- Maximum panel height: 4200 mm.
- Maximum panel width: 2400 mm.

Framing section: 150 mm x 50 mm.

- Single glazing: 4 mm to 14 mm thick.
- Double glazing: 15 mm to 40 mm thick.

- Maximum panel height: 4500 mm.
- Maximum panel width: 2400 mm.

Hunter Evo Acoustic Framing

Application: The most versatile and flexible of the ALSPEC commercial range, suitable for shopfronts and low-rise curtain walling.

Description: Dual glazed framing system for sound reduction.

Framing sections:

- 101.6 mm x 50 mm.
 - . Dual glazed pockets: 6 mm to 14 mm (*2).
 - . Maximum panel height: 3600 mm.
 - . Maximum panel width: 2200 mm.
- 150 mm x 50 mm.
 - . Dual glazed pockets: 6 mm to 14 mm (*2).
 - . Maximum panel height: 4500 mm.
 - . Maximum panel width: 2400 mm.

ecoWALL 225 Flush Glazed Framing

Application: Commercial foyer, auto showroom or high end residential projects. Subject to project specific design criteria, ecoWALL 225 can eliminate the requirement of unsightly and often very expensive steel frames to support the system.

Compatible doors: ALSPEC Swan 45 mm Commercial Shopfront Door and Torrens 45 mm Commercial Double Beaded Shopfront Door.

Description: Flush glazed framing system with reinforced subheads, mullion anti-buckling technology, and self-draining subsill.

Framing section: 225 mm x 60 mm.

- Single glazing: 4 mm to 14 mm thick.
- Double glazing: 20 mm to 28 mm thick.
- Maximum panel height: 6300 mm.
- Maximum panel width: 2700 mm.

Hastings Front Glazed Framing

Application: A versatile and flexible system that is easy to fabricate and easy to install for shopfronts, upmarket residential and commercial projects.

Description: Front glazed framing system. Use double glazing adaptor for double glazing option, if required.

Framing section: 101.6 mm x 50 mm.

- Single glazing: 6 mm to 12.38 mm thick.
- Double glazing: 24 mm to 32 mm thick.
- Maximum panel height: 3600 mm.
- Maximum panel width: 2400 mm.

Framing section: 150 mm x 50 mm.

- Single glazing: 6 mm to 16 mm thick.
- Double glazing: 24 mm to 32 mm thick.

550 Front Glazed Plant-on Sections

Application: A versatile and flexible system for upmarket residential and commercial projects. It can be used alongside the Hastings framing system and is suitable for single and double glazed options.

Description: 50 mm capped glazing system of adaptor and covers for fixing to other structures including aluminium, steel or timber.

- Single glazing: 6 mm to 18 mm thick.
- Double glazing: 24 mm to 32 mm thick.

2.6 THERMAFRAME THERMALLY BROKEN SYSTEMS

ThermAFrame 101.6 mm and 150 mm Centre Pocket Commercial Framing

Application: The most popular and flexible of the ALSPEC ThermAFrame range, suitable for shopfront and general commercial use. Suitable for a range of glass thicknesses. Compatible with ALSPEC ThermAFrame 50 mm Commercial Door and 56 mm Awning/Casement Window.

Description: Thermally broken single and double glazed centre pocket framing system with self-draining thermally broken subsill, delivering superior levels of thermal insulation.

Framing section: 101.6 mm x 50 mm.

- Single glazing: 6 mm to 14.52 mm thick.
- Double glazing: 16 mm to 32 mm thick.
- Maximum panel height: 4200 mm.
- Maximum panel width: 2400 mm.

Framing section: 150 mm x 50 mm.

- Single glazing: 6 mm to 14.52 mm thick.
- Double glazing: 16 mm to 32 mm thick.
- Maximum panel height: 4800 mm.
- Maximum panel width: 2400 mm.

ThermAFrame 101.6 mm and 150 mm Flush Glazed Commercial Framing

Application: The most versatile and flexible of the ALSPEC ThermAFrame range, suitable for shopfront and low-rise curtain walling. Suitable for a range of glass thicknesses. Compatible with ALSPEC ThermAFrame 50 mm Commercial Door and 56 mm Awning/Casement Window.

Description: Thermally broken single and double glazed flush glazed framing system with self-draining thermally broken subsill, delivering superior levels of thermal insulation.

Framing section: 101.6 mm x 50 mm.

- Single glazing: 6 mm to 14.52 mm thick.
- Double glazing: 16 mm to 32 mm thick.
- Maximum panel height: 4200 mm.
- Maximum panel width: 2400 mm.

Framing section: 150 mm x 50 mm.

- Single glazing: 6 mm to 14.52 mm thick.
- Double glazing: 16 mm to 32 mm thick.
- Maximum panel height: 4500 mm.
- Maximum panel width: 2400 mm.

ThermAFrame 50 mm Commercial Door

Application: Can be used in a hinged, pivoted or sliding application for glazed entrances to shopfronts, offices and other commercial and industrial premises. Frame sections feature custom designed corner clamp spigot and proprietary heavy duty aluminium hinges to ensure maximum performance with large and heavy IGUs.

Description: Thermally broken 50 mm centre pocket glazed door.

Hinged and pivot doors:

- Double glazing: 20 mm to 32 mm thick.
- Maximum door panel height: 3000 mm.
- Maximum door panel width: 1100 mm.

Sliding doors:

- Maximum door panel height: 2500 mm.
- Maximum door panel width: 2700 mm.

ThermAFrame Awning/Casement Window

Application: Housing, multi-unit residential, hotels and commercial applications. Overlapping internal and external seals achieve superior weather performance.

Hardware: Available in a range of stays and operated with chainwinders or cam handles, locking or non-locking. Optional insect and security screens can be added from the inside of the building.

Description: Thermally broken awning and casement windows for integration with ALSPEC ThermAFrame commercial framing systems.

Sash framing: 56.4 mm:

- Double glazing: 22 mm to 32 mm thick.

Awning window:

- Maximum panel height: 1800 mm.
- Maximum panel width: 1200 mm.

Casement window:

- Maximum panel height: 1500 mm.
- Maximum panel width: 800 mm.

ThermAFrame Sliding Door

Application: High performance large panel sliding door system able to accommodate up to 28 mm double glazed units to suit the most demanding thermal and acoustic requirements for high rise residential and commercial projects

Description: Thermally broken commercial multi-track sliding door system.

- Double glazing: 24 mm to 28 mm thick.
- Maximum panel height: 3000 mm.
- Maximum panel width: 2300 mm.
- Maximum panel weight: 300 kg.

2.7 ALSPEC LOUVRES AND SOLAR CONTROL

Air-Flo Glass Plus Louvre Framing System

The Air-flo is a stand-alone full height glazing system incorporating fixed lights, louvres, entrance doors and highlights. Suitable for use Australia-wide, including cyclonic regions.

Description: 102 mm and 152 mm louvre framing system including 125 mm extruded aluminium frame, injection moulded UV resistant polypropylene holding clips, cast aluminium pivot bearings riveted to extruded anodised aluminium operating bars.

Fixed Louvre

Application: Plant room louvres, louvre doors and storm-proof louvres. This range of solid and elliptical blades, some including their own bracketing systems, allows design and installation flexibility.

Description: Solid and elliptical aluminium louvre blades in aluminium framing system.

Louvre blades:

- Width: 50 mm.
- Maximum length: 600 mm.

Solaire Fixed Louvre

Application: External solar control, horizontal fins, vertical blades and window hoods. This range of louvre blades include flexible fitting options and extrusions for both vertical and horizontal blade configurations.

Profiles: Available in elliptical, bullnose or square profiles.

Description: Self-mating aluminium louvre blades.

Louvre blades:

- Width: 45 mm.
- Maximum depth: 600 mm.

Solaire Batten

Application: Facades, fencing and pergolas.

Description: Self-mating batten system.

Battens:

- Width: 50 mm.
- Depth: 50 mm, 100 mm, 150 mm or 200 mm.

Cityscape Adjustable Screen System

Application: Screens to high rise apartment balconies, commercial and residential projects.

Description: Operable shutters for bifold, sliding or fixed panel configurations:

- Maximum panel height: 3000 mm. Use midrails for panels over 1800 mm high.
- Maximum panel width: 900 mm.
- Maximum panel weight for sliding panels: 40 kg.
- Maximum panel weight for bifolding panels: 20 kg.

2.8 CARINYA RESIDENTIAL WINDOWS AND DOORS

Carinya Classic

Carinya Classic Sliding Window:

- Maximum sash height: 1500 mm.
- Maximum sash width: 1200 mm.
- Maximum glass thickness: 10.5 mm single glazed and 18 mm double glazed.
- Maximum sash weight: 40 kg.
- Frame width available in 50 mm and 92 mm.

Application: New residential constructions, window replacement and renovation as well as low-rise buildings. Residential window offering a range of sill, mullion and transom options for wide variety of applications and is compatible with KidScreen and Invisi-Gard security screens.

Carinya Classic Secondary Sliding Window:

- Maximum sash height: 1500 mm.
- Maximum sash width: 1200 mm.
- Maximum glass thickness: 10.5 mm single glazed and 18 mm double glazed.
- Maximum sash weight: 40 kg.
- Frame width available in 50 mm.

Application: Renovations with higher acoustic requirements plus new residential constructions and low-rise buildings. Residential window offering a range of sill, mullion and transom options for wide variety of applications where there is a higher acoustic requirement. Compatible with KidScreen and Invisi-Gard security screens.

Carinya Classic High Performance Sliding Window:

- Maximum sash height: 1800 mm.
- Maximum sash width: 1200 mm.
- Maximum glass thickness: 12.5 mm single glazed and 18 mm double glazed.
- Maximum sash weight: 200 kg.
- Frame width available in 92 mm.

Application: Region D residential construction where cyclonic compliance is required as well as low-rise multi-unit developments. High performance residential window offering a range of sill, mullion and transom options for increased structural, water performance and design flexibility. Offers cyclonic compliance by the addition of impact rated glass.

Carinya Classic Sliding Door:

- Maximum panel height: 2400 mm.
- Maximum panel width: 1200 mm.
- Maximum glass thickness: 12.5 mm single glazed and 18 mm double glazed.
- Maximum sash weight: 200 kg.
- Frame width available in 92 mm and 150 mm.

Application: New residential constructions, window replacement and renovation as well as low-rise multi-unit developments and aged care developments, including wheelchair access requirements. Residential sliding door offering a range of sill and interlock options for increased structural, water performance and design flexibility. Choice of configurations available, including stacking and corner options. Designed to meet C4 wind load requirements.

Carinya Classic Double Hung Window:

- Maximum sash height: 1090 mm.
- Maximum sash width: 1000 mm.
- Maximum glass thickness: 8.5 mm.
- Maximum sash weight: 20 kg.
- Frame width available in 50 mm.

Application: New residential constructions, window replacement and renovation as well as low-rise multi-unit developments. Residential double-hung window offering a choice of screening solutions, including KidScreen and Invisi-Gard that are securely fitted within the head and sill. Choice of integrated sidelights, highlights and lowlights are available. C4 master key locking for one key solution across all windows.

Carinya Classic Awning Window:

- Maximum sash height: 2100 mm.
- Maximum sash width: 1200 mm.
- Maximum glass thickness: 10.5 mm single glazed and 18 mm double glazed.
- Maximum sash weight: 40 kg.
- Maximum sash area: 1.4 m².
- Frame width available in 50 mm and 92 mm.

Application: New residential constructions, window replacement and renovation as well as low-rise multi-unit developments. Residential awning window offering an attractive option when ventilation and restricted views are key considerations. Choice of integrated sidelights and lowlights are available. Designed to meet C4 wind load requirements as well as high acoustic environments. Integrates with KidScreen and Invisi-Gard screens.

Carinya Select

Carinya Select Double Hung Window:

- Maximum sash height: 1090 mm.
- Maximum sash width: 1000 mm.
- Maximum glass thickness: 10.5 mm single glazed and 18 mm double glazed.
- Maximum sash weight: 20 kg.
- Frame width available in 92 mm.

Application: New residential constructions, window replacement and renovation as well as low-rise multi-unit developments. Residential double-hung window packed with a multitude of performance features. Ideal for large openings up to 2.2 metres tall and 1 metre wide, offering a choice of screening solutions that are securely fitted within the frame width. Choice of integrated sidelights, highlights and lowlights are available. Integrates with KidScreen and Invisi-Gard screens. Sashes are easily removable for cleaning and installation.

Carinya Select Hinged Door:

- Maximum sash height: 2400 mm.
- Maximum sash width: 900 mm.
- Maximum glass thickness: 10.5 mm single glazed and 24 mm double glazed.
- Maximum sash weight: 50 kg.
- Frame width available in 125 mm and 92 mm.

Application: New residential constructions, window replacement and renovation as well as low-rise multi-unit and aged care developments including wheelchair access requirements. Hinged door with inbuilt screen provision and option for internal or external opening configurations. Choice of integrated sidelight options including glass louvre options. Four point locking option for conformance with AS 2047 (2014).

Carinya Select Bottom Rolling Bi-Fold Door:

- Maximum sash height: 2400 mm.
- Maximum sash width: 900 mm.
- Maximum glass thickness: 10.5 mm single glazed and 24 mm double glazed.
- Maximum sash weight: 40 kg (F2 Hardware) or 80 kg (F3 Hardware).
- Frame width available in 92 mm.

Application: New residential constructions, window replacement and renovation as well as low-rise multi-unit developments. Residential bottom rolling bi-fold door packed with a multitude of performance features. Able to cater for multi-point locking to comply with AS 2047 (2014). With up to 8 panels folding in each direction this bi-fold door is ideal for wide openings, offering unsurpassed design flexibility and unrestricted views. Recessed flat sill options also available.

Carinya Select Top Rolling Bi-Fold Door:

- Maximum sash height: 2400 mm.
- Maximum sash width: 900 mm.
- Maximum glass thickness: 10.5 mm single glazed and 24 mm double glazed.

- Maximum sash weight: 40 kg (E2 Hardware) or 80 kg (E3 Hardware).
- Frame width available in 92 mm.

Application: New residential constructions, window replacement and renovation as well as low-rise multi-unit developments. Residential top rolling bi-fold door packed with a multitude of performance features. Able to cater for multi-point locking to comply with AS 2047 (2014). With up to 8 panels folding in each direction this bi-fold door is ideal for wide openings, offering unsurpassed design flexibility and unrestricted views. Recessed flat sill options also available.

2.9 KIDSCREEN

KidScreen Window Fall Prevention screens are a patent design providing cost effective child protection of openable windows, as required by the NCC for all new construction where windows are positioned 2 m or more above the ground floor. These windows must be restricted or protected in a way to not permit an opening greater than 125 mm width and resist a 250 N outward force. When secured to the window, KidScreen Window Fall Prevention screens allow unrestricted opening of windows for ventilation as KidScreen acts in a similar way to a security screen without the premium cost. Available with reinforced polyester or stainless steel type 316 mesh.

Protection of openable windows

Description: Aluminium framed mesh screen with secure fittings conforming to the requirements of BCA (2022) H5D3 for protection of openable windows.

2.10 GLAZING

Performance

Glass: Free from defects that detract from appearance or interfere with performance under normal conditions of use.

Plastics glazing: Free from surface abrasions and warranted by the manufacturer for 10 years against yellowing or other colour change, loss of strength and impact resistance, and general deterioration.

Heat soaking

Requirement: Heat soak glass to AS 1288 (2021) clause 3.8.

Standard: To EN 14179-1 (2016).

Marking: To EN 14179-1 (2016) or certified by the manufacturer to AS 1288 (2021) clause 3.8.2.

Heat soaking is a process that reduces the risk of breakage during service from impurities such as nickel sulfide inclusions in the glass. The process puts the glass through a heat cycle to encourage the glass to break under test if it is at risk of inclusions. AS 1288 (2021) clause 3.8.2 requires all monolithic toughened and heat-strengthened glass (with a surface compression greater than 52 MPa) to be heat soaked. It also includes exemptions.

Heat soaked thermally toughened soda lime silica glass is defined in EN 14179-1 (2016) and specifies the heat soak process, along with requirements for tolerances, flatness, edgework and fragmentation.

Bullet-resistant glazing panels

Requirement: Proprietary bullet-resistant glazing panels

Manufacturer: [complete/delete]

Resistance level: [complete/delete]

Resistance to attack by various firearms was previously defined in AS/NZS 2343 (1997). This standard has now been withdrawn. Nominate the type of attack resistance required and confirm with the manufacturer.

- Class G0 – resistant to attack by a 9 mm military parabellum hand gun.
- Class G1 – resistant to attack by a 357 magnum hand gun.
- Class G2 – resistant to attack by a 44 magnum hand gun.
- Class R1 – resistant to attack by a 5.56 mm rifle.
- Class R2 – resistant to attack by a 7.62 mm rifle.
- Class S0 – resistant to attack by a 12 gauge shotgun (full choke) firing shot.
- Class S1 – resistant to attack by a 12 gauge shotgun (full choke) firing a single slug.

Panel materials: [complete/delete]

If particular materials are required, document here.

Panel opacity: [complete/delete]

Select from Transparent or Opaque. Delete if not required.

Safety glazing materials

Standard: To AS/NZS 2208 (1996).

AS/NZS 2208 (1996) includes toughened, laminated, wired and organic-coated glass, and safety plastic glazing sheets. The required grade (A or B) is specified in AS 1288 (2021) Section 5 for each application.

See AS/NZS 2208 (1996) Section 2 for dimensional specifications.

Roller wave distortion (not in the standard) is a consequence of heat treating glass and may be more noticeable in some applications. Consult the manufacturer for more information on tolerances.

Type: Grade A to AS 1288 (2021).

Certification: Required.

- Certification provider: An organisation accredited by the Joint Accreditation System of Australia and New Zealand (JASANZ).

Marking: To AS/NZS 2208 (1996) clause 1.7.

Inconspicuous permanent labelling of tempered and reflective-coated glass for use in curtain walls is recommended, to identify inner and outer surfaces, strength grades, manufacturer, processor and standard.

Heat-strengthened glass

Requirement: Heat-strengthened annealed glass that requires extra strength and thermal resistance.

Standard: To ASTM C1048 (2018).

Heat strengthening increases the strength of ordinary annealed glass. It is not a substitute for toughened glass and is not a safety glass.

Ceramic-coated glass

Requirement: Heat-strengthened or toughened glass with a coloured ceramic coating fused to and made an integral part of the surface to ASTM C1048 (2018), Condition B.

Opacified glass

Requirement: Glass with an opacifier permanently bonded to the inner face.

Insulating glass units (IGUs)

Requirement: Provide insulating glass units, as documented.

Document requirements in the **Insulating glass units (IGUs) schedule** or detail on drawings.

Manufacture, testing and installation: To AS 4666 (2012).

2.11 GLAZING MATERIALS

General

Requirement: Putty, glazing compounds, sealants, gaskets, glazing tapes, spacing strips, spacing tapes, spacers, setting blocks and compression wedges appropriate for the conditions of application and required performance.

Compounds, sealants and tapes

Glazing tapes: To AAMA 800 (2016) specifications 804.3, 806.3, or 807.3, as applicable.

If an AGWA Glass Compliance Certificate or Window Compliance Certificate is not nominated in SELECTIONS, change this *Optional* style text to *Normal* style text to describe the quality standards for glazing tapes, glazing compounds, narrow joint sealer, exterior perimeter sealing compound, non-drying sealant and expanded cellular glazing tape.

AAMA 800 (2016) glazing tape definitions:

- 804.3 - Designed for use in less severe back bedding and drop-in glazing applications such as residential and light commercial fenestrations.
- 806.3 - Designed for use in high performance commercial fenestrations in which the tape is subjected to continuous pressure exerted from gaskets or pressure generating stop designs.
- 807.3 - Designed for use in commercial fenestrations in which the tape is not subjected to continuous pressure from gaskets or pressure generating stop designs. This tape may be used in applications described for 804.3 tapes.

Glazing compounds: To AAMA 800 (2016) specifications 802.3 (Types I or II), or 805.2, as applicable.

AAMA 800 (2016) glazing compounds definitions:

- 802.3 (Type I and II): Ductile back bedding compound intended to remain ductile and to permit movement without loss of bond.
- 805.2 (Type A and C): Bonding type bedding compound that cure relatively hard and stiff and to permit limited movement without loss of bond.

Narrow joint seam sealer: To AAMA 800 (2016) specification 803.3.

AAMA 800 (2016) narrow joint seam sealer definitions:

- 803.3 (Type I): Non-sag narrow joint sealers that are elastic or ductile compounds with maximum slump of 2.5 mm.
- 803.3 (Type II): Self-levelling narrow joint sealers that are elastic or ductile compounds with maximum slump of 2.5 mm.

Exterior perimeter sealing compound: To AAMA 800 (2016) specification 808.3.

AAMA 800 (2016) exterior perimeter sealing compound definitions:

- 808.3: Perimeter sealing compound intended to remain elastic or ductile and to permit movement without loss of bond.

Non-drying sealant: To AAMA 800 (2016) specification 809.2.

AAMA 800 (2016) non-drying sealant definitions:

- 809.2: Non-drying sealant intended to remain pliable and tacky for use in sealing hidden joints.

Expanded cellular glazing tape: To AAMA 800 (2016) specification 810.1.

AAMA 800 (2016) expanded cellular glazing tape definitions:

- 810.1 (Type I): Tape intended as primary seal to prevent air and water leakage.
- 810.1 (Type II): Tape intended as secondary seal where tape used in combination with a full bead of wet sealant to prevent air and water leakage.

Jointing materials

Requirement: Jointing and pointing materials that are compatible with each other and the contact surfaces, and non-staining to finished surfaces to manufacturer's recommendations. Do not provide bituminous materials on absorbent surfaces.

Elastomeric sealants

Sealing compounds (polyurethane, polysulfide, acrylic): To ASTM C920 (2018) or ISO 11600 (2002).

Sealing compounds (silicone): To ASTM C920 (2018) or ISO 11600 (2002).

Sealing compounds (butyl): To ASTM C1311 (2022).

Elastomeric sealants schedule

Sealant type	Material	Location or function

If the nature of the project requires a schedule of this nature, obtain the advice of the nominated fabricator or delete, as appropriate.

Very high bond adhesive tape schedule

Tape type	Material	Location or function	Dimensions

If the nature of the project requires a schedule of this nature, obtain the advice of the nominated fabricator, or delete as appropriate.

Primer

Compatibility: Apply the manufacturer's recommended primer to the surfaces in contact with sealant materials.

Control joints

Depth of elastomeric sealant: One half the joint width or 6 mm, whichever is the greater.

Foamed materials (in compressible fillers and backing rods): Closed cell or impregnated types that do not absorb water.

Bond breaking: Provide backing rods, and other back-up materials for sealants, that do not adhere to the sealant.

2.12 SCREENS

General

Requirement: Provide screens, as documented.

Document requirements in the **Screen schedule** or detail on drawings.

Fixed screens

General: Fixed screens fitted to the window frames with a clipping device that allows for removal for cleaning.

Hinged screens

General: Screens hinged at the top to give access to opening sash.

Retractable screens

General: Proprietary retractable screens, comprising aluminium frames and fibreglass mesh, fitted between the guide channels incorporated in the frames, and a retraction system including tension spring, bearings, positive self-locking device and elastomeric sealing strip at sill.

Sliding screens

General: Screens that are not part of the window frame, with matching aluminium head guide, sill runner, and frame stile sections.

Hardware: Nylon slide runners and finger pull handle. Provide pile strip closers against sash where necessary to close gaps.

Aluminium framed screens

General: Aluminium extruded or folded box frame sections with mesh fixing channel, mitred, staked and screwed at corners. If necessary to adapt to window opening gear, provide an extended frame section.

Mesh: Bead the mesh into the frame channel with a continuous resilient gasket, so that the mesh is taut and free of distortion.

2.13 ALUMINIUM FRAME FINISHES

Delete finish not required.

Powder coatings

Standard: To AS 3715 (2002).

Product: [complete/delete]

Select Dulux Duralloy or AkzoNobel Interpon D 610. Both are offered as standard for the ALSPEC Aluminium Systems series.

- Dulux Duratec is available upon request: Select for high rise where cleaning may be infrequent or where longer warranties are required.
- Dulux Fluoroset is available upon request: Select for installations in a salt environment or where longer warranties are required.

Edit as appropriate. Note high performance powders can require extended lead times.

Anodised

Standard: To AS 1231 (2000).

Thickness:

- Internal: 15 microns.
- External: 20 microns.

25 micron thick anodising, recommended for severe conditions, can be made available by some suppliers upon request.

2.14 ANCILLARY COMPONENTS AND FITTINGS

Trim

General: Provide trim, shadow angles and architraves, as documented.

Document requirements in the **Trim schedule** or detail on drawings.

Extruded gaskets and seals

General: Provide seals, as documented.

Document requirements in the **Window and glazed door seal schedule** or detail on drawings.

Materials: Non-cellular (solid) elastomeric seals as follows:

- Rubber products: Neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber.

BS 4255-1 (1986) provides more specific product requirements for weather resistant rubber gaskets and seals.

- Flexible polyvinyl chloride (PVC): E type compounds, colourfastness grade B.

BS 2571 (1990) provides more specific requirements for PVC E type (extruded) products.

Flashings

General: Corrosion-resistant, compatible with the other materials in the installation, and coated with a non-staining compound where necessary.

Standard: To AS/NZS 2904 (1995).

Nylon brush seals

General: Dense nylon bristles locked into holding strips and fixed in a groove in the edge of the door or in purpose-made anodised aluminium holders fixed to the door or frame to the manufacturer's recommendations.

Pile weatherstrips

General: Provide weatherstrips, as documented.

Document in the **Pile weatherstrips schedule** or detail on drawings.

Standard: To AAMA 701/702 (2023).

AAMA 701/702 (2023) is a guide to selecting pile weatherstrip and weatherseals used in windows and doors. It defines requirements to restrict air and water infiltration. See BCA (2022) J5D5 and BCA (2022) H6D2(1)(b)(iii) for the sealing of windows and doors.

AS 3959 (2018) has requirements for door and window seals in bushfire zones. Testing of seals to AS 1530.2 (1993) is required in some BAL zones.

Material: Pile and backing or equivalent polypropylene, low friction silicone treated, ultraviolet stabilised, fixed to the frame to the manufacturer's recommendations.

Finned type: A pile weatherseal with a central polypropylene fin bonded into the centre of the backing rod and raised above the pile level.

Weather bars

General: A weather bar for hinged external doors, located under the centres of closed doors.

Document in the **Weather bars schedule**, or detail on drawings. Weather bars and threshold plates are used at the junction between sill and door leaf or in place of a sill. Weather bars have been traditionally associated with purpose-made joinery. Where sill profiles, timber agencies or proprietary profiles do not allow for the inclusion of a weather bar; document a proprietary seal or threshold section. As a secondary role the weather bar can serve to protect the sill rebate from damage in high traffic areas.

If used as a single item without a sill and acting as a floor finish divider, document under the appropriate worksection (e.g. *0526 Terrazzo precast*, *0612 Cementitious toppings*, *0613 Terrazzo in situ* or *0631 Ceramic tiling*). The profile, material and method of fixing to the building fabric require clearance from the edges of the building fabric e.g. concrete slabs. For embedded weather bars, document corrosion-resistant materials. The NCC covers thresholds in BCA (2022) D3D16.

2.15 HARDWARE

ALSPEC provide cylinder type proprietary hardware capable of accepting keyed alike systems, construction keying and master key systems. ALSPEC aluminium systems can be supplied without proprietary hardware for fitting selected hardware supplied by others. Check that the documented aluminium joinery can accept the selected hardware. Document hardware in the SELECTIONS.

General

Requirement: To ALSPEC's recommendations.

Provision is made in SELECTIONS to document proprietary items with inherent quality or performance characteristics matching your requirements.

Window locks and latches

Standard: To AS 4145.2 (2008).

Document the required performance in the **Window locks and latches performance schedule**.

Window catches: Provide 2 catches per sash to manually latched awning or hopper sashes over 1000 mm wide.

Sash balances

Requirement: Match the spring strength of the balances to the sash weight they support.

Sash operators

Requirement: Provide sash operators, as documented.

2.16 KEYING

Contractor's keys

Master key systems: Do not use any key under a master key system.

As construction cylinders are replaced at practical completion, they may be used for many projects and therefore are often at no extra cost. A construction or project key relies on a mechanism within the cylinder to be released to convert it from being activated by the project key to its final use key. This facility is at extra cost and reduces the system's keying capacity.

Identification

Labelling: Supply each key with a purpose-made plastic or stamped metal label legibly marked to identify the key, attached to the key by a metal ring.

Key material

Pin tumbler locks: Nickel alloy, not brass.

Lever locks: Malleable cast iron or mild steel.

Keying system

Requirement: Keying system, as documented.

Document in the **Key codes schedule**.

Coding of locks: If window locks are included in building key code groups, provide cylinder or pin tumbler locks coded to match.

Number of keys table

Code	Key type	Minimum number of keys
KD	Locks keyed to differ	2 for each lock
KA#	Locks keyed alike:	
	2 locks in code group	4
	3 to 10 locks in code group	6
	11 to 40 locks in code group	10
	41 and over locks in code group	1 for every 4 locks or part thereof

KA#: Refer to the code groups, e.g. KA1, KA2 in the **Key codes schedule**.

The Australian standard for a rating system for locksets in doors and windows, AS 4145.1 (2008), provides for ten levels of keying security, K1 to K10.

Group and master keying requirements need to be coordinated with *0455 Door hardware* by reference or by replacing this **KEYING** clause with the **KEYING** clause in *0455 Door hardware*, which includes the master keying schedules.

3 EXECUTION

3.1 GLAZING PROCESSING

General

Processing: Perform required processes on glazing, including cutting, obscuring, silvering and bending. Form necessary holes, including for fixings, equipment, access openings and speaking holes. Process exposed glass edges to a finish not inferior to ground arised.

Glass processing includes edgework, holes and cut-outs. Do not cut, work, or permanently mark glass after toughening or heat strengthening. See AS/NZS 4668 (2000) Appendix B for different edge finish requirements and AGWA *A guide to window and door selection (2020)* for specific applications. The degree of edgework documented has implications for glass cutting and tolerances.

3.2 INSTALLATION

General

Requirement: Install windows and glazed doors as follows:

- Plumb, level, straight and true within building tolerances.
- Fixed or anchored to the building structure in conformance with the wind action loading requirements.
- Isolated from any building loads, including loads caused by structural deflection or shortening.
- Allow for thermal movement.

Glazing

If the glazing system or method is not covered by the installation provisions of AS 1288 (2021), (e.g. patent glazing, structural adhesive glazing or installation of IGUs), edit to suit the recommendations of the system and materials manufacturer.

Requirement: Install the glass as follows:

- Permanently fix in place each piece of glass to withstand the normal loadings and ambient conditions at its location without distortion or damage to glazing materials.
- No transfer of building movements to the glazing.
- Watertight and airtight for external glazing.

Document particular installation methods and detailed performance testing requirements for water and airtightness.

Temporary marking: Use a method that does not damage the glazing. Remove marking only after certification and acceptance of the installation.

Toughened glass: Do not cut, drill, edgework or permanently mark after toughening. Use installation methods that prevent the glass making direct contact with metals or other non-resilient materials.

Frameless installations: Join the vertical edges of adjacent glass panels with silicone jointing compound.

Heat-absorbing glass: In locations exposed to direct sunlight, provide wheel cut edges free from damage or blemishes, with minimum feather.

Weatherproofing

Flashing and weatherings: Install flashings, weather bars, threshold plates, drips, storm moulds, joint sealant and pointing to prevent water penetrating the building between the window frame and the building structure under the prevailing service conditions, including normal structural movement of the building.

Fixing

Packing: Pack behind fixing points with durable full width packing.

Fasteners: Conceal fasteners.

Fasteners and fastener spacing: To the recommendations of the AGWA (Australian Glass and Window Association) *An industry guide to the correct fixing of windows and doors (2021)*.

Visit agwa.com.au/AGWA/MembersPortal/Documents/MiniPages/Guide-Fixing.aspx.

Joints

General: Make accurately fitted tight joints so that fasteners or fixing devices such as pins, screws, adhesives and pressure indentations are not visible on exposed surfaces.

Sealants:

- If priming is recommended, prime surfaces in contact with jointing materials.
- If frames are powder coated, apply a neutral cure sealant.

Operation

General: Make sure moving parts operate freely and smoothly, without binding or sticking, at correct tensions or operating forces and are lubricated.

Protection

Removal: Remove temporary protection measures from the following:

- Contact mating surfaces before joining up.
- Exposed surfaces before completion of the works.

Temporary measures: [complete/delete]

State a particular method here, or delete to leave the choice of method to the contractor. For on-site care, see AS 2047 (2014) Appendix E (Informative).

Trim

General: Provide mouldings, architraves, reveal linings, and other internal trim using materials and finishes matching the window frames. Install to make neat and clean junctions between frames and the adjoining building surfaces.

Show on the drawings. Coordinate with 0511 Lining and 0453 Doors and access panels; do not schedule the same items twice.

3.3 SECURITY WINDOW GRILLES

General

Installation: To AS 5040 (2003).

3.4 HARDWARE

Fasteners

Materials: Use materials compatible with the item being fixed and of sufficient strength, size and quality to perform their function.

- Concealed fasteners: Provide a corrosion-resistant finish.
- Exposed fasteners: Match exposed fasteners to the material being fixed.

Support: Provide appropriate back support (for example lock stiles, blocking, wall noggings and backing plates) for hardware fasteners.

- Hollow metal sections: Provide backing plates drilled and tapped for screw fixing, or provide rivet nuts with machine thread screws. Do not use self-tapping screws or pop rivets.

For corrosion resistance guidance, refer to 0171 General requirements and 0181 Adhesives, sealants and fasteners.

Proprietary window systems

Requirement: Provide the standard hardware and internal fixing points for personnel safety harness attachment, if required by and conforming to the governing regulations.

Operation

General: Make sure working parts are accurately fitted to smooth close bearings, without binding or sticking, free from rattle or excessive play, lubricated where appropriate.

Supply

Delivery: Deliver window hardware items, ready for installation, in individual complete sets for each window set, as follows:

- Clearly labelled with the intended location.
- In a separate dust and moisture proof package.
- Including the necessary templates, fixings and fixing instructions.

TESTING

0171 General requirements defines different tests in **INTERPRETATION**, **Definitions** and calls for an inspection and testing plan in **TESTING - GENERALLY, Inspection and testing plan**.

Fall prevention tests

Fall prevention tests of completed installation: To AS 5203 (2016).

Windows supplied as complete sets with security grilles and tested to AS 5041 (2003) are not required to be tested to AS 5203 (2016).

If on-site fall prevention tests are required in addition to type tests, consider including this *Optional* style text by changing to *Normal* style text. Site testing is expensive.

3.5 COMPLETION

Hardware

Adjustment: Leave the hardware with working parts in working order, and clean, undamaged, properly adjusted, and lubricated where appropriate.

Keys

Contractor's keys: Immediately before the date for practical completion, replace cylinders to which the contractor has had key access during construction with new cylinders that exclude the contractor's keys.

Replacement of contractor's keys may be waived only if written approval is given to an alternative method of rendering the contractor's keys inoperative.

Keys: For locks keyed to differ and locks keyed alike, verify quantities against key records, and deliver to the contract administrator at practical completion.

Key codes: Submit the lock manufacturer's record of the key coding system showing each lock type, number and type of key supplied, key number for re-ordering, and name of supplier.

Repair of finish

Polyester or fluoropolymer coatings: Contact supplier for approval to apply touch up products, otherwise replace damaged material.

Cleaning

Method: Clean with soft clean cloths and clean water, finishing with a clean squeegee. Do not use abrasive, acidic or alkaline materials.

Extent: All frames and glass surfaces internally and externally.

Operation and maintenance manuals

Requirement: Prepare a manual that includes the manufacturer’s published recommendations for operation, care and maintenance.

The maintenance manual is located in Section 4 of each product technical manual.
 Compliance with this clause targets the Operations and Maintenance requirement within the Minimum Expectation level of the Verification and Handover credit in Green Star Buildings (2021).

Warranties

Aluminium joinery excluding hardware:

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: 7 years, conditional on compliance with the AGWA Code of Conduct.

Powder coating:

- Dulux Duralloy:
 - . Film integrity: 10 years.
 - . Colour integrity: 10 years.
- AkzoNobel Interpon D 610:
 - . Film integrity: 7 years.
 - . Colour integrity: 10 years.

Any colours not recommended by ALSPEC will be supplied on the understanding that no surface finish warranty is given.

Hardware supplied by ALSPEC: [complete/delete]

Consult ALSPEC. The terms and period are influenced by exposure to corrosive elements.

Hardware supplied separately: [complete/delete]

Consult the supplier.

4 SELECTIONS

Schedules are a tool to specify properties required for products or systems. If the principal permits documentation of the product or system by proprietary name, some of the properties may be unnecessary and can be deleted. Document the product or system’s location or application here and/or on the drawings with a matching project code. Refer to NATSPEC TECHnote GEN 024 for guidance on using and editing schedules.

4.1 PERFORMANCE

Window and glazed door performance schedule

	A	B	C
Total system U-Value (W/m ² .K)			
Total system SHGC			
Airborne sound insulation			
Visible transmittance (T _{vis})			
Reflectance (%)			
WERS Energy rating%: Heating			
WERS Energy rating%: Cooling			
AGWA Glass Compliance Certificate			
AGWA Window Compliance Certificate			
Water penetration resistance (Pa)			

	A	B	C
Fire-resistance level (FRL)			
Ultimate limit state (ULS) wind pressure (Pa)			
Serviceability limit state (SLS) wind pressure (Pa)			
Openable (free) area (m ²)			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Total system U-Value (W/m².K): Insert the thermal transmittance value used for determining NCC conformance, and calculated to BCA (2022) Spec 37. These should be obtained from tests to NFRC 100 (2023). Select the product to fulfil design and compliance requirements. See NATSPEC TECHnote DES 015 on NCC energy efficiency.

Total system SHGC: Insert the solar heat gain coefficient value used for determining NCC compliance. These should be obtained from tests to NFRC 200 (2023). Select the product to fulfil design and compliance requirements.

Airborne sound insulation: State the required rating to AS/NZS ISO 717.1 (2004) for either the weighted sound reduction index (R_w) or weighted sound reduction index with spectrum adaptation (R_w + C_{tr}). This rating is for a building system e.g. partition wall, of which the building element is only one component. It may be better to provide the rating in the appropriate system schedule. It is advisable to obtain the advice of an acoustic consultant on the selection of an R_w or R_w + C_{tr} rating for airborne sound transmission reduction. Refer to NATSPEC TECHnote DES 032 for information.

Visible transmittance (T_{vis}): The visible light passing directly through the glass. The higher the T_{vis}, the more daylight.

Reflectance (%): A maximum value is often a council requirement. Refer to the ABCB Glazing calculator available from www.abcb.gov.au/resources. Delete if this requirement is more appropriately covered in the **Glass schedule**.

WERS Energy rating: Star rating system operated by AGWA.

AGWA Glass Compliance Certificate: Insert Required or Not required. The AGWA Glass Compliance Certificate will cover only products that conform to AS 1288 (2021).

AGWA Window Compliance Certificate: Insert Required or Not required. The AGWA Window Compliance Certificate will cover only products that conform to AS 1288 (2021) and AS 2047 (2014).

Water penetration resistance (Pa): e.g. 150 Pa.

Fire-resistance level (FRL): State the required level to AS 1530.4 (2014), delete or state Not applicable. See NATSPEC TECHnote DES 020 on fire behaviour of building materials and assemblies.

Ultimate and serviceability limit state wind pressure (Pa): Nominate the design wind pressures for the project to AS/NZS 1170.2 (2021) (for residential and commercial buildings) or AS 4055 (2021) (for Class 1 and 10a buildings). AS 2047 (2014) Appendix A includes an informative guide to design wind pressure.

Openable (free) area (m²): State the openable area in m² to achieve NCC requirements for natural ventilation.

Window locks and latches performance schedule

	A	B	C
Durability (D)			
Key security (K)			
Cylinder security (S _c)			
Physical security of locks (S)			
Physical security of locksets (S _L)			
Corrosion classification (C)			
Classification to AS 4145.1 (2008)			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Durability rating (D): Select from D1 to D10. Refer to AS 4145.1 (2008) clause 3.3.

Keying security (K): Select from K1 to K10. Refer to AS 4145.1 (2008) clause 3.4.

Cylinder security (S_c): Select from Sc1 to Sc10. Refer to AS 4145.1 (2008) clause 3.5.

Physical security of locks (S): Select from S1 to S10. Refer to AS 4145.1 (2008) clause 3.6.

Physical security of locksets (S_L): Select from SL1 to SL10. Refer to AS 4145.1 (2008) clause 3.7.

Corrosion classification (C): Select from C1 to C10. Refer to AS 4145.1 (2008) clause 3.8. Refer to the documented project atmospheric corrosivity categories in *0171 General requirements*. See NATSPEC TECHnote DES 010 for information on atmospheric corrosivity classification.

Classification to AS 4145.1 (2008): The classification is a combination of the designations for lockset security, lock security, durability, corrosion, key security and cylinder security, e.g. S_L4/D6/C6/K6/S_c4.

4.2 ALSPEC ALUMINIUM SYSTEMS

ALSPEC commercial framing schedule

	A	B	C
Product			
Glazing			
Hardware			
Frame: Finish			
Frame: Colour			
Frame: Gloss level			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Product: Select from Derwent 76 mm Centre Pocket Framing, McArthur Evo Commercial Centre Pocket Framing, ecoFRAMeplus, Hunter Evo Flush Glazed Framing, ecoWALL 225 Flush Glazed Framing, Hastings Front Glazed Framing, 550 Front Glazed Plant-on Sections, ThermAFrame 101.6 mm and 150 mm Centre Pocket Commercial Framing, ThermAFrame 101.6 mm and 150 mm Flush Glazed Commercial Framing.

Glazing: Document the glazing type and thickness in this schedule or the **GLAZING** schedules. Documenting glazing in this schedule is suitable for projects where the same glass is used for each window or glazed door type. It can be documented by description, e.g. 6.38 mm clear laminated glass, or by reference to a designated glass type in the **Glass schedule**. The latter approach may be more appropriate for projects with a large number of glazing types, or glazing that requires more detailed specification. Refer to *Guidance* for **Glass schedule** and NATSPEC TECHnote PRO 006 for guidance on glass types.

Hardware: Select proprietary or nominate hardware if not supplied as part of the window or door. Coordinate with the **Window hardware schedule** and/or your hardware schedule.

Frame:

- Finish: Powder coated or Anodised.
- Colour: For powdercoating, nominate colour from Dulux or AkzoNobel Interpon powder coatings catalogue. For anodised, available colours include Natural silver, Bronze and Black.
- Gloss level: e.g. Gloss, Satin or Matte. Note the lower the gloss level the greater the durability. The loss of gloss levels over time will vary between colours, climatic regions, powder types and exposed areas of the building.

For powdercoating, as a rule the performance features of colour are:

- Light pastel colours: The most durable.
- Darker colours: Absorb more heat and sunlight and tend to age more rapidly.
- Bright colours: Reds, yellows and oranges are produced using synthetic organic pigments. While manufacturers may use the highest grade pigments available, these types of colours tend not to retain their bright original colour.

ALSPEC window and door schedule

	A	B	C
Product			
Glazing			
Hardware			
Frame: Finish			
Frame: Colour			
Frame: Gloss level			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Product: Select from Hawkesbury E2 Multi-Fold Door, Hawkesbury E3 Multi-Fold Door, ProGlide Sliding Door, ProGlide UltraFlat Sliding Door, Altitude Apartment Sliding Door, Vista+ Minimalist Sliding Door, Swan Evo 45 mm Shopfront Door,

Torrens 45 mm Commercial Shopfront Door, Air-Flo French Door, ThermAFrame 50 mm Commercial Door, View-Max sliding and double-hung windows, Carinya Classic or Carinya Select residential windows, ThermAFrame Awning/Casement Window, AluK SC95TT and Infinium Thermally Broken Sliding Doors.

Glazing: Document the glazing type and thickness in this schedule or the **GLAZING** schedules. Documenting glazing in this schedule is suitable for projects where the same glass is used for each window or glazed door type. It can be documented by description, e.g. 6.38 mm clear laminated glass, or by reference to a designated glass type in the **Glass schedule**. The latter approach may be more appropriate for projects with a large number of glazing types, or glazing that requires more detailed specification. Refer to *Guidance* for **Glass schedule** and NATSPEC TECHnote PRO 006 for guidance on glass types.

Hardware: Select proprietary or nominate hardware if not supplied as part of the window or door. Coordinate with the **Window hardware schedule** and/or your hardware schedule.

Frame:

- Powder coated or Anodised.
- Colour: For powdercoating, nominate colour from Dulux or AkzoNobel Interpon powder coatings catalogue. For anodised, available colours include Natural silver, Bronze and Black.
- Gloss level: e.g. Gloss, Satin or Matte. Note the lower the gloss level the greater the durability. The loss of gloss levels over time will vary between colours, climatic regions, powder types and exposed areas of the building.

For powdercoating, as a rule the performance features of colour are:

- Light pastel colours: The most durable.
- Darker colours: Absorb more heat and sunlight and tend to age more rapidly.
- Bright colours: Reds, yellows and oranges are produced using synthetic organic pigments. While manufacturers may use the highest grade pigments available, these types of colours tend not to retain their bright original colour.

ALSPEC louvre and solar control schedule

	A	B	C
Product			
Glazing			
Hardware			
Frame: Finish			
Frame: Colour			
Frame: Gloss level			
Louvre: Finish			
Louvre: Colour			
Louvre: Gloss level			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Product: Select from Air-Flo glass louvre framing system, Fixed Louvre, Solaire Fixed Louvre, Solaire Batten and Cityscape operable sliding shutter.

Glazing: Select the generic term from the **Glazing schedule**.

Hardware: Select proprietary or nominate hardware to be supplied by others.

Frame:

- Finish: Powder coated or Anodised.
- Colour: For powdercoating, nominate colour from Dulux or AkzoNobel Interpon powder coatings catalogue. For anodised, available colours include Natural silver, Bronze and Black.
- Gloss level: e.g. Gloss, Satin or Matte. Note the lower the gloss level the greater the durability. The loss of gloss levels over time will vary between colours, climatic regions, powder types and exposed areas of the building.

Louvre:

- Finish: Powder coated or Anodised.
- Colour: For powdercoating, nominate colour from Dulux or AkzoNobel Interpon powder coatings catalogue. For anodised, available colours include Natural silver, Bronze and Black.
- Gloss level: e.g. Gloss, Satin or Matte. Note the lower the gloss level the greater the durability. The loss of gloss levels over time will vary between colours, climatic regions, powder types and exposed areas of the building.

For powdercoating, as a rule the performance features of colour are:

- Light pastel colours: The most durable.

- Darker colours: Absorb more heat and sunlight and tend to age more rapidly.
- Bright colours: Reds, yellows and oranges are produced using synthetic organic pigments. While manufacturers may use the highest grade pigments available, these types of colours tend not to retain their bright original colour.

ALSPEC security systems schedule

	A	B	C
Product			
Hardware			
Frame: Finish			
Frame: Colour			
Frame: Gloss level			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Product: Select from Invisi-Gard and Invisi-Maxx.

Hardware: Select proprietary or nominate hardware to be supplied by others.

Frame:

- Finish: Powder coated or Anodised.
- Colour: For powdercoating, nominate colour from Dulux or AkzoNobel Interpon powder coatings catalogue. For anodised, available colours include Natural silver, Bronze and Black.
- Gloss level: e.g. Gloss, Satin or Matte. Note the lower the gloss level the greater the durability. The loss of gloss levels over time will vary between colours, climatic regions, powder types and exposed areas of the building.

For powdercoating, as a rule the performance features of colour are:

- Light pastel colours: The most durable.
- Darker colours: Absorb more heat and sunlight and tend to age more rapidly.
- Bright colours: Reds, yellows and oranges are produced using synthetic organic pigments. While manufacturers may use the highest grade pigments available, these types of colours tend not to retain their bright original colour.

4.3 SCREENS

Screen schedule

	A	B	C
Product			
Type			
Frame: Material			
Frame: Finish			
Frame: Colour			
Frame: Gloss level			
Mesh type			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Product: Delete if the selection is by generic performance.

Type: e.g. Flyscreen, Fall prevention screen, Bushfire screen. See BCA (2022) D3D29 and BCA (2022) H5D3 for openable windows requiring fall prevention devices, screens or barriers.

Frame:

- Material: e.g. Aluminium, Timber or PVC-U.
- Finish: e.g. Powder coat, Anodised, Paint, Clear finish, No applied finish. Coordinate paint finishes using paint type designation from *0671 Painting*.
- Colour: For powdercoating, nominate colour from Dulux or AkzoNobel Interpon powder coatings catalogue. For anodised, available colours include Natural silver, Bronze and Black.
- Gloss level: e.g. Gloss, Satin or Matte. Note the lower the gloss level the greater the durability. The loss of gloss levels over time will vary between colours, climatic regions, powder types and exposed areas of the building.

For powdercoating, as a rule the performance features of colour are:

- Light pastel colours: The most durable.
- Darker colours: Absorb more heat and sunlight and tend to age more rapidly.
- Bright colours: Reds, yellows and oranges are produced using synthetic organic pigments. While manufacturers may use the highest grade pigments available, these types of colours tend not to retain their bright original colour.

Mesh type: e.g. Coated aluminium, Fibreglass, Corrosion-resistant steel or Bronze. For bushfire-prone areas, refer to AS 3959 (2018) for details of construction requirements associated with the BAL of the site. AS 3959 (2018) calls for screens of aluminium, corrosion-resistant steel or bronze with a maximum aperture of 2 mm to buildings assessed as being in a BAL-12.5, BAL-19 or BAL-29 zone and corrosion-resistant steel or bronze in buildings assessed as being in a BAL-40 or BAL-FZ zone. Fibreglass mesh is excluded in all bushfire areas. Document bushfire shutters in *0457 External screens*. See NATSPEC TECHnote DES 018 on bushfire protection.

4.4 GLAZING

Glass schedule

	A	B	C
Glass type			
Glass thickness (mm)			
Body tint colour			
Interlayer colour			
Surface coating: Description			
Surface coating: Colour			
Reflective coating: Colour			
Reflective coating: % reflectance			
Surface pattern			
Surface processing: Method			
Surface processing: Pattern			
Surface processing: Colour			
Edge processing			
Number of edges processed			
Fire-resistance level (FRL)			
Bullet resistance classification			
Safety markings			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

This schedule can be used for projects where a large number of different glass types are used or if the glazing requires more detailed specification than it is appropriate to include in the **Window and glazed door seal schedule**. If this schedule is used, coordinate it with the ALSPEC schedules so that each glass type is associated with the relevant window or glazed door.

Glass type: Refer to NATSPEC TECHnote PRO 006 for guidance on glass types. Refer to **Special glasses schedule** for decorative glass types.

Glass thickness (mm): It is generally not necessary to document thickness. Nominate a thickness if:

- The glass is to be thicker than required by AS 1288 (2021) or applicable regulations.
- There are unusual conditions requiring detailed calculations for which the designer should be responsible.

In other cases, the determination of thickness is usually within the competence of the glazing contractor.

Body tint colour: e.g. Grey, Bronze, Green, Blue. Consult the manufacturer for colours available. Do not use body tinted wired glass (cast or polished) in locations exposed to the sun; fracture may result.

Interlayer colour: For laminated glasses only. Consult the manufacturer for colours available.

Surface coating:

- Description: Describe by coating function, e.g. Solar control, Low emission, Self-cleaning or Decorative, or by coating type, e.g. Pyrolytic hard coating, Vacuum sputtered or Ceramic. Coatings are best described by the manufacturer's brand name. Self-cleaning surface coatings are coatings applied to glazing that dissolve dirt (photoactive) and shed water (hydrophilic) using natural UV light and rain.

- Colour: e.g. Grey, Bronze, Green, Blue. Consult the manufacturer for colours available.

Reflective coating:

- Colour: e.g. Silver, Gold, Bronze. Consult the manufacturer for colours available. Reflective coatings may be available on either clear or body tinted float. Consult manufacturer.
- % reflectance: Consult the manufacturer for reflectances available. Delete if this requirement is more appropriately covered in the **Window and glazed door performance schedule**. The manufacturer's brand name is often the best way to identify tinted, reflective, and patterned glasses.

Surface pattern: For patterned glass only. Proprietary patterns are best described by the manufacturer's brand name. Patterns include diffuse reflection (picture glass).

Surface processing:

- Method: e.g. Screen printing with ceramic paint fused to the surface, Sandblasting, Acid etching.
- Pattern: Proprietary patterns are best described by the manufacturer's brand name.
- Colour: Applicable to screen printed patterns only.

Edge processing: Maximum width varies with thickness. Wired glass is restricted to rough arrised edges. Consult with processor. Refer also to NATSPEC TECHnote PRO 006 for more information on this topic. Common edge types and typical applications for each edge type are:

- None (clean cut, no processing).
- Flat ground: Silicone structural glazing with exposed edges.
- Flat polished: Silicone structural glazing where edge condition is critical for aesthetic purposes.
- Ground pencil edge: Mirrors, decorative furniture glass.
- Polished pencil edge: Mirrors, decorative furniture glass.
- Ground mitre: Silicone structural glazing.
- Bevelled: Mirrors, decorative furniture glass.
- Seamed edges: Normal edge treatment for heat-treated glass.

Number of edges processed: e.g. 1 long, 2 long, All.

Fire-resistance level (FRL): For fire-resistant glass only. e.g. (- /60/ -).

Bullet resistance classification: For bullet-resistant glass only. Consult the manufacturer for options.

Safety markings: Describe line or patterns to AS 1288 (2021) clause 5.19 on making glass visible. AS 1428.1 (2009) clause 6.6 requires a solid and non-transparent contrasting line to the full width of the glazing where a building is required to be accessible. The NCC cites AS 1428.1 (2001) and AS 1428.1 (2009). The current edition is AS 1428.1 (2021).

Special glasses schedule

	A	B	C
Mirrored			
Patterned			
Ceramic-coated glass: Base glass			
Ceramic-coated glass: Coating colour			
Ceramic-coated glass: Coating application method			
Acid etched			
Sandblasted			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Refer to NATSPEC TECHnote PRO 006 for guidance on special (decorative) glass types and their properties.

Plastics glazing schedule

	A	B	C
Polycarbonate sheet: Type			
Polycarbonate sheet: Abrasion resistance			
Polycarbonate sheet: Fire hazard properties			
Acrylic sheet			
Reinforced polyester sheet: Type			

	A	B	C
Reinforced polyester sheet: Surface treatment			
Reinforced polyester sheet: Mass/unit area			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Polycarbonate sheet:

- Type: e.g. Transparent, Translucent, Opaque.
- Abrasion resistance: Consult the manufacturer.
- Fire hazard properties: e.g. Spread-of-Flame Index, Heat and smoke release rates. Consult the manufacturer.

Acrylic sheet and Reinforced polyester sheet: For types and properties, consult the manufacturer.

Insulating glass units (IGUs) schedule

	A	B	C
Product			
Outer pane: Glass type			
Outer pane: Thickness (mm)			
Outer pane: Colour/coating type			
Inner pane: Glass type			
Inner pane: Thickness (mm)			
Inner pane: Colour/coating type			
Spacer width (mm)			
Gas filling: Type			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Consult manufacturers for available combinations. If the units are intended for noise reduction, it may be necessary to document a weighted sound reduction index (R_w or $R_w + C_{tr}$) rating for the assembly.

See **Glass schedule** for guidance on glass pane type and thickness.

Outer pane/Inner pane: Colour/coating type: e.g. Solar reflective or Low emissivity. Delete if no coating is required. State which surface of which pane is to be coated.

Spacer width (mm): Sizes available are 6 mm, 8 mm, 10 mm, and 12 mm.

Gas filling: Type: e.g. Air, Argon, Krypton, Sulfur hexafluoride (SF_6). The latter is a heavy gas used to enhance acoustic performance. It is also a very potent greenhouse gas.

4.5 ANCILLARY COMPONENTS AND FITTINGS

Trim schedule

	A	B	C
Product			
Trim			
Door architrave			
Window architrave			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Trim: e.g. Plain angle, Shadow angle. Use manufacturer's descriptions.

Window and glazed door seal schedule

	A	B	C
Product			
Function			
Carrier material and finish			

	A	B	C
Seal insert type and material			
Complementary seal			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Window and door seals: Nominate type here, or cross reference to *0455 Door hardware*.

Product: Full identification will allow deletion of the following generic descriptions.

Function: Select:

- Acoustic seals.
- Fire and smoke seals.
- Cold draught, dust and ember seals.
- Light seals.
- Insect and vermin seals.

Carrier material and finish: e.g. Brass, Anodised aluminium.

Seal insert type and material: e.g. Polypropylene pile.

Complementary seal: Describe that part of a sealing system that is fixed to the frame and threshold.

See BCA (2022) J5D5 and BCA (2022) H6D2(1)(b)(iii) for the sealing of windows and doors.

4.6 WINDOW HARDWARE

Pile weatherstrips schedule

	A	B	C
Product			
Material			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Product: Full identification will allow deletion of the following generic descriptions.

Material: e.g. Extruded, Pile.

Weather bars schedule

	A	B	C
Product			
Material			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Product: Full identification will allow deletion of the following generic descriptions.

Material: e.g. Timber, Metal.

Window hardware schedule

	A	B	C
Hinges			
Sash balances			
Stays			
Sash lift and pulls			
Sash operator			
Sash operator remote controller			
Locks, catches and bolts			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

The schedule can be used to document the quality and performance requirements of window hardware on the basis of window type, e.g. Aluminium awning, Aluminium sliding door or Timber casement, so that the supplier or a specialist window hardware consultant can prepare a complete window-by-window schedule listing each proprietary item for every window or glazed door.

Alternatively, it can be used to directly document selected proprietary items with inherent quality or performance characteristics matching your requirements for each window or glazed door. Nominate type here, or cross reference to *0455 Door hardware*.

Hinges: Document brand, series, product number. If documenting generically, describe the size, material, finish and type, e.g. 75 mm x 40 mm SSS loose pin butt.

Sash balances: For double-hung windows, document brand, series, product number. If documenting generically, describe the type, tube length and diameter, colour, sash weight and foot type (for attaching the balance to the sash), e.g. Spiral balance – brown 610 mm x 14 mm dia., 8 kg, with detachable foot.

Stays: For casement and awning windows. Document brand, series, product number. If documenting generically, describe the type (friction for manually operated, non-friction for mechanically operated), width (standard for timber windows, narrow for aluminium), track length, sash weight, material and finish (e.g. Galvanized steel, Stainless steel). Restrictor stays can be specified to limit the opening of windows for safety reasons.

Sash lift and pulls: Use sash lifts for double-hung windows and pulls for sliding, casement and awning windows. Document brand and product number. If documenting generically, describe the type (e.g. D-handle, Ring pull) size, material and finish.

Sash operators: For awning windows and skylights. Sash operators generally fall into two categories:

- Chain winder: A proprietary device capable of opening and closing a projecting sash by means of a chain retracting into a winder box fixed to the sill, self-locking in all positions, manually operable by a sill mounted winding handle without moving the internal insect screen. Document brand, series, product number. If documenting generically, describe the type (Keyed, Non-keyed) extension length (often referred to as the opening size), sash weight, material, finish and colour.
- Remote control operator: A proprietary device for opening or closing louvres or a projecting sash, in banks if required, by means of a mechanical linkage manually or power operated from a convenient level, self-locking in all positions.

Sash operator remote controllers: Document brand, series, product number. If documenting generically, describe the means of operation (e.g. Electric, Pneumatic) and type (e.g. Wall mounted switch, Remote control handpiece). Only applicable to remote control sash operators. Delete if this type of sash operator has not been selected.

Locks, latches and bolts: Document brand, series, product number. If documenting generically, describe the lock or latch type or function (Non-lockable, Lockable, Push lock, Deadlock), material and finish. Deadlocks are suggested for external windows within 3 m of the ground, for security.

If applicable, document the handle type, e.g. Lever handle (generally recommended instead of knobs, for children, the elderly and the disabled - clearance between the lever handle and the sash face should be between 35 and 45 mm).

AS 1428.2 (1992) clause 23.4 requires window handles in trafficable areas to conform with the requirements for door handles in clause 23.3.

4.7 KEYING

Key codes schedule

Window no.	KD	KA group code	Location		
			Building code and name	Floor level	Space code and name

If a detailed window hardware schedule is not available for pricing purposes at the time of tendering, the tenderers should at least be given a **Key codes schedule** showing which KA groups will apply to the project, and the number of locks (preferably identified by their individual window numbers) in each group. However, it is preferable to provide the full **Key codes schedule** to tenderers unless this is precluded by security considerations.

Window no.: Give each window a unique number, either corresponding to the space in which the window is located: e.g. G 01/A and G 01/B would both be windows accessing room G 01; or number windows sequentially (and independently from the spaces) on each floor. Floor 1 windows: W101, W102, etc. For scheduling purposes it is advisable to provide the space number and name with the window number, this facilitates the recognition of room usage and hardware type, and is informative when the hardware schedule is provided (often) for tendering without accompanying plans.

If proprietary hardware is required to be keyed to the overall master key system, document those requirements in the worksection detailing the proprietary system (partition, window, etc.).

REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS ISO 717 Acoustics - Rating of sound insulation in buildings and of building elements

AS/NZS ISO 717.1	2004	Airborne sound insulation
AS/NZS 1170		Structural design actions
AS/NZS 1170.2	2021	Wind actions
AS 1231	2000	Aluminium and aluminium alloys - Anodic oxidation coatings
AS 1288	2021	Glass in buildings - Selection and installation
AS 1530		Methods for fire tests on building materials, components and structures
AS 1530.4	2014	Fire-resistance tests for elements of construction
AS 2047	2014	Windows and external glazed doors in buildings
AS/NZS 2208	1996	Safety glazing materials in buildings
AS/NZS 2904	1995	Damp-proof courses and flashings
AS 3715	2002	Metal finishing - Thermoset powder coating for architectural applications of aluminium and aluminium alloys
AS 4145		Locksets and hardware for doors and windows
AS 4145.1	2008	Glossary of terms and rating system
AS 4145.2	2008	Mechanical locksets for doors and windows in buildings
AS 4666	2012	Insulating glass units
AS/NZS 4667	2000	Quality requirements for cut-to-size and processed glass
AS/NZS 4668	2000	Glossary of terms used in the glass and glazing industry
AS 5039	2008	Security screen doors and security window grilles
AS 5040	2003	Installation of security screen doors and window grilles
AS 5203	2016	Protection of openable windows/ fall prevention – Test sequence and compliance method
BCA D3D29	2022	Access and egress - Construction of exits - Protection of openable windows
BCA H5D3	2022	Class 1 and 10 buildings - Safe movement and access - Barriers and handrails
AGWA IG 2021	2021	An industry guide to the correct fixing of windows and doors
AAMA 701/702	2023	Performance specification for pile weatherstrips (AAMA 701) and polymer weatherseals (AAMA 702)
AAMA 800	2016	Voluntary specifications and test methods for sealants
ASTM C920	2018	Standard specification for elastomeric joint sealants
ASTM C1048	2018	Standard specification for heat-strengthened and fully tempered flat glass
ASTM C1311	2022	Standard specification for solvent release sealants
NFRC 100	2023	Procedure for determining fenestration product U-factors
NFRC 200	2023	Procedure for determining fenestration product solar heat gain coefficient and visible transmittance at normal incidence
EN 14179		Glass in buildings - Heat soaking thermally toughened soda lime silicate safety glass
EN 14179-1	2016	Definition and description
ISO 11600	2002	Building construction - Jointing products - Classification and requirements for sealants
The following documents are mentioned only in the Guidance text:		
AS 1428		Design for access and mobility
AS 1428.1	2001	General requirements for access - New building work
AS 1428.1	2009	General requirements for access - New building work
AS 1428.1	2021	General requirements for access - New building work
AS 1428.2	1992	Enhanced and additional requirements - Buildings and facilities
AS 1530		Methods for fire tests on building materials, components and structures
AS 1530.2	1993	Test for flammability of materials
AS/NZS 2343	1997	Bullet-resistant panels and elements
AS 2665	2001	Smoke/heat venting systems - Design, installation and commissioning
AS 3959	2018	Construction of buildings in bushfire-prone areas
AS 4055	2021	Wind loads for housing
AS 5041	2003	Methods of test - Security screen doors and window grilles
BCA D3D16	2022	Access and egress - Construction of exits - Thresholds
BCA H6D2	2022	Class 1 and 10 buildings - Energy efficiency - Application of Part H6
BCA J5D5	2022	Energy efficiency - Building sealing - Windows and doors
BCA Spec 37	2022	Energy efficiency - Calculation of U-Value and solar admittance
AGWA Guide Window	2020	A guide to window and door selection
AUS Gov Act No. 135	1992	Disability Discrimination Act 1992
GBCA Buildings	2021	Green Star Buildings
NATSPEC DES 010		Atmospheric corrosivity categories for ferrous products
NATSPEC DES 015		NCC - BCA Volume One Energy efficiency provisions
NATSPEC DES 018		Bushfire protection
NATSPEC DES 020		Fire behaviour of building materials and assemblies
NATSPEC DES 032		Airborne sound insulation
NATSPEC GEN 006		Product specifying and substitution
NATSPEC GEN 024		Using NATSPEC selections schedules
NATSPEC PRO 006		Glass types used in buildings
NATSPEC TR 01		Specifying ESD
WoodSolutions 10	2015	Timber windows and doors
BS 2571	1990	Specification for general-purpose flexible PVC compounds for moulding and extrusion
BS 4255		Rubber used in preformed gaskets for weather exclusion from buildings
BS 4255-1	1986	Specification for non-cellular gaskets