

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

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Worksection abstract

This branded worksection *Template* is applicable to commercial aluminium framed windows and glazed doors manufactured by AWS ARCHITECTURAL WINDOW SYSTEMS PTY LTD and residential aluminium framed windows and glazed doors manufactured by VANTAGE ALUMINIUM JOINERY; consisting of proprietary suites supplied as complete systems. It includes glazing, hardware and associated integral blinds, louvres, and grilles as well as installation accessories, such as fixings, flashings, sealants and seals, caulking and weather-stripping, necessary for the satisfactory functioning of the whole system.

Guidance text

All text within these boxes is provided as guidance for developing this worksection and should not form part of the final specification. This *Guidance* text may be hidden or deleted from the document using the NATSPEC Toolbar or the hidden text *Hide* and *Delete* functions of your word processing system. For additional information visit FAQs at www.natspec.com.au.

Optional style text

Text in this font (blue with a grey background) covers items specified less frequently. It is provided for incorporation into *Normal* style text where it is applicable to a project.

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:

- *0432 Curtain walls.*
- *0455 Door hardware*, if hardware is to be supplied by others.
- *0457 External screens* for louvres non-glazed.
- *0462 Structural silicone glazing* for adhesive fixed glazing.
- *0463 Glass blockwork.*
- *0524 Partitions – glazed* for glazed internal partitions.

Material not provided by AWS

This branded worksection includes generic material which may not be provided by the Product Partner including:

- Integral blinds.
- Ventilating louvres assemblies.

Documenting this and related work

You may document this and related work as follows:

- Schedule windows and window hardware on drawings to your office documentation policy.
- Schedule doors and door hardware to your office documentation policy.
- Bushfire protection: Depending on the level of construction to AS 3959 the windows and doors should satisfy the construction requirements of AS 3959 and the BCA. See NATSPEC TECHnote DES 018 for information on bushfire protection.
- For specifying glass, see NATSPEC TECHnote PRO 006.
- For smoke and heat venting, see AS 2665 which is cited in the BCA.
- For information on WERS Star Rating, see the Australian Window Association website – www.wers.net.
- For information on the AWA Accreditation Program, see Australian Window Association website – www.awa.org.au.
- For information on timber windows and doors, refer to WoodSolutions 10.

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

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

- Guarantees and warranties.

Search www.environmentdesignguide.com.au, the Australian Institute of Architect's environmental advisory subscription service for the following:

- For strategies to achieve BCA Section J compliance, refer to AIA EDG 66 MS.
- For information on natural lighting, refer to AIA EDG DES 6 and AIA EDG DES 63.
- For information on the energy impact of windows, refer to AIA EDG DES 2.

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 window is shut.

The following may be specified 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 windows 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:

- Re-use of salvaged windows.
- Recycled material content, e.g. aluminium frames.

Refer to the NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

AWS Architectural Window Systems Pty Ltd.

Architectural Window Systems (AWS) is one of Australia's leading suppliers of aluminium window and door systems. AWS offers an extensive range of locally designed aluminium window and door suites for residential and commercial applications. AWS designs, tests, finishes and supplies aluminium window and door systems under the Vantage and Elevate™ brands to more than 130 licenced manufacturers throughout Australia.

Vantage Aluminium Joinery is the residential aluminium systems brand which has become the preferred choice of residential Architects and Building Designers. The innovative performance and design features of the Vantage range deliver outstanding outcomes in residential construction.

AWS's commercial offering is Elevate™ Aluminium Systems that embodies style and performance. This series has quickly become a favourite in both commercial and Architectural residential applications due to its dedicated frames for large sashes and performance features.

All AWS products are fully tested and WERS rated, which is the official rating scheme of the Australian Window Association.

1.1 RESPONSIBILITIES

General

Requirement: Provide AWS aluminium windows and doors, 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 are such that the cleaning requirement can be satisfied and conform to appropriate WHS requirements.

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

1.2 COMPANY CONTACTS

AWS Architectural Window Systems technical contacts

Website: www.awsaustralia.com.au/blog/contact-us/.

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

For smoke and heat venting, see AS 2665 which is cited in the BCA. For information on natural lighting, refer to AIA EDG DES 6 and AIA EDG DES 63. For information on the energy impact of windows, refer to AIA EDG DES 2.

General

Selection and installation: To AS 2047.

Building classification: [complete/delete]

To use AS 2047 the building class needs to be nominated as follows:

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

Glazing

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

For glass type and thickness, refer to AS 1288 Table 4.1 and to AS/NZS 4667.

Glass thickness may be governed by human safety and other requirements – see AS 1288 Section 5. The commonly available thicknesses of various glasses are shown in the wind pressure figures of AS 1288 Section 4.

Show or specify a thickness where:

- The glass is to be thicker than required by AS 1288 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.

Design wind pressure: To AS/NZS 1170.2 or AS 4055 as appropriate.

Materials and installation: To AS 1288.

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

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 surface, 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.

Terminology for work on glass: To AS/NZS 4668.

1.5 MANUFACTURER'S DOCUMENTS

Commercial: **Elevate Aluminium Systems** – www.elevatealuminium.com.au.

Residential: **Vantage Design** – www.vantagealuminium.com.au.

Specifiers' Guides and CAD drawings: Available at www.specifyaws.com.au.

1.6 INTERPRETATION

Abbreviations

General: For the purposes of this worksection the abbreviations given in AS 4145.1 Appendix D and the following abbreviations apply:

- AWA: Australian Window Association.

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

Definitions

General: For the purposes of this worksection the definitions given in AS 4145.1 Section 2 and the following definitions apply:

- Aluminium joinery: The collective term used for aluminium framed and glazed windows and doors.
- Total system SHGC: Solar heat gain coefficient as defined by BCA and tested in conformance with NFRC 200.
- Total system U-value: Thermal transmittance as defined by BCA and tested in conformance with NFRC 100.

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

1.7 SUBMISSIONS

Certification

Conformance: Submit evidence that window and door assemblies conform to AS 2047.

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

Ceramic-coated spandrel glass: Submit a report, from the manufacturer, certifying that the glass meets the Fallout Resistance Test requirements of ASTM C1048.

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.

Protection of openable windows: Submit a certificate of on-site fall prevention testing to AS 5203.

On-site testing may not be required if type tests of window assemblies are available.

Operation and maintenance manuals

AWS operation and maintenance manual: Submit on completion.

Products and materials

0171 *General requirements* covers tests in **Definitions** and calls for an inspection and testing plan under **SUBMISSIONS, Tests**.

Type tests: Submit results, as follows:

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**, if there are no **SELECTIONS**.

- Fire-resistance level.
- Weighted sound reduction index (R_w): To AS/NZS ISO 717.1.

The BCA cites ISO 717-1:1996 and AS/NZS 1276.1 for testing of construction required to have a certain R_w rating.

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: To AS 5203.

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: Required samples may form part of prototypes.

Samples

Window and door framing: Submit the following:

- Accessory and hardware items documented descriptively or by performance (i.e. not documented as proprietary items) including locks, latches, handles, catches, sash operators, anchor brackets and attachments, masonry anchors and weather seals (pile or extruded).
- Colour samples of prefinished production material (e.g. anodised or organic coated extrusions and sheet), showing the limits of the range of variation in the selected colour.
- Joints made by proposed techniques.
- Sections proposed to be used for frames, sashes, louvres and slats.
- Label each sample, giving the series code reference and date of manufacture.

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

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

Hardware: Submit samples of generic hardware, not documented as proprietary items, as follows:

- Particular samples required: [complete/delete]

Edit as required.

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.
- Lubrication requirements.
- Methods of assembly.
- Methods of installation, including fixing, caulking and flashing.

See BCA 3.12.3 and BCA J3.4 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.

Certification: Submit an engineers' certificate confirming conformance with AS 2047.

Subcontractors

General: Submit names and contact details of proposed subcontractors endorsed by AWS Architectural Window Systems Pty Ltd.

Evidence of experience: [complete/delete]

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

Warranties

Requirement: Submit AWS warranty.

Describe the requirements of warranties in **PRODUCTS** or **EXECUTION**, as appropriate, and list the submissions required here.

1.8 INSPECTION

Notice

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

- Openings prepared to receive windows (where windows are to be installed in prepared openings).
- 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 **PRODUCTS, GENERAL, Substitutions** in *0171 General requirements*.

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

Fire-resistance of building elements

Fire-resistance level: To AS 1530.4.

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 assembly.

Protection of openable windows

Fall prevention: To AS 5203.

Testing: To AS 5203.

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

Marking

Identification: 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.

Window assemblies for housing: To AS 2047 Section 8.

2.2 GLASS

Glass and glazing materials

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

Glazing plastics: 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.

Bullet-resistant glazing panels

Standard: To AS/NZS 2343.

Classification: [complete/delete]

These are defined in AS/NZS 2343 as follows:

- 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 – refer to Appendix B Table B1.
- Class S1 – refer to Appendix B Table B1.
- Special class – refer to Appendix B Table B1.

Panel materials: [complete/delete]

AS/NZS 2343 allows any combination of glass or plastic. If particular materials are required, say so here.

Panel opacity: [complete/delete]

Select from transparent or opaque. Delete if not required.

Safety glasses

Standard: To AS/NZS 2208.

Certification: Required.

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

Type: Grade A to AS 1288.

Heat soaking

Requirement: All toughened glass products.

Standard: To EN 14179-1.

Heat soak testing is a destructive test, which reduces the likelihood of spontaneous breakage by converting impurities such as nickel sulfide inclusions.

Ceramic-coated glass

Description: Heat strengthened or toughened glass with a coloured ceramic coating fused to and made an integral part of the surface: To ASTM C1048, Condition B.

Opacified glass

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

Unacceptable blemishes in heat-treated flat glass (including tinted and coated glass)

Standard: To AS/NZS 4667.

Insulating glass units (IGU's)

Selection and installation: To AS/NZS 4666.

2.3 GLAZING MATERIALS

General

Glazing materials: Provide including putty, glazing compounds, sealants, gaskets, glazing tapes, spacing strips, spacing tapes, spacers, setting blocks and compression wedges appropriate for the conditions of application and the required performance.

If an AWA Compliance Certificate is not nominated in **SELECTIONS**, change the following *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.

Compounds, sealants and tapes

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

AAMA 800 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 specification 802.3 (Types I or II), or 805.2, as applicable.

AAMA 800 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 which cure relatively hard and stiff and to permit limited movement without loss of bond.

Narrow joint seam sealer: To AAMA 800 specification 803.3.

- AAMA 800 narrow joint seam sealer definitions:
- 803.3 (Type I): Non-sag narrow joint sealers which are elastic or ductile compounds with maximum slump of 2.5 mm.
 - 803.3 (Type II): Self levelling narrow joint sealers which are elastic or ductile compounds with maximum slump of 2.5 mm.

Exterior perimeter sealing compound: To AAMA 800 specification 808.3.

- AAMA 800 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 specification 809.2.

- AAMA 800 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 specifications 810.1.

- AAMA 800 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: Provide jointing and pointing materials to manufacturer's recommendations which are compatible with each other and with the contact surfaces and non-staining to finished surfaces. Do not provide bituminous materials on absorbent surfaces.

Elastomeric sealants

Sealing compound (polyurethane, polysulfide, acrylic): To ASTM C920 or ISO 11600.

Sealing compound (silicone): To ASTM C920 or ISO 11600.

Sealing compound (butyl): To ASTM C1311.

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 (VHB) 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.

Priming

Application: 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 which do not absorb water.

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

2.4 GLASS IDENTIFICATION

Safety glazing materials

Identification: To AS 1288.

Identification: See AS 1288 clause 5.23 on Identification of safety glazing materials. 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.

Noise reducing glazed assemblies

Labelling: Label each panel with a legible non-permanent mark, stating and certifying the R_w rating, and identifying the testing authority. Remove when directed.

Bullet-resistant panels

Marking: To AS/NZS 2343.

2.5 INSECT SCREENS

Fixed screens

General: Provide fixed screens to the window frames with a clipping device which permits removal for cleaning.

Hinged screens

General: Hinge at the top to give access to opening sash.

Roll up screens

General: Provide a proprietary retractable insect screen comprising aluminium frame with baked enamel finish, fibreglass mesh beaded into the frame, and a retraction system including tension spring, nylon bearings, positive self-locking device, and plastic sealing strip at sill.

Sliding screens

General: Provide a matching aluminium head guide, sill runner, and frame stile sections for screens not part of the window frame.

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

Aluminium framed screens

General: Provide proprietary aluminium screen sections with mesh fixing channel, mitred, staked and screwed at corners. Provide an extended frame section where necessary to adapt to window opening gear.

Mesh: Bead the mesh into the frame channel with a continuous resilient gasket, so that the mesh is taut and without distortion.

Edit screen types as appropriate.

2.6 ALUMINIUM FRAME FINISHES

Delete finish not required.

Powder coatings

Standard: To AS 3715.

Product: [complete/delete]

Select Dulux Duralloy or AkzoNobel Interpon D 610. Both are offered as standard for the Vantage Aluminium Joinery 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.

Both these high performance powders can require an extended lead time. Edit as appropriate.

Powder coat thickness: ≥ 50 microns to 90 microns.

Colour: [complete/delete]

Nominate colour from Dulux or AkzoNobel Interpon powder coatings catalogue.

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.

Gloss level: [complete/delete]

Select either 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.

Anodised

Standard: To AS 1231.

Thickness: 20 microns.

25 micron thick anodising is available upon request.

Colour: [complete/delete]

Available colours are Natural silver, Bronze and Black.

2.7 ANCILLARY MATERIALS

Trims

Timber: Solid timber at least 19 mm thick, mitred at corners.

Extruded gaskets and seals

General: Provide seals as documented in the **Window and door seal schedule**.

Location or function: [complete/delete]

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

- Flexible polyvinyl chloride (PVC-U): To BS 2571, 100% solids with high consistency, ultraviolet stabilised.
- Rubber products (neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber): To BS 4255-1.

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.

Nylon brush seals

General: Dense nylon bristles locked into galvanized steel strips and fixed in a groove in the edge of the door or in purpose-made anodised aluminium holders fixed to the door with double sided PVC-U foam tape.

Pile weather strips

Standard: To AAMA 701/702.

AAMA 701/702 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 3.12.3 and BCA J3.4 for the sealing of windows and doors.

Location: [complete/delete]

Materials: Polypropylene or equivalent pile and backing, low friction silicone treated, ultraviolet stabilised.

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

Weather bars

General: Provide a weather bar under hinged external doors, locate under the centres of closed doors.

Type: [complete/delete]

Specify or refer to a detail. Weather bars are used either as a barrier between sill and building fabric (or subsill), 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 (e.g. Timber & Building Manufacturers Association, NSW) or proprietary profiles do not allow for the inclusion of a weather bar; specify 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. When used as a single item without a sill and acting as a floor finish divider, specify under the appropriate worksection (e.g. 0526 Terrazzo precast, 0612 Cementitious toppings, 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, specify corrosion resistant materials. The BCA covers thresholds at BCA D2.15.

Threshold drain

General: If the frame includes a threshold member, provide a self-draining section with anti-slip surface.

2.8 HARDWARE**Hardware documented generically**

General: Provide hardware of sufficient strength and quality to perform its function, appropriate to the intended conditions of use, compatible with associated hardware, and fabricated with fixed parts firmly joined.

General provisions of this kind would apply mainly as default requirements for items specified only by generic terms without particular prescriptive or performance requirements. Provision is made in **SELECTIONS** to specify proprietary items with inherent quality or performance characteristics matching your requirements.

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

Locks and latches

Standard: To AS 4145.3.

Performance:

- Durability: [complete/delete]
- Keying security: [complete/delete]
- Physical security: [complete/delete]

Provide designations for durability (DW1 or DW2), physical security (SW1 or SW2) and keying security (K1 or K2), from AS 4145.3 clause 1.5. For example DW2SW1K1 for residential use.

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

Provide designations for durability (DW1 or DW2), physical security (SW1 or SW2) and keying security (K1 or K2), from AS 4145.3 clause 1.5. For example DW2SW1K1 for residential use.

Sash balances

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

Sash operators

Requirement: Provide sash operators as documented.

2.9 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: As documented 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:	

Code	Key type	Minimum number of keys
	- 2 locks in code group	4
	- 3-10 locks in code group	6
	- 11-40 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 locksets in windows, AS 4145.3, provides for only two levels of keying security, K1 and K2. The standard for locksets in doors, AS 4145.2 has nine levels, K1 to K9. Window locks conforming to security levels K1 and K2 can accommodate Keyed alike groupings but not master keying systems.

If master keying is required for window hardware, specify locks to comply with the standard for door locksets. These are generally bulkier than K1 and K2 locksets. In such cases, seek advice from the locking suppliers, as the size of frame and sash members may need to be increased to accommodate the bulkier hardware.

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

3 EXECUTION

3.1 GLASS PROCESSING

General

Processing: Perform required processes on glass, 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 arried.

3.2 INSTALLATION

Glazing

General: 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 glass and glazing materials.
- No transfer of building movements to the glass.
- Watertight and airtight for external glass.

Temporary marking: Use a method which does not harm the glass. Remove marking on completion.

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

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

Where the glazing system or method is not addressed by the installation provisions of (e.g. patent glazing, structural adhesive glazing, installation of IGUs), comply with the recommendations of the system and materials manufacturer.

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

Windows and glazed doors

General: Install windows and glazed doors frames 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.

Weatherproofing

Flashing and weatherings: Install flashings, weather bars, drips, storm moulds, caulking and pointing so that water is prevented from penetrating the building between the window frame and the building structure under the prevailing service conditions, including normal structural movement of the building.

A weather bar can be employed as a barrier between sill and building fabric (or subsill). Weather bars have been traditionally associated with purpose made joinery. Standard sill profiles or proprietary profiles may not be designed for use in conjunction with a traditional weather bar and other sections will need to be documented (e.g. angle fixed to frame). A sill flashing is usually required in addition to the weather bar. Unless the weather bar is intended to form part of the window installation, document weather bars under the appropriate worksection, e.g. *0331 Brick and block construction*.

Fixing

Fasteners and fastener spacing: Conform to AWS Architectural Window Systems manuals available at their relevant website:

- Commercial: **Elevate Aluminium Systems**.
- Residential: **Vantage Design**.

Fasteners: Conceal fasteners.

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

Joints

General: Make accurately fitted tight joints so that neither fasteners and fixing devices such as pins, screws, adhesives and pressure indentations are 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.

Repair of finish

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

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 the *0511 Lining* and *0453 Doors and access panels* worksections; do not schedule the same items twice.

3.3 HARDWARE

Fasteners

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

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

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

- 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 the *0171 General requirements* and *0181 Adhesives, sealants and fasteners* worksections.

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.

3.4 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 which 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.

Trade clean

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

Extent: All frames and glass surfaces inside and out.

Warranty

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 AWA Code of Conduct.

Powder coating:

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

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

Hardware supplied by Vantage: [complete/delete]

Consult Vantage Aluminium Joinery. The terms and period are influenced by exposure to corrosive elements.

Hardware supplied separately: [complete/delete]

Consult the supplier.

4 SELECTIONS

Schedules are a way of documenting a selection of proprietary or generic products or systems by their properties. Indicate their locations here and/or on the drawings. Refer to NATSPEC TECHnote GEN 024 for guidance on using and editing schedules.

4.1 COMMERCIAL WINDOWS AND DOORS – ELEVATE ALUMINIUM SYSTEMS

Duplicate and customise these **Schedules**, adding and deleting rows and columns, as required.

Guide for AWS Selection Schedules

Type: e.g. A, B, designation code for location to your office documentation policy.

Description: Delete as appropriate.

Series: Select alternatives as appropriate by reference to the *Elevate Aluminium Systems Specifiers' Guide*.

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

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

For openable windows requiring fall protection for conformance with BCA D2.24 and BCA 3.9.2.5, specify a device such as a child resistant latch to restrict the window opening in this schedule or the **Window hardware schedule**, or a screen in the **Screen schedule**.

The AWS Commercial range of windows have been designed to take the sashes from residential products and fit them professionally into CentreGLAZE™ shopfront framing with a number or custom designed extrusions. Suitable for all applications including residential.

Commercial window and sliding door schedule

Type	Description	Series	Glazing	Hardware
	Commercial Door	50		
	Commercial Door	51		
	Commercial Door	52		
	Commercial Sliding Window	452		
	Commercial Double-Hung Window	453		
	Commercial Awning Window	456		
	Apartment Sliding Window	461		
	Apartment Sliding Door	471		

Commercial/Architectural window and sliding door schedule

Type	Description	Series	Glazing	Hardware
	LouvreMASTER™	417		
	FoldMASTER™ Bi-fold Door (bottom hung)	410		
	ViewMASTER™ Bi-fold Door (top hung)	411		
	FoldMASTER™ Bi-fold Door (bottom hung)	412		
	Architectural Sliding Window	462		
	Architectural Double-Hung Window	463		
	ClearVENT™ Sashless Double-Hung	464		
	Architectural Awning Casement Window	466		
	Architectural Awning Casement Window	467		
	Architectural Hinged Door (150 mm)	650		
	High Performance SlideMASTER™	702		

Type	Description	Series	Glazing	Hardware
	Sliding Door			
	High Performance SlideMASTER™ Sliding Door	704		

Commercial/Shopfront framing schedule

Type	Description	Series	Glazing	Hardware
	CentreGLAZE™ Single Glazed (102 mm) Framing	400		
	CentreGLAZE™ Wide (150 mm) Framing	600		
	CentreGLAZE™ Double Glazed (102 mm) Framing	424		
	CentreGLAZE™ Double Glazed (150 mm) Framing	624		
	FrontGLAZE™ Single Glazed (102 mm x 50 mm) Framing	406		
	FrontGLAZE™ Single Glazed (150 mm x 50 mm) Framing	606		
	FrontGLAZE™ Double Glazed (102 mm x 60 mm) Framing	426		
	FrontGLAZE™ Double Gazed (150 mm x 60 mm) Framing	626		
	Narrow Offset Framing (80 mm)	80		
	Wide Offset Framing (150 mm)	600		
	SoundOUT™ Double Glazed Framing	646		
	FrontGLAZE™ Double Glaze (225mm) framing	936		

Thermally broken commercial window and door schedule

Type	Description	Series	Glazing	Hardware
	Thermally broken CentreGLAZE™(100 mm)	804		
	Thermally broken CentreGLAZE™(150)	806		

Type	Description	Series	Glazing	Hardware
	mm)			
	Thermally broken FrontGLAZE™(100 mm)	824		
	Thermally broken FrontGLAZE™(150 mm)	826		
	Thermally broken commercial door	852		

4.2 RESIDENTIAL WINDOWS AND DOORS – VANTAGE PRODUCTS

Guide for AWS Selection Schedules

Type: e.g. A, B, designation code for location to your office documentation policy.

Description: Delete as appropriate.

Series: Select alternatives as appropriate by reference to the *Vantage Design Specifiers' Guide*.

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

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

For protection of openable windows conforming to BCA D2.24 and BCA 3.9.2.5, specify a device to restrict the window opening in this schedule or the **Window hardware schedule**, or a screen in the **Screen schedule** and a barrier, as required.

The AWS Commercial range of windows have been designed to take the sashes from residential products and fit them professionally into CentreGLAZE™ shopfront framing with a number or custom designed extrusions. Suitable for all applications including residential.

Residential sliding windows schedule

Type	Description	Series	Glazing	Hardware
	Residential Sliding Window – Double Sash Design	502-504		
	Residential Double Hung Window	514		
	Residential Awning Window (50 mm frame)	516		
	Residential Awning Window (102 mm frame)	517		
	Residential Sliding Door	541		
	DStacker™ Sliding Door	542		
	Entry Door	549		

Residential/Designer window and door schedule

Type	Description	Series	Glazing	Hardware
	LouvreMASTER™ Adjustable Window	525		
	Bi-fold Window	546		
	High Performance Bi-fold Door	548		
	High Performance Hinged Door			

Type	Description	Series	Glazing	Hardware
	MAGNUM™ Sliding Window – Beaded Fixed Light	601		
	MAGNUM™ Sliding Window – Double Sash Design	602		
	MAGNUM™ Double Hung Window	613		
	ClearVENT™ Sashless Double Hung Window	614		
	MAGNUM™ Awning & Casement Window	616		
	MAGNUM™ Sliding Door	618		

Residential Thermally Broken window and door schedule

Type	Description	Series	Glazing	Hardware
	ThermalHEART™ Awning Window	726		
	ThermalHEART™ Hinged Door	729		
	ThermalHEART™ Bi-fold Door	730		
	ThermalHEART™ Sliding Door	731		

Residential SoundOUT window and door schedule

Type	Description	Series	Glazing	Hardware
	SoundOUT™ Secondary Sliding Window	531		
	SoundOUT™ Secondary Casement Window	532		
	SoundOUT™ Secondary Sliding Door	533		

4.3 TRICKLE VENTILATION SYSTEM - AWS VENTIENT

Ventilation schedule

Property	A	B	C	D
Window type				
Ventilator type				

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags. Edit codes in the **Schedule** to match those on drawings.

Window type: Nominate the windows to be fitted within trickle ventilators. Use the same designation as the window and door schedule.

Ventilator type: Select from the following:

- Standard sub-head 100 mm.

- Sub-head with vent box 100 mm.
- Standard sub-head 150 mm.
- Sub-head with vent box 150 mm.
- Head extension 50 mm.
- Head extension 100 mm.

4.4 PERFORMANCE

Window and glazed door performance schedule

Property	A	B	C
Total system U-Value (W/m ² .K)			
Total system SHGC			
Weighted sound reduction index (R _w)			
Visible transmittance (T _{vis})			
Reflectance (%)			
WERS Energy rating%: Heating			
WERS Energy rating%: Cooling			
AWA Compliance Certificate			
Water penetration resistance (Pa)			
Fire-resistance level (FRL)			
Bushfire protection (BAL)			
Ultimate limit state (ULS) wind pressure (Pa)			
Serviceability limit state (SLS) wind pressure (Pa)			

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

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

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

Weighted sound reduction index: State the required rating to AS/NZS ISO 717.1. It is advisable to obtain the advice of an acoustic consultant on the selection of an R_w rating for sound transmission reduction. Refer to NATSPEC TECHnote DES 032 for information on airborne sound insulation.

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 BCA Glazing calculator www.abcb.gov.au. Delete if this requirement is more appropriately covered in the **Glass schedule**.

WERS Energy rating: Star rating system operated by the Australian Window Association.

AWA (Australian Window Association) Certificate of Compliance: Insert Required or Not required. The AWA Compliance Certificate will cover only those products that conform to AS 2047. Products excluded from AS 2047 can be covered by the AWA Compliance Certificate if evidence of testing and conformance with AS 2047 is made available.

Water penetration resistance: e.g. 150 Pa.

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

Bush fire protection: Fit screens and seals to AS 3959.

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

4.5 SCREENS

Screen schedule

Property	A	B	C
Product name			
Generic description			
Frame material			
Frame finish			
Mesh type			

Security screens schedule

Property	A	B	C	D
Product name				
Generic description	Fixed	Hinged	Roll-up	Sliding
Frame material				
Frame finish				
Mesh type				

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

Product name: Delete if the selection is by generic performance.

Generic description: e.g. flyscreen, fire prevention screen, fall prevention screen. See the **Security window grille schedule** for security grilles. See BCA D2.24 and BCA 3.9.2.5 for openable windows requiring fall prevention screens.

Frame material: e.g. Aluminium, timber or PVC-U.

Frame finish: e.g. Powder coat, anodised, paint, clear finish, no applied finish. Coordinate paint finishes using paint type designation from the *0671 Painting* worksection.

Mesh type: e.g. Coated aluminium, fibreglass, corrosion resistant steel or bronze. BCA 3.7.4 and AS 3959 calls for screens of aluminium, corrosion resistant steel or bronze with a maximum aperture size of 1.8 mm to areas of medium bush fire attack category and excludes aluminium mesh in areas of high category. Fibreglass mesh is excluded in all bush fire areas.

4.6 GLAZING

Glass schedule

Property	A	B	C
Glass type			
Glass thickness (mm)			
Body tint colour			
Interlayer colour			
Surface coating			
Surface coating: Colour			
Reflective coating: Colour			
Reflective coating: %			

Property	A	B	C
reflectance			
Surface pattern			
Surface processing			
Surface processing: Pattern			
Surface processing: Colour			
Edge processing			
Number of edges processed			
Fire-resistance level (- / - / -)			
Bullet resistance classification			
Safety markings			

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags. Edit codes in the **Schedule** to match those on drawings.

This schedule can be used for projects where a large number of different glass types are used, or the glazing requires more detailed specification than it is appropriate to include in the **Window and glazed door schedule**. If this schedule is used, coordinate it with the **Window and glazed door schedule** 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: It is generally not necessary to specify thickness. Nominate a thickness where:

- The glass is to be thicker than required by AS 1288 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 wire (cast or polished) in locations exposed to the sun; fracture may result.

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

Surface coating: Describe by coating function, e.g. solar control, low emission, self-cleaning, 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: Glass incorporating a coating which dissolves dirt (photo activ) and sheds water (hydrophilic) using natural UV light and rain.

Surface coating: 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 colour available. Reflective coatings may be available on either clear or body tinted float. Consult manufacturer.

Reflective coating: % 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: e.g. Screen printing with ceramic paint fused to the surface, sandblasting, acid etching.

Surface processing: Pattern: Proprietary patterns are best described by the manufacturer's brand name.

Surface processing: 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. 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.

Refer to NATSPEC TECHnote PRO 006 for more information on this topic.

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

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

Bullet-resistance classification: For bullet-resistant glass only. Use classifications defined in AS/NZS 2343.

Safety markings: Describe line or patterns to AS 1288 clause 5.19 on making glass visible.

Special glasses schedule

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

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

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

Glazing plastics schedule

Type and properties	A	B	C
Polycarbonate sheet: Type			
Polycarbonate sheet: Abrasion resistance			
Polycarbonate sheet: Fire hazard properties			
Acrylic sheet			
Reinforced polyester sheet: Type			
Reinforced polyester sheet: Surface treatment			
Reinforced polyester sheet: Mass/unit area			

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

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 unit (IGU) schedule

Properties	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			

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

Consult manufacturers for available combinations. If the units are intended for noise reduction, it may be necessary to specify a weighted sound reduction index (R_w) rating for the assembly. See AS/NZS ISO 717.1.

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.

4.7 ANCILLARY MATERIALS

Window and glazed door seal schedule

Property	A	B	C
Product			
Function			
Carrier material and finish			
Seal insert type and material			
Complementary seal			

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

Edit codes in the **Schedule** to match those on drawings.

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 3.12.3 and BCA J3.4 for the sealing of windows and doors.

Threshold drain schedule

Property	A	B	C
ACO FlowTHRU Integrated Stainless Steel Threshold Drain			

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.
 Edit codes in the **Schedule** to match those on drawings.

ACO FlowTHRU Integrated Stainless Steel Threshold Drain: Designed to offer a practical solution for applications where a flush sill is required. It allows internal and external floor surfaces to have the same finish level with no elevated threshold to create a trip hazard or interrupt the space. It is compatible with the following AWS door products:

- Series 542 Sliding Door.
- Series 618 Sliding Door.
- Series 731 Sliding Door.
- Series 411 and 412 Bi-fold Door.
- Series 704 Sliding Door.
- Series 831 and 832 Bi-fold Door.

4.8 WINDOW HARDWARE

Window hardware schedule

Hardware item	Window type 1	Window type 2	Window type 3
Hinges			
Sash balances			
Stays			
Sash lift and pulls			
Sash operator			
Sash operator remote controller			
Locks, catches and bolts			

The schedule can be used to specify the quality and performance requirements of window hardware on the basis of window type 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 specify selected proprietary items with inherent quality or performance characteristics matching your requirements for each window or glazed door. In this instance, Window type 1, etc should be changed to Window 1, etc or any code, e.g. W1, used to identify individual windows. The schedule should be read in conjunction with this worksection.

Window type: e.g. Aluminium awning, aluminium sliding door, timber casement.

Hinges: Specify brand, series, product number. If specifying 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, specify brand, series, product number. If specifying 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. Specify brand, series, product number. If specifying 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. Specify brand and product number. If specifying 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. Specify brand, series, product number. If specifying 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: Specify brand, series, product number. If specifying 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: Specify brand, series, product number. If specifying 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, specify 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 clause 23.4 requires window handles in trafficable areas to conform with door handles in clause 23.3.

For protection of openable windows conforming to BCA D2.24 and BCA 3.9.2.5, specify a device to restrict the window opening in this schedule or the window and door schedules, a screen in the **Screen schedule** and a barrier, as required.

4.9 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, specify those requirements in the worksection specifying 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 1231	2000	Aluminium and aluminium alloys - Anodic oxidation coatings
AS 1288	2006	Glass in buildings - Selection and installation
AS 1530		Methods for fire tests on building materials, components and structures
AS 1530.4	2014	Fire-resistance test of elements of construction
AS 2047	2014	Windows and external glazed doors in buildings
AS/NZS 2208	1996	Safety glazing materials in buildings
AS/NZS 2343	1997	Bullet-resistant panels and elements
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 4145.3	2001	Mechanical locksets for windows in buildings
AS/NZS 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 5203	2016	Protection of openable windows/ fall prevention – Test sequence and compliance method
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
AAMA 701/702	2011	Voluntary specification for pile weatherstripping and able fenestration weatherseals
ASTM C920	2014	Standard Specification for Elastomeric Joint Sealants
ASTM C1048	2012	Standard specification for heat-strengthened and fully tempered flat glass
ASTM C1311	2014	Standard Specification for Solvent Release Sealants
NFRC 100	2014	Procedure for determining fenestration product U-factors
NFRC 200	2014	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	2005	Definition and description
ISO 11600	2002	Building construction - Jointing products - Classification and requirements for sealants
The following documents are mentioned only in the <i>Guidance</i> text:		
AS 1170		Structural design actions
AS/NZS 1170.2	2011	Wind actions
AS/NZS 1276		Acoustics - Rating of sound insulation in buildings and of building element
AS/NZS 1276.1	1999	Airborne sound insulation
AS 1428		Design for access and mobility
AS 1428.2	1992	Enhanced and additional requirements - Buildings and facilities
AS 2665	2001	Smoke/heat venting systems- Design, installation and commissioning
AS 3959	2009	Construction of buildings in bushfire prone areas
AS 4055	2012	Wind loads for housing
AS 4145		Locksets and hardware for doors and windows
AS 4145.2	2008	Mechanical locksets for doors and windows in buildings
AS 5041	2003	Methods of test - Security screen doors and window grilles
AIA EDG 66 MS	2011	Environmental Design Guide - BCA Section J and commercial building facade design
AIA EDG DES 2	2003	Environmental Design Guide - Revisiting energy efficiency in commercial buildings
AIA EDG DES 6	2001	Environmental Design Guide - Daylighting of buildings
AIA EDG DES 63	2004	Environmental Design Guide - A basic guide to the daylighting of buildings
BCA 3.12.3	2016	Acceptable construction - Energy efficiency - Building sealing
BCA 3.9.2.5	2016	Acceptable construction - Safe movement and access - Barriers and handrails - Protection of openable windows
BCA 3.7.4	2016	Acceptable construction – Fire safety – Bushfire areas
BCA D2.15	2016	Access and egress- Construction of exits - Thresholds
BCA D2.24	2016	Access and egress - Construction of exits - Protection of openable windows
BCA Section J	2016	Energy efficiency
BCA J3.4	2016	Energy efficiency - Building sealing - Windows and doors
NATSPEC DES 015	2007	BCA - NCC Volume One Energy efficiency provisions
NATSPEC DES 018	2008	Bushfire protection
NATSPEC DES 020	2011	Fire behaviour of building materials and assemblies
NATSPEC DES 032	2014	Airborne sound insulation
NATSPEC GEN 006	2007	Product specifying and substitution
NATSPEC GEN 024	2015	Using NATSPEC selections schedules
NATSPEC PRO 006	2013	Glass types used in buildings
NATSPEC TR 01	2016	Specifying ESD
WoodSolutions 10	2012	Timber windows and doors
AAMA 800	2016	Voluntary specifications and test methods for sealants
ISO 717		Acoustics - Rating of sound insulation in buildings and of building elements
ISO 717-1	1996	Airborne sound insulation