

# 4521AF FLETCHER ALUMINIUM ATLANTIC WINDOWS AND DOORS

*Masterspec sections must be customised to suit the project being specified, by removing irrelevant information and adding project-specific information and selections.*

## 1. GENERAL

This section relates to the manufacture, supply, and installation of FLETCHER ALUMINIUM, Fisher<sup>®</sup>, Nebulite<sup>®</sup>, Rylock<sup>®</sup>, Vistalite<sup>®</sup>:

- aluminium windows
- aluminium doors and frames
- hardware and furniture

*Modify or extend the above description to suit the project being specified.*

## 1.1 RELATED WORK

Refer to GLAZING for glazing.

*Include cross references to other sections where these contain related work.*

*Generally glass is supplied and installed as part of the aluminium windows and doors package.*

*The glazing work section will always need to accompany this work section.*

*Generally, hardware is supplied and installed as part of the aluminium windows and doors package. However, it will be necessary to confirm preferred selections from the range of standard hardware and furniture offered by the window manufacturer. On major projects hardware may be supplied by a specialist hardware supplier for the window manufacturer to fix. Note also special installations such as electronic locks and hydraulic window opening gear.*

## 1.2 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:

SLS	Serviceability limit state
ULS	Ultimate limit state
WANZ	Windows Association of New Zealand

*Refer general section INTERPRETATION & DEFINITIONS for abbreviations used throughout the specification.*

## Documents

## 1.3 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC E2/AS1	External moisture
NZBC F4/AS1	Safety from falling
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS 1449	Wrought alloy steels - stainless and heat resisting steel plate, sheet and strip
AS 1734	Aluminium and aluminium alloys - Flat sheet, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3604	Timber Framed Buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
NZS 4211:1985	Performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles

BS 3900 Methods of tests for paints, Part C5: Determination of film thickness

US Federal Specification

TT-S-001543A Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)

TT-S-00230C Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)

WANZ Powder Coating Quality Assurance System

*This section uses NZS 4211:1985 as it is referenced in NZBC E2, and NZS 4211:2008 is not used as it is not referenced at time of writing.*

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

*Delete from the DOCUMENTS clause any document not cited. List any additional cited documents.*

#### RELATED DOCUMENTS

Refer to the following related documents when preparing this section:

NZS 3504	Aluminium windows
NZS 3602	Specifying timber and wood-based products for use in building
AS/NZS 4284	Testing of building facades
AAMA 2604	Performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels
BRANZ BU 337	Protecting window glass from damage
BRANZ BU 349	Finishes for aluminium
BRANZ BU 362	Finishes on architectural hardware
BRANZ BU 369	Fitting tolerances
BRANZ BU 419	Selecting glass
BRANZ BU 422	Maintenance of aluminium joinery
BRANZ BU 450	Solar-control glass selection and installation
BRANZ BU 452	Weatherproofing aluminium doors and windows
BRANZ BU 453	Fasteners selection
BRANZ BU 463	Aluminium windows and E2/AS1
BRANZ BU 465	Domestic flashing installation
BRANZ BU 466	Timber-frame parapets, balustrades and columns
BRANZ BU 467	Principles of flashing design
BRANZ BU 471	Insulating glass units
WANZ	Aluminium Window Handbook
WANZ	Installation code for aluminium joinery products

#### 1.4 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

Fletcher Aluminium High Performance Architectural Solutions for Windows and Doors

WANZ

Window installation system:

An Alternative Solution for the installation of Windows and doors

Part 2: Fletcher Aluminium branded details

Copies of the above literature are available at

Web: [www.designresource.co.nz](http://www.designresource.co.nz)

Web: [www.fisherwindows.co.nz](http://www.fisherwindows.co.nz)

Telephone: 0800 Fisher

Web: [www.nebulite.co.nz](http://www.nebulite.co.nz)

Telephone: 0800 Nebulite

Web: [www.rylock.co.nz](http://www.rylock.co.nz)

Telephone: 0800 4 Rylock

Web: [www.vistalite.co.nz](http://www.vistalite.co.nz)

Telephone: 0800 Vistalite

*It is important to ensure that all personnel on site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.*

#### Warranties

#### 1.5 WARRANTY

Warrant this work under normal environmental and use conditions against failure of materials and execution.

Warranty period: 2 years

Refer to the general section for the required form of WARRANTY AGREEMENT and details of when completed warranty must be submitted.

*Check general section WARRANTIES for the date of commencement of warranties; which is normally practical completion of the contract. Refer to the chosen conditions of contract as it may also contain information on warranties/guarantees.*

*NZS 3504 requires that manufacturers of windows marked to claim compliance with NZS 4211:1985 must warrant their windows will comply for a period of at least two years. However larger contracts may justify a longer term, but any increase in time will have cost implications.*

## **Requirements**

- 1.6 **NO SUBSTITUTIONS**  
Substitutions are not permitted to any specified Fletcher Aluminium system, or associated components and products.
- 1.7 **QUALIFICATIONS**  
Where supply and installation is required by the manufacturer, carry out fixing by the manufacturer or by a firm nominated and approved by the window manufacturer.  
*Where installation is required by the manufacturer, the manufacturer may wish to have the installation carried out by a specialist installer.*
- 1.8 **SECTION SAMPLES**  
Submit for assessment before preparing shop drawings, samples of full size sections, or half size drawings and details of all profiles offered.
- 1.9 **ASSEMBLY SAMPLES**  
Submit for assessment before fabrication a complete assembly of members and components of windows, doors and frames.  
*Use only if this level of detail is appropriate. Generally when specifying custom made windows do not use this clause.*
- 1.10 **HARDWARE SAMPLES**  
Submit for assessment catalogue cuts and data sheets of all hardware, operating systems and security mechanisms before assembly commences. If requested provide hardware samples and examples of the proposed or specified hardware surface finish.
- 1.11 **FINISH SAMPLES**  
Submit for assessment before fabrication a sample of the specified finish to all exposed window and door sections, in the selected colour, including a statement of the minimum film thickness. On acceptance these will be used as quality control samples.
- 1.12 **PROTOTYPES**  
Allow to fabricate window prototypes from shop drawings and test in a laboratory accredited by International Accreditation of New Zealand to provide evidence that the windows offered comply with the requirements of NZS 4211:1985 and the specified design wind pressure and air leakage level.  
*Use this clause instead of or as well as the CERTIFICATION clause, when a custom designed window is required. Remember that the cost of development and certification testing will be included in any price offered.*
- 1.13 **DESIGN OF SASHES**  
Hollow box section extrusions jointed by spigots or screw traces.
- 1.14 **GLAZING DESIGN**  
Box sash - beaded sash - capable of reglazing without dismantling sashes.  
*Choose appropriate sash type, delete that not required. Descriptions of this type provide useful information for those pricing the work as to the size/type of section sought. Note that some sashes have integral beads.*
- 1.15 **GLAZING, EXTERNAL**  
All glazing beads external.  
*If security is a concern and/or when glazing work must be carried out from inside (e.g. when there is no scaffold available) specify internal glazing - check compatibility with selected suite.*
- 1.16 **SHOP DRAWINGS AND INSTALLATION DETAILS**  
Provide drawn profiles and preliminary installation details for review.

Shop drawings to show, but not be limited to:

Design calculations

Construction details (minimum scale 1:10) showing the interface between joinery elements and the building structure including: -

- Interaction between claddings and linings
- Flashing details
- Sealants and air seals
- Rebate sizes
- Non standard fixing details including bracketing

Dimensions of all typical elements and of any special sizes and shapes

Provision for the exclusion and/or drainage of moisture

Joining details and method of fixing between individual elements and between this installation and adjacent work

Provision for adjustment of fixings to ensure true alignment of windows and doors

Sealant types and full size sections of all sealants and backing rods

Provision for thermal movement

Provision for seismic movement and movement under wind loads

Sequence of installation

Full details of typical glazing gaskets and glazing wedges

Glazing specification and details

Refer to SHOP DRAWINGS for the requirements for submission and review and the provision of final shop drawings.

Complete shop drawing review at least 4 weeks before commencing fabrication.

*Add further detail on the precise form and extent of shop drawings where appropriate.*

*Modify this clause with the appropriate timing for the project. In some cases, preliminary details may need to be supplied at the pricing stage, with final shop drawings by the successful supplier/fabricator only.*

1.17

#### MAINTENANCE PROGRAMME

Provide a maintenance programme in written and graphic form upon completion of the aluminium window and door installation.

*Provide further details of these requirements as appropriate.*

#### **Performance**

*Add further requirements for calculations related to structural glazing work when applicable. Refer to PROPRIETARY CURTAIN WALLING for appropriate clauses.*

*Where new or unusual window designs are involved consider adding testing requirements to NZS 4284. Remember that the cost of development and certification testing will be included in any price offered.*

1.18

#### PERFORMANCE - WIND

Construct windows, exterior doors and frames to withstand design wind pressures to NZS 3604.

*Delete next clause if using the above.*

1.19

#### SPECIFIC DESIGN

The windows, doors, their installation and all fixings to comply with NZS 4211:1985.

Refer to SELECTIONS for ULS and SLS

Refer to SELECTIONS for Air leakage level.

*Where new or unusual window designs are involved consider adding testing requirements to AS/NZS 4284.*

*State design wind pressures by using floor levels, typical face and corner design wind pressures if available. Specifying in this way will remove the need to be specific about a whole range of items. NZS 4211:2008 section 8 uses the term Air Infiltration and has a different method of calculation. NZS 4211:2008 section 9 also has requirements for Water Penetration.*

*Delete this clause if complying with WIND PERFORMANCE clause.*

1.20

#### PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS

The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window manufacturer.

*It is common for the window supply company to be made responsible for the complete window installation, including the structural and weathertight performance of the glass and glazing system. NZS 4211 is very precise about design wind pressure. See table 15. Glass type would be specified elsewhere (e.g. on drawn schedules) and listed here.*

*If this clause is not used and the glazing is the responsibility of another trade, then GLAZING will need to be specific about responsibility and guarantees.*

*Where appropriate consider requiring a maintenance programme in written and graphic form upon completion of the aluminium window and door installation.*

- 1.21 **SEISMIC SUB-FRAMES**  
Where required units to have seismic sub-frames. Refer to NZS 1170.5. Refer to SELECTIONS for requirements  
*List window numbers. Obtain from the structural engineer the extent of seismic movement to be provided for and state this in mm.*
- 1.22 **CERTIFY COATINGS**  
Certify on request, compliance with this specification and support with control and sampling records. Test for film thickness to BS 3900, part C5, method No. 4, using method (b) for certifying thickness and method (a) where any dispute arises as to the thickness provided.  
*The coating should be applied by an applicator who can certify that the coating has been applied in accordance with the specification.*
- 1.23 **CERTIFICATION**  
Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of NZS 4211:1985 and the specified design wind pressure and air leakage level.  
*This clause is intended for use with stock windows, or those for which compliance in terms of NZS 4211:1985, clauses 6.4, 6.5 is claimed. This evidence should come either in the form of marketing labels affixed to the frame, or as a copy of the actual test certificate where the window specified falls outside the standard configuration already tested.*
- 1.24 **IN SITU TOUCH-UP**  
In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted after receiving written authority. Replace all damaged material.
- 2. PRODUCTS**
- Materials**
- 2.1 **WINDOWS**  
Refer to SELECTIONS for type and finish.
- 2.2 **DOORS**  
Refer to SELECTIONS for type and finish.
- 2.3 **ALUMINIUM EXTRUSIONS**  
Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.  
*This clause should only be used when the NZS 3504 standard alloy B 6060 is not appropriate. State temper. Specify "anodising quality" when the ANODISED ALUMINIUM clause is not used.*
- 2.4 **FLAT SHEET, COILED SHEET AND PLATE**  
Complying with AS 1734 of suitable thickness. Rolled for anodising or powder coating. Alloy designation: 5005 or 5251 depending on strength requirements.  
*This clause will always have to be used when sheet aluminium forms part of the window design, because NZS 3504 quotes 5 standard alloys as being available. Commonly used alloys are 1200, 5005 and 5251. Specify "for anodising" when the ANODISED ALUMINIUM clause is used. State designation and temper, e.g. H16 = 3/4 hard; H14 = 1/2 hard. State thickness if known, e.g. for sills or flashings.*
- 2.5 **STAINLESS STEEL SHEET AND STRIP**  
Type 316 austenitic steel, complying with AS 1449 of suitable thickness.

Finish grade: 2B (satin lustre)

*Use when stainless steel forms part of the design. State finish. It may be appropriate to nominate the thickness (e.g. for sills or flashings). Appropriate finish grades are 2SD (MATT), 4 (DULL POLISHED), or 8 (MIRROR POLISHED). Do not use brushed finishes (No. 4 brush) externally.*

## 2.6 FLASHINGS GENERALLY

Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

*It is now WANZ policy that their members include flashings with every window quote, whether specified or not.*

## 2.7 GLASS

Refer to GLAZING for type and thickness.

## 2.8 PANELS

Refer to SELECTIONS for type and finish.

## 2.9 REVEALS - TIMBER PAINTED

Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.

### **Components - for direct fix systems**

## 2.10 SILL PAN FLASHING

Flashing for direct fix claddings to collect and drain water that may penetrate through the window or door unit. Size to extend from the inner most point of the aluminium frame out over the external face of the cladding.

## 2.11 WANZ SUPPORT ANGLE

Support angle for use with the sill pan for deeper claddings to transfer the weight of the window back to the frame.

### **Components - for cavity systems**

## 2.12 WANZ CAVITY CLOSER

Flashing device to close the cavity above the window or door unit to direct water that occasionally penetrates the wall cladding into the cavity spaces adjacent to the window.

## 2.13 WANZ SUPPORT BAR

Extruded aluminium support bar with built in drainage and ventilation to NZBC E2, to provide continuous support to the window unit.

### **Components**

## 2.14 GLAZING GASKETS

Thermoplastic rubber compatible with ~ sealant. Do not stretch glazing gaskets during installation. Measure and cut gaskets 1% over length before installation to avoid stretching.

*Nominate brand or type of rubber and sealant.*

## 2.15 GLASS EDGE BLOCKS

Neoprene or approved equal.

Length: 25mm minimum for single glazed

Length: 100mm minimum for double glazed

Hardness: 60 - 70 Shore A

*Edge blocks prevent the glass "walking" within the frame.*

## 2.16 HARDWARE AND FURNITURE

Hinges, stays, catches, fasteners, latches, locks and furniture as offered by FLETCHER ALUMINIUM. Refer to SELECTIONS for type and finish. Key alike all lockable hardware able to be keyed alike.

*Modify or omit this clause when some or all hardware is provided for elsewhere, in this or other sections.*

- 2.17 SAFETY STAYS  
Stainless steel non releasable restrictors to limit window opening to NZBC F4/AS1, Table 2, Acceptable opening sizes for barriers.

#### **Accessories**

*State brand and type, or require information to be supplied for approval.*

- 2.18 POINTING SEALANT  
Building sealant or approved equivalent with not less than a  $\pm 40\%$  movement factor complying with US Federal Specification TT-S-001543A.  
*This clause is specifically for structural sealant work. Two part sealants require factory application. Do not use silicone sealants with stone panels as bleeding can occur.*

- 2.19 STRUCTURAL SEALANT  
Provide in structural sealant joints for scheduled movement. Refer to SELECTIONS for type.

Follow recommendations of the structural sealant manufacturer. Use in conjunction with compatible silicone rubber spacers and gaskets or double-sided expanded cellular glazing tapes.

*Use of structural silicone in aluminium and glass assemblies requires specialised design knowledge. Contractors for such work must be carefully selected.*

- 2.20 WEATHERING SEALANT  
Building sealant used in accordance with manufacturer's instructions for weather sealing glass to glass joints complying with US Federal Specification TT-S-0011534A, or a one-part polyurethane medium modulus ( $\pm 25\%$  movement) to US Federal Specification TT-S-00230C.

*It is not advisable to mix sealants in the one installation. For example polystyrene and silicone are incompatible, preventing cure.*

*Use polyurethane sealant next to thin dimension stone panels supported on curtain walling.*

*Silicone sealants can bleed into natural stonework causing coloured stains, Water run-off from silicone sealant can also cause streaking on glass which is difficult if not impossible to clean off.*

#### **Finishes**

- 2.21 ANODISED ALUMINIUM  
Refer to SELECTIONS for type.

- 2.22 EXTERNAL COATED ALUMINIUM  
Polyester powder coating in accordance with WANZ Powder Coating Quality Assurance System for architectural aluminium products and AS 3715.

### **3. EXECUTION**

#### **Conditions - generally**

- 3.1 DELIVERY  
Do not deliver to site any elements which cannot be unloaded immediately into suitable conditions of storage.
- 3.2 UNLOADING  
Unload, handle and store elements in accordance with FLETCHER ALUMINIUM requirements.
- 3.3 AVOID DISTORTION  
Avoid distortion of elements during transit, storage and handling.
- 3.4 PREVENT DAMAGE  
Prevent prefinished surfaces rubbing together, and contact with mud, plaster and cement. Keep paper and cardboard wrappings dry.

- 3.5 PROPRIETARY ELEMENTS  
Fix in accordance with the window manufacturer's requirements.  
*Alternately specify in detail.*
- 3.6 PROTECTIVE COATINGS  
Retain protective coverings and coatings in place during and after installation.  
*Use with the following clause.*
- 3.7 ADDITIONAL PROTECTION  
Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

#### **Conditions - fixings and fastenings**

- 3.8 SUPPLY OF FIXINGS  
Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the design wind pressure stated in the STANDARD OF PERFORMANCE clause.
- 3.9 EXPOSED FIXINGS AND FASTENINGS  
Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 316 stainless steel.
- 3.10 PROTECTED FIXINGS AND FASTENINGS  
Fixings and fastenings not exposed to the weather may be hot-dip galvanized steel with a coating weight of 610 g/m<sup>2</sup> complying with AS/NZS 4680.
- 3.11 TIMBER REVEALS  
Before fixing to aluminium frames, ensure that timber liners which are being painted have been primed on all surfaces.  
*Use only when necessary. See NZS 3504, clause 5.2.*

#### **Assembly**

- 3.12 FABRICATION  
Fabricate frames as detailed on shop drawings. Install glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.
- 3.13 HARDWARE GENERALLY  
Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.
- 3.14 SAFETY STAYS  
Factory fit safety stays to all windows scheduled for safety stays and to all windows where safety stays are required to comply with NZBC F4/AS1 4.0, Opening windows.

#### **Application**

- 3.15 CORROSION PROTECTION  
Before fixing, apply suitable barriers of bituminous coatings, stops or underlays between dissimilar metals in contact, or between aluminium in contact with concrete.
- 3.16 CONFIRM PREPARATION OF WALL OPENINGS  
Confirm that wall openings have been prepared ready for the installation of all window and door frames. Do not proceed with the window and door installation until required preparatory work has been completed.

Required preparatory work includes the following:

- wall cladding underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames to NZBC E2/AS1:9.1.5 Building wrap to wall openings.
- claddings neatly finished off to all sides of openings

- installation of flashings (those which are required to be installed prior to frames).  
*Refer to the Windows Association of New Zealand website (www.wanz.org.nz) for information on the WANZ WIS Window Installation System. This covers the WANZ recommendations on the preparation of window/door openings, minimum clearances between rough openings and the window/door frame, dressing of the wall wrap into the prepared opening, application of flexible flashing tape to the sill and top corners of the opening, installation of window/door frames and flashings, sealing of the window/door frame into the opening to create a pressure equalisation cavity, installation of flashings and the maintenance of appropriate clearances between the frame and the surrounding construction.*

### 3.17 DRAINAGE

Provide anti-condensation channels to window sills. Sills to sashes and fixed lights to incorporate positive drainage to the exterior.

### 3.18 INSTALLATION GENERALLY

Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

Fix frames rigidly in place without distortion, to the FLETCHER ALUMINIUM'S and WANZ Aluminium window handbook requirements, plumb, true to line and face, weathertight and with all openings operating freely.

### 3.19 INSTALLATION DIRECT FIX

Install to WANZ Installation System and Fletcher Aluminium branded details and drawings including sill pans to window and door units.

### 3.20 INSTALLATION CAVITY CONSTRUCTION

Install to WANZ Installation System and Fletcher Aluminium branded details and drawings including WANZ cavity closers, support bars and support angles

### 3.21 INSTALL FLASHINGS

Liaise with and agree flashing detail requirements with the cladding manufacturer/installer. Install flashings to heads, jambs and sills of frames as supplied and required by the cladding manufacturer and as detailed on the drawings. Finish head flashings to match window finish.

Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the upstand of the sill flashing. Ensure that sill flashings drain to the outside air.

Except where window/door frames are recessed, ensure that head flashings over-sail the unit by 30mm minimum at each end.

*A 30mm over-sail is recommended by WANZ, this may vary depending on cladding and jamb details, refer to NZBC E2/AS1 for options and modify this clause.*

*Head, jamb and sill flashings are always advisable to ensure weathertightness; and must be used in high and very high wind zones where face sealed claddings are used and where there is insufficient physical protection provided in the form of roof overhangs or canopies.*

*Ensure that flashings are fully detailed, preferably as 3-dimensional diagrams, to ensure that they are fabricated and installed in a manner that will avoid the ingress of moisture.*

### 3.22 COMPLETE AIR SEAL

To NZBC E2/AS1:9.1.6 Air seals. Form an air-tight seal by means of a proprietary expanding foam or sealants used with backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

*Formation of an air seal around all penetrations in the building envelope will greatly reduce the likelihood of water ingress occurring; especially when employed in combination with well designed joinery frames and appropriately detailed and installed flashings. Refer to the Guidance Note above under CONFIRM PREPARATION OF WALL OPENINGS regarding the WANZ WIS.*

### 3.23 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

## **Application - jointing and sealing**

- 3.24 **SEAL FRAMES ON SITE**  
Seal frames to each other and to adjoining structure and finishes, all as required by the window manufacturer and to make the installation weathertight. Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.  
*Refer to specific details where these apply. Also in some instances, on-site sealing work may be carried out by others. In this case the relative responsibilities of fabricator, installer and sealer must be clarified.*
- 3.25 **PREPARE**  
Ensure joints are dry. Remove loose material, dust and grease.
- 3.26 **PREPARE JOINTS**  
Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary.
- 3.27 **PREPARATION**  
Mask adjoining surfaces which would be difficult to clean if smeared with sealant.
- 3.28 **BACKING**  
Insert polyethylene rod or tape back-up behind joints being pointed with sealant.
- 3.29 **BACK UP**  
When using back-up material do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant.
- 3.30 **POINTING, BEAD**  
Tool sealant to form a smooth, flat bead.
- 3.31 **POINTING, FILLET**  
Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer.
- 3.32 **FINISHING**  
Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

## **Completion - cleaning**

*Note: some mutually exclusive clauses follow. Modify to suit the project's proposed management practices both during and at the completion of the contract works.*

- 3.33 **REMOVE TRADE DEBRIS**  
Remove trade debris by appropriate means on a floor by floor basis as each floor is completed and again before any work is covered up by others. Arrange for general removal.
- 3.34 **CLEANING GENERALLY**  
Clean with soft, clean cloths and clean water. Finish with a clean squeegee. Do not use abrasive or alkaline materials.
- 3.35 **TRADE CLEAN**  
Trade clean window frames, operable windows and doors, glass and other related surfaces inside and out at the time of installation to remove marks, dust and dirt, to enable a visual inspection of all surfaces.  
*Always use this clause. It describes the basic cleaning operation carried out at the time of installation. The expectation is that at that time the installer will leave the site. Note that subsequent damage is a difficult issue on all contracts.*
- 3.36 **PROTECTIVE COVERINGS**  
Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

*Modify this clause to suit project requirements. Protective coverings and coatings are not usually supplied automatically. Additional protective coverings are required to protect from following work such as plastering and painting.*

### 3.37 SAFETY

Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Masking tape must not be used for this purpose.

*Modify this clause to suit. Whiting is used to protect internal finishes exposed to the sun. Along with glazing signs and tape, it also acts as a safety device by clearly indicating during the balance of the construction phase that glass has been installed.*

*This clause does not refer to the NZS 4223 requirement for "manifestations" required for post-construction building use where a glass door or panel could be mistaken for an unimpeded path of travel.*

### 3.38 MANIFESTATIONS

To NZS 4223.3, 303.1: Manifestation (making glass visible).

*Modify this clause to describe project requirements for safety or appearance.*

*Note that both NZS 4223.3 and NZBC F2 clause F2.3.2 set minimum standards for delineating glass "capable of being mistaken for an unimpeded path of travel." While this issue is best resolved in the basic design of the installation, in some cases applied signs, decals, sandblasting or attached rails are necessary. Consider and specify accordingly.*

#### **Completion**

*Add further instructions here or under the general section CONSTRUCTION if an inspection is to be carried out on completion of the window work, prior to completion of the main contract work.*

*Further clauses may also be needed where special protective measures are required, perhaps for high quality panels or special glazing.*

*Some projects will justify the addition of further protective measures (say where external plastering is taking place - refer to BRANZ BU 337). There may also be a need for additional clauses on periodic washing down (say every 8 weeks) during the progress of an extended contract.*

### 3.39 PROTECTION

Protect finishes against damage from adjacent and following work.

### 3.40 REPLACE

Replace damaged, cracked or marked elements.

### 3.41 LEAVE

Leave work to the standard required for following procedures.

### 3.42 REMOVE

Remove safety indicators and protective coverings, and wipe down all joinery thoroughly to leave it perfectly clean. Remove debris, unused materials and elements from the site.

### 3.43 CONFIRM

Confirm the proper operation of hardware and operating systems on completion of the installation and again at completion of the contract works.

## 4. SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

*SELECTIONS is for providing details of the actual selections to be included in the contract works including model numbers, colours and other information necessary to ensure that the correct materials are supplied and installed*

### **Performance**

#### 4.1 WIND ZONE

Building wind zone: ~ (as determined from table 5.1 of NZS 3604)

*The supply of this information is very important for the design of the window frame, window/door members and the proper selection of glass. It must be provided in all instances. Building wind zones include:*

- L (Low wind speed of 32 m/s)

0.65 kPa ULS (Ultimate limit state)

- M (Medium wind speed of 37 m/s) 0.85 kPa ULS
  - H (High wind speed of 44 m/s) 1.20 kPa ULS
  - VH (Very high wind speed of 50 m/s) 1.55 kPa ULS
- Above 50 m/s specific design information must be provided.

#### 4.2 SPECIFIC DESIGN TO NZS 1170.2

ULS: ~

SLS: ~

Delete this SELECTION if using WIND ZONE-DESIGN TO NZS 3604.

#### 4.3 STANDARD OF PERFORMANCE

Air leakage level: Level 8 (as determined by section 11 of NZS 4211:1985)

*Information required where window manufacturer is designing windows*

*Level 8 is recommended for general use*

*Level 2 is recommended for air conditioned buildings and in other demanding situations*

*Level 17 is suitable only for undemanding situations*

*Note levels refer to maximum air leakage in litres/second.m<sup>2</sup>*

*NZS 4211:2008 section 8 uses the term Air Infiltration and has a different method of calculation.*

*NZS 4211:2008 section 9 also has requirements for Water Penetration.*

#### 4.4 SEISMIC SUB-FRAMES

The following units to have seismic sub-frames.

Windows No:                      Seismic movement to be provided for

~    ~mm

*List window numbers. Obtain from the structural engineer the extent of seismic movement to be provided for and state this in mm.*

*Seismic frames should be used where required by engineer*

#### **Window and door system**

#### 4.5 ACCEPTABLE SUPPLIERS

Fabrication and supply of FLETCHER ALUMINIUM windows and doors by one of the following.

Fabricator                      Contact details

~

*Contact Fletcher Aluminium 0-9-574 1500 for a list of fabricators able to supply and install in the area or refer to the Fabricator Locator on [www.fletcheraluminium.co.nz](http://www.fletcheraluminium.co.nz).*

*Available via distribution channel to market: Fisher<sup>®</sup>, Nebulite<sup>®</sup>, Rylock<sup>®</sup>, Vistalite<sup>®</sup>*

#### 4.6 ACCEPTABLE SUPPLIERS AND INSTALLERS

Fabrication, supply and installation of the specified FLETCHER ALUMINIUM windows and doors by one of the following.

Fabricator/installer                      Contact details

~

*Refer to Fletcher Aluminium WEBSITE for fabricators listed in regions*

*Installation of joinery is on request to specific fabricators*

#### 4.7 AWNING WINDOWS

Brand: Fletcher Aluminium Atlantic System

Platform: 48mm

Frame: Flat face

Sash: Flush/Flanged

Finish: Anodised

Glass: Refer to GLAZING for type and thickness

*Frame option:: 48mm Flanged / Equal leg / 106 or 159 frames*

*Sash option: Beaded sash available for single & double glazed up to 35mm IGU*

*Finish option: Powder coated*

*Double glazing: Up to 35mm*

*Recommended max sash size 1800mm high x 900mm wide (depends on weight & wind load)*

*Special Feature - Flush sashes appearance is door like and with a range of frames available.*

- 4.8 CASEMENT WINDOWS  
 Brand: Fletcher Aluminium Atlantic Suite  
 Platform: 48mm  
 Frame: Flat face  
 Sash: Flush/Flanged  
 Finish: Anodised  
 Glass: Refer to GLAZING for type and thickness  
*Sash option: Beaded sash available for single & double glazed up to 35mm IGU*  
*Finish option: Powder coat*  
*Double glazing: Up to 35mm*  
*Casement windows should have a ratio of 2 to 1 to ensure that they operate smoothly. e.g. 1200mm high x 600mm wide*  
*Casements over 1500mm high should be made with a heavier section, this is for strength and allows for a central morticed lock (most people cannot reach top fasteners that are too high)*  
*Special Feature - Flush sashes appearance is door like and with a range of frames available.*
- 4.9 SASHLESS VERTICAL SLIDING WINDOWS  
 Brand: Fletcher Aluminium Pacific residential system  
 Type: Aneeta™  
 Frame: ~  
 Lock: Integrated  
 Finish: Anodised  
 Glass: Refer to GLAZING for type and thickness  
*Frame: Any window or door frame*  
*Lock option: None - lock is integrated- can be locked in closed and open position*  
*Finish option: Powder coated*  
*Ideal usage - because there is no protrusion this is a safe product for schools. Wherever a call for ventilation and unobstructed views are a consideration. To replace old sashes in existing frames. In door frames in rooms that have no windows to comply with ventilation regulations. Windows facing small decks or where ever there is no room for a sash to protrude.*  
*Configurations - 2, 3, and 4 panel (fixed and counterbalanced)*  
*Double glazing - Up to 16mm (available in 2 panel only)*  
*Maximum size - 4 metres high and 1.6 metres wide (depends on wind load & glass weight)*
- 4.10 FOLDBACK® BI-FOLDING WINDOWS  
 Brand: Fletcher Aluminium Atlantic system  
 Platform: 48  
 Model: Outline  
 Rolling gear: Top hung  
 Sill type: Flush  
 Frame: Flat face flanged  
 Panel: Beaded  
 Finish: Anodised  
 Glass: Refer GLAZING for type and thickness  
*Sill option: Standard*  
*Frame option: Chair frame, 106 & 159*  
*Double glazing: Up to 28mm*  
*Finish option: Powder coated*  
*Special feature - Allows panels to fold back against outside cladding. Opens 180 degrees*  
*Opening direction - Out only*  
*Configurations- Up to 6 panels - 3 panels folding each way.*  
*Panel sizes - Height 1.6 metres x width 800mm (depends on wind load)*
- 4.11 STANDARD BI-FOLDING WINDOWS  
 Brand: Fletcher Aluminium Atlantic system  
 Platform: 48  
 Model: Outline  
 Rolling gear: Top hung  
 Sill type: Flush  
 Frame: Flat face flanged  
 Panel: Beaded  
 Finish: Anodised  
 Glass: Refer GLAZING for type and thickness  
*Sill option: Standard*  
*Frame option: Chair frame, 106 & 159*  
*Double glazing: Up to 28mm*

*Finish option: Powder coated*  
*Special feature - Allows panels to fold back against outside cladding. Opens 180 degrees*  
*Opening direction - Out only*  
*Configurations- Up to 6 panels - 3 panels folding each way.*  
*Panel sizes - Height 1.6 metres x width 800mm (depends on wind load)*

#### 4.12 LOUVRE WINDOWS

Brand: Altair™ by Breezway  
Type: Adjustable  
Blade type: Glass  
Blade depth: 152mm  
Operation: Manual or Powered  
Finish: Anodised  
*Blade type options: Cedar, Aluminium*  
*Size option: 102mm*  
*Operation options: Remote control manual, remote control electronic*  
*Finish options: Powder coat colours with black clips and handles*  
*Powder coat colours with colour matched clips and handles on request*  
*Features - Standard left hand handle (as viewed from inside) can be specified as right hand*  
*Remote control handle can be specified*  
*100mm restricted opening can be specified where limited opening is required*  
*Variable handle position where handles are difficult to reach in standard position*

#### 4.13 HINGED OUT DOORS - SINGLE AND FRENCH DOORS

Brand: Fletcher Aluminium Atlantic system  
Platform: 48mm  
Frame: Flat face  
Sill: Flush  
Panel Sections: Standard beaded rails and stiles  
Finish: Anodised  
Glass: Refer GLAZING for type and thickness  
*Special feature: Flush sill clean uncluttered lines*  
*Frame option: Chair frame, 106 & 159*  
*Double glazing: Up to 28mm*  
*Sill option: Standard*  
*Panel sections: Beaded wide rails*  
*Stiles option: Wide stile*  
*Finish option: Powder coated*  
*Max panel height 2.7 metres, width 1000mm, (depends on wind load). For door sizes outside these specs, refer to Fletcher Aluminium Oakley Commercial section.*

#### 4.14 HINGED IN DOORS - SINGLE AND FRENCH DOORS

Brand: Fletcher Aluminium Atlantic system  
Platform: 48mm  
Frame: Flat face  
Sill: Standard  
Panel Sections: Standard beaded rails and stiles  
Finish: Anodised  
Glass: Refer GLAZING for type and thickness  
*Frame option: Chair frame, 106*  
*Double glazing: Up to 28mm*  
*Panel Sections: Beaded rails and stile*  
*Stiles option: Narrow stile*  
*Finish option: Powder coated*  
*Max panel height 2.7 metres, width 1000mm, (depends on wind load). For door sizes outside these specs, refer to Fletcher Aluminium Oakley Commercial section*

#### 4.15 FOLDBACK® BI-FOLDING DOORS

Brand: Fletcher Aluminium Atlantic system  
Platform: 48mm  
Special feature: Allows panels to fold back against outside cladding  
Model: Fully framed version (head is encased in aluminium pelmet)  
Rolling gear: Top hung  
Opening direction: Out only  
Sill Type: Flush  
Frame: Flat face

Panels: Pocket glazed / beaded  
Finish: Anodised  
Glass: Refer GLAZING for type and thickness

*Opening direction option: None*

*Frame option: Chair frame, 106 & 159*

*Finish: Powder coated*

*Configurations - Up to 6 panels - 3 panels folding each way. Height 2.6 metres, width 900mm (depends on wind load and glass weights)*

*Special feature - Allows panels to fold back against outside cladding - 180 degrees*

*Double glaze up to 28mm*

#### 4.16 STANDARD BI-FOLD DOOR

Brand: Fletcher Aluminium Atlantic system

Platform: 48mm

Rolling gear: Top hung

Sill Type: Flush

Frame: Flat face

Panels: Beaded

Opening direction: Out

Finish: Anodised

Glass: Refer GLAZING for type and thickness

*Frame option: Chair frame, 106*

*Double glazing: Up to 28mm*

*Finish Option: Powder coated*

*Configurations - Up to 6 panels*

*Opens 90 degrees*

*Configurations - Up to 6 panels - 3 panels folding each way. Height 2.6 metres, width 900mm (depends on wind load and glass weights)*

#### 4.17 TOP ROLLING SLIDING DOOR

Brand: Fletcher Aluminium Atlantic system

Platform: 48mm

Rolling gear: Top rolling

Sill type: Flush

Frame: Flat face 106

Panels: Beaded

Finish: Anodised

Glass: Refer GLAZING for type and thickness

*Finish Option: Powder coated*

*Height 3.2 metres, width 1.6 metres per panel. e.g. 2 panels = 3.2 metres, 3 panels = 4.8 metres, 4 panels = 6.4 metres. Sizes are dependant on wind loading and glass weights.*

*Double glaze up to 28mm*

*Special feature - Flat surface sill eliminates build up of dirt and debris. Concealed top hung tracking systems makes it impossible to lift and slip off the door. Doors slide externally for greater weather tightness*

#### 4.18 TOP ROLLING STACKER SLIDING DOOR

Brand: Fletcher Aluminium Atlantic system

Platform: 48mm

Sill type: Flush

Frame: Flat face 159

Panels: Beaded

Finish: Anodised

Glass: Refer GLAZING for type and thickness

*Finish Option: Powder coated*

*Height 3.2 metres, width 1.6 metres per panel. e.g. 2 panels = 3.2 metres, 3 panels = 4.8 metres, 4 panels = 6.4 metres. Sizes are dependant on wind loading and glass weights.*

*Double glaze up to 28mm*

*Special feature - Flat surface sill eliminates build up of dirt and debris. Concealed top hung tracking systems make it impossible to lift and slip off the door. Doors slide externally for greater weather tightness*

#### 4.19 BOTTOM ROLLING SLIDING DOOR

Brand: Fletcher Aluminium Atlantic system

Platform: 48mm

Frame: Flat face 106

Panels: Beaded  
Finish: Anodised  
Glass: Refer GLAZING for type and thickness

*Finish option: Powder coated*

*Height 3.2 metres, width 1.6 metres per panel. e.g. 2 panels = 3.2 metres, 3 panels = 4.8 metres, 4 panels = 6.4 metres. Sizes are dependant on wind loading and glass weights.*

*Double glaze up to 28mm*

*Special feature - Flat surface sill eliminates build up of dirt and debris. Chevron shaped roller and track system allows for better weight distribution and a smoother rolling product. Doors slide externally and suspended for greater weather tightness*

#### 4.20 BOTTOM ROLLING STACKER SLIDING DOOR

Brand: Fletcher Aluminium Atlantic system

Platform: 48mm

Frame: Flat face 159

Panels: Beaded

Finish: Anodised

Glass: Refer GLAZING for type and thickness

*Finish option: Powder coated*

*Height 3.2 metres, width 1.6 metres per panel. e.g. 2 panels = 3.2 metres, 3 panels = 4.8 metres, 4 panels = 6.4 metres. Sizes are dependant on wind loading and glass weights.*

*Double glaze up to 28mm*

*Special feature - Flat surface sill eliminates build up of dirt and debris. Chevron shaped roller and track system allows for better weight distribution and a smoother rolling product. Doors slide externally and suspended for greater weather tightness*

#### Components

#### 4.21 JAMB REVEALS, TIMBER

Species/grade: Radiata pine

Thickness: 19mm

Treatment: H 3.1

Finish: Pre-primed radiata pine (for paint)

Type: ~

*Species/grade: Rimu and other timbers are available*

*Thickness option: 19mm to 30mm*

*Treatment: NZS 3602 requires certain timbers be treated*

*Finish: Clear or paint*

*Unless specified otherwise, timber reveals are generally supplied pre-primed for an opaque finish Jamb liners can be standard, in which case separate architraves are required. Jamb liners can be grooved in this case the section between the groove and edge forms its own architrave*

#### 4.22 PANELS

Brand/type: Entrance door panels

Finish: Powder coat

*Panels: specify type, typical options include fibre cement board, Aluminium faced plywood, Aluminium composite panels. Available in: 2 panel glazed, 4 panel and 8 panel with or without side lights*

#### Finishes

#### 4.23 FINISH, ANODISED

Thickness grade: 12 microns

Colour: ~

*State thickness grade (e.g. 25, 20, 15, or 12 microns). 20 microns is usually specified for quality installation though 12 microns is suitable for domestic joinery. Selection of micron can depend on the environment e.g. exposed to salt air. State colour - natural silver is usually specified. For this finish the aluminium has been etched to provide a satin finish. Other options include bronze, black Natural Silver, Light bronze, and Medium bronze. It may be necessary to specify a form of removable or temporary protection pending completion of the building (e.g. lacquers, strippable coatings).*

#### 4.24 FINISH, POWDER COATING

System: Duralloy

Film integrity: 10 years

Colour integrity: 10 years

Colour: ~  
 Thickness: Average of 80 microns with a minimum of 50 microns  
 System option: *Duratec, Film integrity 15 years, Colour integrity 15 years (required for above 3 stories and within sea spray zone).*  
 Colour - Standard, stocked colours to premium non-stocked colours  
 Thickness - Depends on the particular circumstances with a minimum of 50 microns.

## Hardware

4.25

### WINDOW HARDWARE

Casement stay: Schlegel friction

Awning stay: Schlegel friction

Window fastener: ~

*Casement stay options: Stainless steel or Aluminium*

*Standard stay opens approx 50 degrees. There is a stay that opens 90 degrees, this is ideal for cleaning windows from the inside, when open the gap at hinge side allows a hand to pass through. For casement stays to work properly, windows need a ratio of 2 to 1, e.g. 1200mm high x 600mm wide. For very narrow windows e.g. 300mm wide, select low friction stays*

*Awning stay options: Stainless steel or Aluminium*

*Double action stays available - open approx 28 degrees, then unclip and open to 90 degrees to allow cleaning from inside. Very shallow windows e.g. 300mm high awning, select low friction stay for smoother operation. Select non-friction stays where remote control is required*

*Quality window fastener options: Roma or Cavalier (solid brass) and Cubico*

*Plated options: Florentine bronze, polished brass, satin chrome*

*Powder coated colour option: Standard stocked or special non-stocked colours*

*Standard window fasteners: Double tongue, wedgeless (cast in zinc)*

*Plated option: None*

*Powder coated colour options: Standard stocked or special non-stocked colours*

#### Item

#### Location

Passive ventilators: Inframe passive ventilation system

Safety stays: Schlegel stainless steel non releasable

Sash locks: Schlegel key releasable

Louvres: Interlock

Louvres: Refer to louvre section

4.26

### HINGED DOOR HARDWARE

Door lever lock: ~

Lock Furniture: ~

Cylinder: ~

*Door lever lock option: 30mm or 35mm backset Cisa lockbody*

*30mm or 35mm backset Iseo lockbody*

*Quality lock furniture: Roma or Cavalier lever handle sets - solid brass or Cubico*

*Plated options: Florentine bronze, Polished brass, Satin chrome*

*Powder coat options: Standard stocked or special non-stocked colours*

*Standard furniture option: Vista or Verona lever handle set - cast in zinc*

*Plated option: Satin chrome only*

*Powder coat options: Standard stocked or special non-stocked colours*

*Cylinder options: Keyed both sides (deadlock)*

*Key and turn knob*

*Half cylinder (where there is no requirement for outside lock)*

*All cylinders can be keyed alike e.g. hinged doors, sliding doors, bi-folding doors, patio bolts, sash locks. (one key home)*

*Overheight doors: Cisa 3 point lock - locks centre bolt and throws a bolt top and bottom*

*Millton 4 point lock - locks centre latch & bolt and throws bolt top & bottom*

*Fixed door of French doors: Twinbolt throws bolt top & bottom from central action handle*

*Bi-fold doors: Twinbolt - throws bolt top and bottom from central action low profile handle*

*Twinbolt handle option: Select Uno - hollow zinc, Roma or Cavalier - solid brass or Cubico*

*Uno finish options: Plated - satin chrome only. Any powder coated colour*

*Roma or Cavalier or Cubico finish options: Plated - Florentine bronze, polished brass, satin chrome*

*Powder coated colours*

**FRENCH DOOR -**

*Quality furniture: Roma, Cavalier or Cubico handle set*

**FOR SWING DOOR ON END OF BI-FOLDS**

*Standard lock option: Iseo 35mm backset lockbody*

*Plated options: Florentine bronze, Polished brass, Satin chrome*

**4.27 SLIDING DOOR HARDWARE**

Sliding door lock: ~

Lock furniture: ~

*Sliding door lock option: Albany mortice lock (in stile)*

*Furniture option: Select 'D' pull or flush pull (powder coated & plated)*

*Sliding door lock option: Ingersoll Rand Stella surface mounted lock*

*Furniture: Integrated (powder coated & satin chrome only)*

*Quality lock option: Cisa 35mm backset lockbody*

*Standard lock option: Iseo 35mm backset lockbody*

*Budget lock: Albany surface mounted lock*

*Locking options: Non-locking, locking, deadlocking*

Item

Location

Parliament hinges: Available in stainless steel and aluminium

Hold back devices: Door holdbacks available in plated & powder coated finishes

Patio bolts: ~

Door restrictors: ~

*Patio bolt options: Select plated, powder coated, keyed, non-keyed (can be keyed to the rest of the house)*

*Door restrictors: Casement restrictor stays - non-releasable sliding restrictors for casement windows and doors  
Two sizes 404mm & 254mm*

*Fit in the cavity and not seen when door or window is closed. Ideal for the swinging panel at the end of a bi-folds and hinged panels in doors or casement windows*

**4.28 HARDWARE FINISH**

Finish: Plated

Colour: ~

*Plated options: Florentine bronze, polished brass, satin chrome*

*Finish options: Powder coated colours*

*Powder coat options: Standard stocked colours*

*Premium non-stocked colours*

*Not all hardware is available coloured or plated.*

*Budget hardware is black powder coat only. Only top of the range hardware is plated. It is not possible to plate all hardware due to design tool tolerances. Check with your joinery supplier*