

4521NR ALTUS RESIDENTIAL ALUMINIUM WINDOWS AND DOORS

1. GENERAL

This section relates to the fabrication, supply and installation of **Altus NZ Ltd (Altus)** residential aluminium windows and doors, manufactured by **Bradnam's Windows & Doors**.

It includes:

- WeatherTight™ residential/light commercial aluminium windows and doors
- WeatherTight™ residential Flushline Sliders and Stacker Doors
- SovereignSeries™ residential/commercial aluminium windows and doors
- 41Architectural residential/light commercial aluminium windows and doors
- AllSeasons™ residential aluminium windows and doors (with thermal break)
- Roof Windows
- Specialised Windows
- Conservatories
- Replacement Windows & Doors
- Louvres
- Highbrook Louvres
- Hardware and furniture
- Flashings and sealants

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS AND TERMS

SLS	Serviceability limit state
ULS	Ultimate limit state
WANZ	Windows Association of Zealand
PQAS	Powder Coating Quality Assurance System

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B1	Structure
NZBC B2/AS1	Durability
NZBC E2/AS1	External moisture
NZBC E2/VM1	External moisture
NZBC F4/AS1	Safety from falling
NZBC H1/VM1	Energy efficiency
NZBC H1/AS1	Energy efficiency
AS/NZS 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 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
AAMA 2604.05	Performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
BS 3900	Methods of tests for paints, Part C5: Determination of film thickness
NZS 4211	Specification for 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
[WANZ Installation Guide](#) The WANZ Guide to Window Installation as described in E2/AS1 Amendment 6
[WANZ PQAS](#) Powder Coating Quality Assurance System
[WANZ SFA 3503-03](#) Anodic Oxide coatings on wrought aluminium for external architectural application (2005)

BRANZ EM6 Evaluation method
 BRANZ BU 337 Protecting Window Glass from Surface Damage

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)

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work.
 Altus NZ Ltd product literature
 Bradnam's Windows & Doors Specifier's Guide

Manufacturer/supplier contact details:

Company: **Altus NZ Ltd**
 Web: www.altus.co.nz
 www.bradnams.co.nz
 Email: janet.grosse@altus.co.nz
 Marketing Manager
 Telephone: 09 272 1700

Warranties

1.5 WARRANTY - MANUFACTURER/FABRICATOR

Provide a material manufacturer/fabricator warranty:
 5 years: For fabrication

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

1.6 WARRANTY - INSTALLER

Provide an installer warranty:
 2 years: For installation

- Provide this warranty in the installer standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 SAMPLES

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1.8 NO SUBSTITUTIONS

Substitutions are not permitted to any specified **Altus NZ Ltd** aluminium system, or associated components and products.

1.9 QUALIFICATIONS

Work to be carried out by tradesmen experienced, competent and familiar with the materials and techniques specified.

1.10 COMPLIANCE

Windows and doors to be manufactured and installed to [NZBC E2/AS1](#).

1.11 SHOP DRAWINGS AND INSTALLATION DETAILS

Shop drawings to show the general arrangement of the aluminium joinery including, but not be limited to:

Construction details (minimum scale 1:5) showing the interface between joinery elements and the building structure including: -

- Jointing details and method of fixing between individual elements and between this installation and adjacent work
- Interaction between claddings and linings
- Flashing details
- Sealants and air seals
- Non standard fixing details including bracketing

And where required the following: -

- Design calculations
- Producer Statement in the form PS1 Producer Statement Design
- Rebate sizes
- Dimensions of all typical elements and of any special sizes and shapes
- Provision for the exclusion and/or drainage of moisture
- 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
- Glazing specification and details

Where requested provide the following additional information

- Information of Professional Indemnity Insurance held by the person providing the calculations and shop drawings

Complete shop drawing review before commencing fabrication.

1.12 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](#).

Performance

1.13 PERFORMANCE - WINDOWS AND DOORS

To [NZS 4211](#), including:

- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

1.14 STRUCTURAL/WEATHER-TIGHTNESS

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

Performance - Wind (design by contractor)

- 1.15 DESIGN PARAMETERS - NON SPECIFIC DESIGN
Design the installation to the wind zone parameters of [NZS 3604](#), table 5.4.
Refer to SELECTIONS for wind zone.
- 1.16 DESIGN PARAMETERS - SPECIFIC DESIGN
Design the installation to the wind pressure parameters of [AS/NZS 1170.2](#) Refer to SELECTIONS for ULS and SLS

Finishes

- 1.17 CERTIFY COATINGS - POWDER COATING
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) or to AS/NZ 1580.108.1 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.

2. PRODUCTS

- 2.1 WINDOWS
Refer to SELECTIONS for type and finish.
- 2.2 DOORS
Refer to SELECTIONS for type and finish.
- 2.3 ROOF WINDOWS
Refer to SELECTIONS for type and finish.
- 2.4 CONSERVATORIES
Refer to SELECTIONS for type and finish.
- 2.5 REPLACEMENT WINDOWS AND DOORS
Refer to SELECTIONS for type and finish.
- 2.6 LOUVRES
Refer to SELECTIONS for type and finish.

Materials

- 2.7 ALUMINIUM EXTRUSIONS
Alloy designation to comply with [AS/NZS 1866](#). Branded and extruded for anodising or powder coating. Further information on anodising will be available later in the year.
- 2.8 ALUMINIUM SHEET AND STRIP
Complying with [AS/NZS 1734](#) of suitable thickness. Rolled for anodising or powder coating. Further information on anodising will be available later in the year.
Alloy designation: 5251 - H16 or 5005 - H16
- 2.9 STAINLESS STEEL SHEET AND STRIP
Type: 316 austenitic steel
Finish grade: 2B (satin lustre)
- 2.10 GLASS
Refer to the glazing section for glass types and installation.

Reveals

- 2.11 REVEALS - TIMBER PAINTED
Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.
- 2.12 REVEALS - ALUMINIUM
Aluminium reveals fitted to frame via thermal break (exception being AllSeasons Suite due to inbuilt thermal break).
- 2.13 REVEALS - PVC
Prefinished thermoplastic PVC reveals grooved for wall linings.

Flashings

- 2.14 FLASHINGS GENERALLY
To [NZBC E2/AS1](#), 9.1.10 **Windows and Doors**. 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.

Materials - roof windows

- 2.15 ROOF WINDOWS
Refer to SELECTIONS/drawings for type and finish.

Components for installation - direct fix systems

- 2.16 SILL PAN FLASHING
To [NZBC E2/AS1](#), 9.1.10.5 **Windows and Door Sills**. 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.
- 2.17 SUPPORT ANGLE
A Standard aluminium support angle for use below the sill pan for deeper claddings to transfer the weight of the window back to the building framing. Size to suit cladding thickness.

Components for installation - cavity systems

- 2.18 STANDARD CAVITY CLOSER
A device constructed from either aluminium or PVC to close the cavity above the window or door unit, between the cladding and head flashing, to provide ventilation in accordance with [NZBC E2/AS1](#) to the spaces above the window or door.
- 2.19 SILL SUPPORT BAR
Extruded aluminium support bar with built in drainage and ventilation to [NZBC E2/VM1](#), [NZBC B2/AS1](#) and BRANZ Evaluation Method EM6, to provide continuous support to the window unit. Size to suit cladding type.

Components

- 2.20 GLAZING GASKETS
Thermoplastic rubber or PVC. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

- 2.21 **HARDWARE AND FURNITURE**
Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.
- 2.22 **SAFETY STAYS**
Stainless steel non releasable restrictors to limit window opening to [NZBC F4/AS1](#), Table 2, Acceptable opening sizes for barriers.
- 2.23 **FIXING BRACKETS**
Designed by manufacturer to specific design.
- 2.24 **WEATHERING/INSTALLATION SEALANT**
Building sealant used in accordance with manufacturer's instructions for weather sealing aluminium frames to the cladding, complying with US Federal Specification TT S 0011534A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus ($\pm 25\%$ movement) to US Federal Specification TT S 00230C.

Finishes

- 2.25 **INTERPON D1000 POWDER COATING**
Single coat polyester based powder coating to AS 3715, AIMF Qualicoat Class 1.5, AAMA 2603 and WANZ Specification for powder coatings on architectural aluminium products. Refer to SELECTIONS for finish and colour.
- 2.26 **INTERPON D1010 PREMIUM POWDER COATING**
High durability polyester powder coatings for architectural aluminium extrusions, components and products to exceed AS3715, AAMA 2603 and WANZ on architectural aluminium products. Refer to SELECTIONS for finish and colour.
- 2.27 **INTERPON D2015 ULTRIVA™ POWDER COATING**
Advanced durability polyester powder coatings for architectural aluminium providing levels of weathering resistance exceeding AAMA 2604 for powder coatings on architectural aluminium extrusions, components and products. Refer to SELECTIONS for finish and colour.
- 2.28 **INTERPON D3000 FLUOROMAX® POWDER COATING**
Fluorocarbon polymer hyper durable powder coating with chemical resistance, anti-corrosion and mechanical properties to AAMA 2605. Refer to SELECTIONS for finish and colour.
- 2.29 **ACID ETCH (AE) ANODISED ALUMINIUM**
To [WANZ SFA 3503-03](#). Refer to SELECTIONS for thickness and colour.
- 2.30 **TRADITIONAL ANODISED ALUMINIUM**
To [WANZ SFA 3503-03](#). Refer to SELECTIONS for thickness and colour.

3. EXECUTION

Conditions - generally

- 3.1 **DO NOT DELIVER**
Do not deliver to site any elements which cannot be unloaded immediately into suitable conditions of storage.
- 3.2 **UNLOAD WINDOW JOINERY**
Unload, handle and store elements in accordance with the window manufacturer's requirements.

- 3.3 **AVOID DISTORTION**
Avoid distortion of elements during transit, storage and handling.
- 3.4 **PREVENT DAMAGE**
Store windows and doors on site in a clean and dry environment in such a manner as to prevent damage to prefinished surfaces. Stack the units in a vertical position resting on their sills, with layers interleaved between to prevent rubbing. Keep paper and cardboard wrappings dry.
- 3.5 **PROPRIETARY ELEMENTS**
Fix in accordance with the window manufacturer's requirements.
- 3.6 **PROTECTIVE COVERINGS**
Retain protective coverings and coatings to BRANZ BU 337 and keep in place during the fixing process. 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.
- 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 ULS wind pressure stated in SELECTIONS. Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 316 or 304 stainless steel or if not exposed to the weather may they be hot-dip galvanized steel with a coating weight of 610 g/m² complying with [AS/NZS 4680](#).
- 3.9 **INSTALLATION FIXING**
To [NZBC E2/AS1](#), 9.1.10.8, **Attachments for windows and doors**. Fix windows/doors through reveal to frame with a pair of 75 x 3.15mm minimum galvanised jolt head nails or a pair of 8 gauge x 65mm minimum stainless steel screws. Fix at a maximum of 450 centres along all reveals and a maximum of 150mm from reveal ends. Ensure fixings do not penetrate metal flashings.
Install packers between reveals and framing at fixing points. Temporary packers fitted to head but removed after fixing reveal.

Assembly

- 3.10 **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.
- 3.11 **TIMBER REVEALS**
Before fixing to aluminium frames, ensure that timber reveals which are being painted have been primed on all surfaces. Securely fix reveals through aluminium fin.
- 3.12 **HARDWARE GENERALLY**
Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.

- 3.13 **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.
- Installation - windows and doors**
- 3.14 **SUPPLY OF FIXINGS**
 Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS.
- 3.15 **EXPOSED FIXINGS AND FASTENINGS**
 Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 304 or 316 stainless steel.
- 3.16 **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/m² complying with [AS/NZS 4680](#).
- 3.17 **CORROSION PROTECTION**
 Before fixing, apply suitable compatible sealant waterproof barrier coating, stops or underlay between dissimilar metals in contact, or between aluminium in contact with concrete.
- 3.18 **CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS**
 Confirm that exterior 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](#) **Wall underlay to wall openings**.
 - Full height 20mm jamb battens to [NZBC E2/AS1](#) figure 72A (direct fix only)
 - claddings neatly finished off to all sides of openings
 - cladding may be installed after window installation
 - installation of flashings (those which are required to be installed prior to frames).
 - application of waterproof sealer to all building door and window sills in concrete floor or concrete sill situations. To building door sills only, apply a suitable membrane over the sealer
 - all in accordance with the shop drawings, where applicable.
- 3.19 **INSTALLATION**
 Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.
- 3.20 **INSTALLATION DIRECT FIX**
 Install to [E2/AS1](#), window manufacturers details and drawings including sill pans and support angles if required to window and door units.
- 3.21 **INSTALLATION CAVITY CONSTRUCTION**
 Install to [NZBC E2/AS1](#) and window manufacturers details and drawings including cavity closers, sill support bars and support angles.
- 3.22 **INSTALL FLASHINGS**
 Install flashings to heads, jambs and sills of frames and required by the window 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 unit by 20mm minimum plus any jamb scribe width at each end, as per E2/AS1.

3.23 COMPLETE AIR SEAL

To [NZBC E2/AS1:9.1.6 Air seals](#). Form an air-tight seal by means of proprietary expanding foam or sealants used with polyethylene foam (PEF) 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.

3.24 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Installation - roof windows

3.25 INSTALL ROOF WINDOWS

Check that the trimmed openings are formed and constructed to suit the required units. Do not proceed until roof and structural openings are properly formed. Install flashings and over flashings as detailed and required to make installation completely weatherproof. Install and fix the roof window units strictly in accordance with the roof window manufacturer's requirements and installation instructions. Ensure roof window pitch is in accordance with manufacturer's minimum requirements.

3.26 ROOF WINDOW ACCESSORIES AND OPERATING SYSTEMS

Install selected accessories and hardware. Install and complete all operating systems.

Application - jointing and sealing

3.27 SEAL FRAMES ON SITE

Seal frames to each other and to adjoining structure and finishes, all as required by the window and sealant manufacturer and to make the installation weather tight.

In Very High and Extra High wind zones, seal between underside of head flashing and top edge of window head flange in accordance with [NZBC E2/AS1 9.1.10.4 Head flashings](#) Fig 71 (c). Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

3.28 PREPARE JOINTS

Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

3.29 BACK UP

When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene foam (PEF) rod or tape back-up behind joints being pointed with sealant.

3.30 SEALANT FINISH

Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer. Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

Cleaning

- 3.31 **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.
- 3.32 **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.

Completion

- 3.33 **PROTECTIVE COVERINGS**
 Retain protective coverings and coatings and keep in place during the fixing process. 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.
- 3.34 **REPLACE**
 Replace damaged, cracked or marked elements.
- 3.35 **PROTECTION**
 Protect finishes against damage from adjacent and following work.
- 3.36 **IN-SITU TOUCH-UP TO POWDER COATED ALUMINIUM**
 In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted to minor surface scratching. Otherwise replace all damaged material.
- 3.37 **SAFETY**
 Indicate the presence of transparent glasses for the remainder of the contract period, with whitening, tape or signs compatible with the glass type. Indicators other than whitening must not be applied to the glass surface. Masking tape must not be used for this purpose.
- 3.38 **MANIFESTATIONS**
 Apply manifestations to comply with [NZS 4223.3](#), 303.1 Manifestations.

4. SELECTIONS

For further details on selections go to www.altus.co.nz
 Substitutions are not permitted to the following, unless stated otherwise.

4.1 NOMINATED FABRICATOR

The nominated fabricators for this section of work are;
 Brand: ~
 Branch: ~ Bradnam's Windows and Doors NZ
 Contact: ~
 Email: ~
 Telephone: ~

4.2 SUPPLY AND INSTALLATION

Supply and installation of the specified **Altus NZ Ltd** aluminium joinery system by one of the following options.

Supply only:	By fabricator
Supply and installation:	By fabricator
Installation only:	By main contractor

Performance

4.3 THERMAL PERFORMANCE
 R-value: ~ (as determined from [NZBC H1/VM1](#) or [H1/AS1](#))

4.4 AIR INFILTRATION
 For [NZS 4211](#), table 3 **Air infiltrations**.
 Non-air conditioned zones: ~
 Air conditioned zones: ~

Performance - Wind (design by contractor)

4.5 DESIGN PARAMETERS – NON SPECIFIC DESIGN
 Building wind zone ~ (refer to [NZS 3604](#), table 5.4)

4.6 DESIGN PARAMETERS - SPECIFIC DESIGN
 The factored design wind pressures are to [AS/NZS 1170.2](#).
 SLS ~ Pa
 ULS ~ Pa

Finishes

4.7 POWDER COAT FINISH
 Manufacturer: Interpon Powder Coatings
 Brand/type: ~
 Thickness: ~
 Finish: ~
 Colour: ~

4.8 ANODISED FINISH
 Finish: ~
 Thickness grade: ~
 Colour: ~

Glazing

4.9 GLASS
 Type/thickness: Refer to glazing section/s for type and thickness.

Hardware

4.10 WINDOW HARDWARE
 Window fastener: ~

Location	Item
~	Safety stays - non releasable
~	Safety stays - disconnectable
~	Sash locks
~	Louvres
~	Multi-point Locking

4.11 DOOR HARDWARE
 Locks & handles: ~

Location	Item
~	Parliament hinges
~	Hold back devices
~	Patio bolts
~	Door restrictors
~	Twin bolt bifold lock

~	Multi-point Lock
~	Single-point Lock

4.12 HARDWARE FINISH
 Finish: Powder coat
 Colour: ~

4.13 MANIFESTATIONS
 Location: ~
 Type/details: ~

Flashings and Sealant

4.14 FLASHINGS
 Material/type: ~
 Pattern: Formed to suit details provided

4.15 WEATHERING SEALANT
 Type: 1-part polyurethane moisture curing, elastic joint sealant
 Colour: ~

Reveals

4.16 WINDOW AND DOOR REVEALS - TIMBER
 Timber species: ~
 Grade/treatment: ~
 Thickness: ~mm
 Reveals: ~
 Finish: ~

4.17 ALUMINIUM REVEALS - ADAPTOR/INFILLS
 Type: ~
 Finish: ~

4.18 WINDOW AND DOOR REVEALS - PVC
 Brand/type: ~
 Thickness: 19mm
 Reveals: Grooved for wall linings

Window and door system - WeatherTight™

4.19 AWNING AND/OR CASEMENT WINDOWS
 Suite: **WeatherTight™**
 Window No.: ~
 Glazing system: ~

4.20 SLIDING WINDOWS
 Suite: **WeatherTight™**
 Window No.: ~
 Glazing system: ~

4.21 LIGHTWEIGHT SLIDING WINDOWS
 Suite: **WeatherTight™**
 Window No.: ~
 Glazing system: ~

4.22 STD & INLINE BIFOLD WINDOWS
 Suite: **WeatherTight™**

- Window No.: ~
 Glazing system: ~
- 4.23 INSERT WINDOWS
 Suite: **WeatherTight™**
 Window No.: ~
 Glazing system: ~
- 4.24 STD & INLINE BIFOLD DOORS
 Suite: **WeatherTight™**
 Window No.: ~
 Glazing system: ~
- 4.25 HINGED & FRENCH DOORS
 Suite: **WeatherTight™**
 Door No.: ~
 Glazing system: ~
- 4.26 SLIDING & STACKER DOORS
 Suite: **WeatherTight™**
 Door No.: ~
 Glazing system: ~
- 4.27 FLUSHLINE SLIDER AND STACKER
 Suite: **WeatherTight™**
 Door No.: ~
 Glazing system: ~
- 4.28 URBANSLIDER / STACKER
 Suite: **WeatherTight™**
 Door No.: ~
 Glazing system: ~
- Window and door system - SovereignSeries™**
- 4.29 AWNING AND/OR CASEMENT WINDOWS
 Suite: **SovereignSeries™**
 Window No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~
- 4.30 INLINE BI-FOLD DOOR / WINDOWS
 Suite: **SovereignSeries™**
 Window No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~
- 4.31 HINGED & FRENCH DOORS
 Suite: **SovereignSeries™**
 Window No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~
- 4.32 SLIDING & STACKER DOOR / WINDOWS
 Suite: **SovereignSeries™**
 Door No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~

Window and door system - AllSeasons™

- 4.33 AWNING & CASEMENT WINDOWS
 Suite: **AllSeasons™**
 Window No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~
- 4.34 STACKER & SLIDING DOORS
 Suite: **AllSeasons™**
 Door No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~
- 4.35 HINGED DOOR
 Suite: **AllSeasons™**
 Door No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~
- 4.36 BI-FOLD DOOR / WINDOW
 Suite: **AllSeasons™**
 Door No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~

Roof windows

- 4.37 GLAZED ROOF WINDOWS
 Suite: **Millennium™Roof Windows**
 Type: ~
 Roof window No.: ~
 Hardware: ~

Conservatories

- 4.38 CONSERVATORIES
 Suite: **WeatherTight™** or **SovereignSeries™**
 Design: Custom made, refer to drawings
 Glazing system: ~
 Finish: ~

Replacement Windows & Doors - WeatherTight™

- 4.39 REPLACEMENT WINDOWS & DOORS
 Suite: **WeatherTight™**
 Window No.: ~
 Glazing system: ~

Window and door system – 41Architectural

- 4.40 AWNING & CASEMENT WINDOWS
 Suite: **41Architectural**
 Window No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~

4.41 STACKER & SLIDING DOORS
 Suite: **41Architectural**
 Door No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~

4.42 HINGED DOOR
 Suite: **41Architectural**
 Door No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~

4.43 BI-FOLD DOOR / WINDOW
 Suite: **41Architectural**
 Door No.: ~
 Reveal/plasterboard adaptor: ~
 Glazing system: ~

Louvres

4.44 LOUVRES
 Brand: **Breezway Altair™**
 Louvre No: ~
 Blade material: ~
 Blade type: ~
 Blade depth: ~
 Operation: ~
 Frame Finish: ~
 Blade Finish: ~
 Features: ~

4.45 LOUVRES
 Brand: **Highbrook Louvre**
 Louvre No: ~
 Blade material: ~
 Blade type: ~
 Blade depth: ~
 Operation: ~
 Frame Finish: ~
 Blade Finish: ~
 Features: ~