**Specification for Metro Series ThermalHEART Windows & Doors**

13 March 2023

***GENERAL ITEMS***

**Responsibility**

The structural and weathertight performance of the completed joinery, including the glazing is the responsibility of the window fabricator.

**Compliance**

Windows and doors are to be manufactured and, when applicable, installed in accordance with NZBC E2/AS1.

 *(this clause does not apply if the project sits within specific design criteria)*

**Performance**

Windows and doors are to comply with NZS4211 (Specification for the Performance of Windows) including;

- Serviceability deflection, Operation of opening sashes, Air infiltration, Water penetration, Ultimate strength, Torsional strength of sashes.

*(this clause does not apply if the ULS exceeds 2.5kPa, which is then outside the scope of the Standard)*

**Windload**

* Non-Specific Design.

Site wind zone as derived from NZS3604;

* + - Low (wind speed upto 32m/s)
		- Medium (wind speed upto 37m/s)
		- High (wind speed upto 44m/s)
		- Very High (wind speed upto 50m/s)
		- Extra High (wind speed upto 55m/s)

*(NZS4211 modifies these wind speeds to the following wind loads; Low = 0.72kPa ULS, Medium = 0.96kPa ULS, High = 1.36kPa ULS, Very High = 1.76kPa ULS, Extra High = 2.5kPa ULS)*

* Specific Design.

Build wind pressures as derived from AS/NZS1170.2;

* SLS = .... kPa
	+ - ULS = ....kPa

These pressures;

* Are design wind pressures
* Include local pressure factors

*(this information can be obtained from the project engineer and should be expressed in both positive and negative pressures. i.e. SLS = +0.91/-1.01kPa, ULS = +1.41/-1.56kPa)*

**Thermal Performance**

Thermal performance as determined from NZBC H1/AS1

 ‘R’ value = 0.515

*(refer to NZS4218. Table E1.1.1 which describes the minimum required ‘R’ value for Climate zones 1-6)*

***GENERIC COMPONENTS***

**1.3 SURFACE FINISHING**

Duralloy Plus Powder coat

* + Colour = ...

*Duralloy Plus powder coat is the most commonly used powder coat finish. Duralloy Plus offers a 15 year warranty on both film and colour integrity. Duralloy Plus is suitable for residential and light commercial applications under 4 levels, and in environments greater than 10m from the high tide mark.*

*Duralloy Plus is powdercoated to meet powder coat quality standard Endurocolour, Window & Glass Association NZ Powder Coating Quality Assurance System (PQAS).*

*Formulated to meet AS3715, Exceeds AAMA 2603.*

*Refer to your window fabricator for colour options*

Duralloy Powder coat

* + Colour = ...

*Duralloy powder coat is still available in some colours that haven’t been substituted with the improved Duralloy Plus formulation. Standard Duralloy offers a 10 year warranty on both film and colour integrity. Duralloy is suitable for residential applications more than 100m from the high tide mark.*

*Duralloy Powder coat is powdercoated to meet powder coat quality standard Endurocolour, Window & Glass Association NZ Powder Coating Quality Assurance System (PQAS).*

*Formulated to meet AS3715, AAMA 2603.*

*Refer to your window fabricator for colour options.*

Protexture Powder coat

* + Colour = ...

*Protexture powder coat is a mar and scuff resistant textured finish. Protexture offers a 15 year warranty on both film and colour integrity. Protexture is suitable for residential and light commercial applications under 4 levels, and in environments greater than 10m from the high tide mark.*

*Protexture is powdercoated to meet powder coat quality standard Endurocolour, Window & Glass Association NZ Powder Coating Quality Assurance System (PQAS).*

*Formulated to meet AS3715, Exceeds AAMA 2603.*

*Note: Protexture and satin finishes can result in a bubbled appearance when powder coated over the thermal strip.*

*Refer to your window fabricator for colour options.*

Duratec Powder coat

* + Colour = …

*Duratec is a higher specification powder coat and should be used in high-rise commercial applications. Duratec offers a 25 year aluminium durability warranty and 20 year aluminium colour warranty Duratec is suitable for applications more than 10m from salt water in mild to tropical and some severe environments.*

*Duratec Powder coat is powdercoated to meet powder coat quality standard Endurocolour, Window & Glass Association NZ Powder Coating Quality Assurance System (PQAS).*

*Formulated to meet AS 3715, AAMA 2603 and AAMA 2604.*

*Refer to your window fabricator for colour options.*

Fluoroset Powder coat

* + Colour = …

*Fluoroset is a Fluoropolymer thermosetting powder coat with outstanding colour retention and film performance characteristics, designed for use on landmark commercial-type projects or in environmentally challenging locations. Fluoroset offers a 35-year aluminium durability warranty and 30 year aluminium colour warranty.*

*Fluoroset Powder coat is powdercoated to meet powder coat quality standard Endurocolour, Window & Glass Association NZ Powder Coating Quality Assurance System (PQAS).*

*Formulated to meet AS 3715 and AAMA 2605.*

*Refer to your window fabricator for colour options.*

Frost Ultra Anodising

* + Colour = …

*Anodising is an electrochemical process that etches a protective layer into the surface of the aluminium and offers a durable, colour fast surface finish. The surface shows the visible grain of the aluminium.*

*Frost Ultra Anodising meets Window & Glass Association NZ Voluntary Specification SFA 3503-03:2005, Specification for Anodic Oxide Coatings on Wrought Aluminium for External Architectural Applications.*

*Colour choices are Natural (silver), Champagne, Bronze (light, medium & dark), Black*

**1.4 GLASS OPTIONS**

Typical Glazing

 *Double glazing*

* Low-E insulating glass units (IGU)
* Solux-E® IGU with a nominal thickness of 24mm
* Thermally improved spacer, ATS- Architectural Thermal Spacer
* Argon glass filled gap as standard

*Depending on the overall size of the pane a typical IGU would be made up of two panes of 4mm clear glass with a 16mm air space between them. This combination in an APL Residential Series ThermalHEART frame will comply with NZBC H1.*

*The make up of individual units will be adjusted to comply with all parts of NZS4223.*

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

Special Glazing

 *Double glazing*

* Tinted IGU
	+ Type = …
	+ Colour = …
	+ Spacer =
	+ Inner pane = Solux-E

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

*(refer to the window manufacturer for tint type & colour options)*

* IGU with one obscure pane
	+ Type = ...

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

 *(standard obscure options = mistlite, stippolite, acid etch)*

*Special double glazing*

* IGU consisting of the following;
	+ Outer pane = ...
	+ Spacer Gas = Air
	+ Inner pane = ...

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

 *(- pane options = clear float, tinted float, PVB laminate, toughened, low E*

 *- refer to the window manufacturer for tint type & colour options*

 *- Spacer gas = airspace or argon filled)*

*Single glazing*

* + Type = ...
	+ Colour = ...

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

 *(- pane options = clear float, tinted float, PVB laminate, toughened*

 *- standard obscure options = mistlite, stippolite, acid etch*

 *- refer to the window manufacturer for tint type & colour options)*

**1.5 JAMBLINERS**

Standard Jambliners

* 19mm thick timber reveals with, minimum H3.1 treatment, pre-primed for paint finish and grooved for 10mm wall linings.

Special Jambliners

* + Timber = ....
	+ Thickness = ....mm
	+ For architrave
	+ Aluminium infill to sill of full height units

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

**1.6 FLASHINGS**

Head Flashings

* Extruded aluminium head flashings, colour matched to window frames, sized to suit cladding and construction type, all in accordance with NZBC E2/AS1, 9.1.10.4

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

* Not required

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

Cavity Construction

* Extruded aluminium sill support bar, with in-built drainage and ventilation, to provide continuous support to the window or door unit. The bar is supplied in mill finish aluminium.

*The bar is to be used in accordance with E2/AS1 9.1.10.5 b) and comply with BRANZ EM6 and is sized to suit the cladding thickness.*

*(the WANZ designed bars are available in 19mm, 30mm, 40mm, 55mm standard bar, 55mm full height bar, 55mm heavy duty bar)*

Direct Fix Construction

* Extruded aluminium sill tray flashing, designed to collect and drain to the exterior any water that might enter the trim cavity. The sill tray flashing is colour matched to the window frame.

*The sill tray flashing must be designed to comply with E2/AS1 9.1.10.5 a) and is sized to suit the cladding thickness.*

*(a range of extruded sill tray flashings are available to suit the type of frame they are installed under)*

* Extruded aluminium support angle, designed to transfer the weight of the window or door from the sill tray flashing back to the framing, when used with thicker claddings.

*The support angle is typically ripped to suit the cladding thickness from a 50 x 25 x 3mm standard aluminium angle, but this may vary depending on situation. The angle is supplied in mill finish aluminium.*

Special Flashings

* Special flashings as described in the shop drawings / details provided.

*Flashings from materials other than aluminium must be separated from the window / door frames to ensure contact between dissimilar metals is avoided.*

* Type = ...
* Material = ...
* Finish = ...
* Pattern / Detail No = ...

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

**1.7 HARDWARE**

Typical Hardware

* Standard
* Miro
* Urbo
* Elemental

Colour = ...

* Icon

*(Icon is manufactured from stainless steel and cannot be coloured)*

* Elemental

*(Elemental is only available as an Anodised finish)*

Special Hardware

* Restrictor stays to comply with NZBC F4

Applies to Window No’s ... *(or refer to the window schedule drawing)*

* Parliament hinges

Applies to Door No’s ... *(or refer to the window schedule drawing)*

* Other ...

Applies to Window / Door No’s ... *(or refer to the window schedule drawing)*

Entrance Door Hardware

* Miro lever handle
* Icon lever lock
* Mayfair gripset
* Capri gripset
* Icon D-handle and key/turn knob
* Levanto pull handle and key/turn knob
* Vardar pull handle and key/turn knob
* Euros pull handle and key/turn knob

*(Miro & Icon lever options only available with Classic and Latitude doors, Mayfair and Capri options available with Latitude, Axis & Cedar, pull handles available with Axis & Cedar only)*

* Other...

***FIRST – METRO SERIES THERMAL HEART***

**5.1 AWNING and CASEMENT WINDOWS**

Windows shall be constructed using Metro Series ThermalHEART frames, utilising a 46mm or 56mm thermally broken platform and allowing an IGU thickness up to 44mm.

* Opening sashes used in the 44mm platform include the standard cover facing option only.
* Opening sashes in the 56mm platform include standard cover facing sashed or flush sashes.
* All windows are externally beaded utilising square edge beads.

*( for single glazing there is an option to use square beads)*

* Mullions and transoms have external or internal stiffening elements, where required, to satisfy span requirements.

Applies to Window No’s... *(or refer to the window schedule drawing)*

*For alternative options contact APL Technical Support*

**5.2 HORIZONTAL SLIDING WINDOWS**

Windows shall be constructed using Metro Series ThermalHEART sliding window frames and an IGU thickness up to 44mm.

* The perimeter frame is the Metro Series ThermalHEART sliding door frame with smaller profiles for rails, stiles and mullions.
* Stiffening boxes on interlocker stiles and mullions align in the closed position.
* All windows are externally beaded with square edge rather than sloped beads.

Applies to Window No’s... *(or refer to the window schedule drawing)*

*For alternative options contact APL Technical Support*

**5.3 BI-FOLD WINDOWS**

*A wide range of open-out configurations are available including the ‘lay-back’ option for 2-panel formats, which allows the panels to open back against an adjacent wall.*

Windows shall be constructed using Metro Series ThermalHEART bi-fold window frames and an IGU thickness up to 44mm.

* All profiles are from the Metro Series ThermalHEART bi-fold door system, which is bottom rolling with an in-frame track.

*(* ***NOTE****; check the visible glass area when specifying Metro Series bi-fold windows for units below 1.00m in height)*

* All windows are externally beaded with square edge rather than sloped beads.

- Standard configuration

Applies to Window No’s... *(or refer to the window schedule drawing)*

* Lay-back configuration

*(only two panels per side can ‘lay-back’)*

Applies to Window No’s... *(or refer to the window schedule drawing)*

*For alternative options contact APL Technical Support*

**5.4 LOUVRES**

*The Altair louvre system from Breezway, Australia, is factory fitted within most types of window or door frame. Glass, aluminium or timber louvre blades can be used in 102mm (4-inch) or 152mm (6-inch) widths. Breezway also offer a Stronghold system which offers increased security.*

* Type = Altair

*(type = Altair or Stronghold)*

* Colour matched to window frames...
* Blade type ...
* Blade depth ...

Applies to Window No’s... *(or refer to the window schedule drawing)*

*For alternative options contact APL Technical Support*

**5.5 ENTRANCE DOORS**

*A selection of entrance door panel styles are available for use in the Metro Series ThermalHEART hinged door frame (Section 4.6);*

**Classic Entrance Door**

*Attractive mouldings and a combination of solid or glazed panels give Classic entrance doors unequalled distinction.*

* Type *(refer to CPQ door portal information)* = ...
* Colour *(Protexture range of PC finishes, including woodgrain)* = ...
* Moulding style *(Traditional or contemporary)* = ...
* Glass option *(Default DGU in most glass styles)* = ...
* Hardware as nominated in the hardware section

*(Refer to your window fabricator for configuration / glass options)*

**Axis Entrance Door**

*Axis offers the sleek linear appearance of a vertical tongue and groove door, but because it is made from aluminium they not only offer low maintenance, they don’t shrink or swell but they deliver unbeatable strength.*

* Type *(Solid, Glazed and French options - refer to CPQ door portal information)* = ...
* Colour *(Protexture range of PC finishes, including woodgrain. Can be different interior/exterior finishes)* = ...
* Glass option *(Default DGU in most glass styles)* = ...
* Hardware as nominated in the hardware section

**Latitude Entrance Door**

*The overall appearance of the Latitude series doors is a blend of a classic aluminium panel door with solid tongue and groove infills, incorporating glazing if desired.*

* Type *(Solid, Glazed and French options - refer to CPQ door portal information)* = ...
* Colour *(Protexture range of PC finishes, including woodgrain. Can be different interior/exterior finishes)* = ...
* Glass option *(Default DGU in most glass styles)* = ...
* Hardware as nominated in the hardware section

**Plasma Entrance Door**

*The versatile Plasma delivers a solid, flat faced appearance that can be clad in a variety of materials, typically aluminium sheet or colour coated glass. Glazing infills can be cut into the panel if desired.*

* Type *(Slimline, Commercial, Glass clad, Negative detail)* = ...
* Colour *(Protexture range of PC finishes. Can be different interior/exterior finishes)* = ...
* Cladding options *(Can be different on interior and exterior faces)* = ...
* Hardware as nominated in the hardware section

**5.6 HINGED and FRENCH DOORS**

*Metro Series ThermalHEART hinged and French doors are rated to 2.7m high in ‘extra high’ wind zones.*

*For French doors, flush meeting stiles give a flush appearance and provide superior weathering. Parliament hinges allow doors to open a full 180° in a brick veneer application. A bottom rail extender is available to create a deep look in the classic French door style*

Doors shall be constructed using Metro ThermalHEART hinged door frames, utilising panels with an IGU thickness up to 44mm.

* Standard configuration

Open In / Open Out

Applies to Door No’s... *(or refer to the window schedule drawing)*

* Hardware as nominated in the hardware section.
* Sidelights and overlights are possible through the use of either an integral mullion/transom or by using a coupling bar with the Metro ThermalHEART awning window frame.
* Options = ...

*(options = special requirements e.g. parliament hinges)*

Applies to Door No’s... *(or refer to the window schedule drawing)*

*For alternative options contact APL Technical Support*

**5.7 BI-FOLD DOORS**

*This robust bi-fold system is rated to 2.7m high in ‘extra high’ wind zones and includes panels with square-cut corners and an in-frame track for direct frame support. A wide range of configurations are available including the ‘lay-back’ option for 2-panel formats, which allows the panels to open back against an adjacent wall.*

Doors shall be constructed using Metro Series ThermalHEART bi-fold door frames, utilising panels with an IGU thickness up to 44mm.

* Standard configuration

 Open Out

Applies to Door No’s... *(or refer to the window schedule drawing)*

* Lay-back configuration

*(only two panels per side can ‘lay-back’)*

Applies to Door No’s... *(or refer to the window schedule drawing)*

* Sidelights and overlights are possible through the use of either an integral mullion/transom or by using a coupling bar with the Metro ThermalHEART awning window frame.
* Options = ...

*(options = special requirements e.g. parliament hinges)*

Applies to Door No’s... *(or refer to the window schedule drawing)*

*For alternative options contact APL Technical Support*

**5.8 SLIDING DOORS**

*Metro Series ThermalHEART sliding doors are rated to 2.7m high in ‘extra high’ wind zones. They slide on an external track with a fixed sidelight. Stiffening boxes on interlocker stiles and mullions align in the closed position.*

Doors shall be constructed using the Metro Series ThermalHEART sliding door frame and an IGU thickness up to 44mm.

* Opening sashes are possible if placed away from the travel path of an opening door panel.
* Sidelights and overlights are possible through the use of either an integral mullion/transom or by using a coupling bar with the Metro ThermalHEART awning window frame.

Applies to Door No’s... *(or refer to the window schedule drawing)*

*For alternative options contact APL Technical Support*