

1. Certificate Holder Details



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2. Product Certification Body

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Complaints: The complaints process for this certificate can be found here:
<https://www.branz.co.nz/codemark-info/complaints-and-appeals/>

Product Certificate

APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors

3. Description of Building Method or Product

APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors are thermally broken aluminium window and door joinery units which include a proprietary recessed installation method. The joinery units are available with fixed glazing or opening sashes.

The opening sash window styles covered by this Product Certificate include:

- Awning and Casement (open out)
- Bi-fold (open out)
- Sliding and Stacking.

The opening door styles covered are:

- Bi-fold (open out)
- French doors (open out)
- Hinged (open in and open out)
- Sliding and Stacking.

Each joinery unit bears the brand name, a rating showing the appropriate NZS 4211 Wind Zone and air infiltration rating.

4. Intended use of Building Method or Product

APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors are intended for use as window and door joinery which includes a proprietary recessed installation.

5. New Zealand Building Code Provisions

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4 for the relevant physical conditions of B1.3.3, being self-weight, wind and impact, i.e. B1.3.3 [a], [h] and [j].

Clause B2 DURABILITY: Performance B2.3.1 [b] 15 years, B2.3.1 [c] 5 years and B2.3.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1 and F2.3.3 [a] and [b].



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Version: 02

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Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 (contributes) and H1.3.2E (contributes).

6. Conditions and Limitations of Use

APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors are window and door joinery for use within the following scope:

- designed and manufactured in accordance with NZS 4211 for weathertightness, airtightness and structural design; and,
- in new or existing timber-framed buildings within the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; or,
- in timber-framed buildings within the scope limitations of NZBC Verification Method E2/VM2; and,
- situated in NZS 3604 defined Wind Zones up to, and including, Extra High, or situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa; and,
- with cavity-based cladding systems complying with NZBC Acceptable Solution E2/AS1, or with cladding systems covered by a valid BRANZ Appraisal or BRANZ CodeMark Certificate that specify a drained and vented cavity with a minimum depth of 18 mm and a maximum depth of 45 mm; or,
- with masonry veneer complying with NZBC Acceptable Solution E2/AS1.

HANDLING AND STORAGE

Handling and storage of APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery on-site is the responsibility of the installer. Joinery units must be handled with care to avoid damage, especially scratching, and must be stored under cover on edge, and supported on the sill with protection materials (timber strips, cardboard) to avoid damage and distortion.

INSTALLATION SKILL LEVEL REQUIREMENT

All design and building work must be carried out in accordance with the Reference Documents and this Product Certificate by competent and experienced tradespersons conversant with APL Metro Series ThermalHEART® with Centrafix™ Window and Door installation. Where the work involves Restricted Building Work [RBW] this must be completed by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant License class.

REFERENCE DOCUMENTS

APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors must be designed, used, installed and maintained in accordance with:

- APL Metro Series ThermalHEART® with Centrafix™ System Guide, V1, April 2023.

7. Health and Safety Information

HUMAN IMPACT SAFETY

Glazing likely to be subject to human impact must comply with NZS 4223 Part 3, as specified in NZBC Acceptable Solution F2/AS1, Section 1.0.



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SAFETY FROM FALLING

Where specified, APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery can be supplied to comply with NZBC Acceptable Solution F4/AS1, Section 2.0.

RESTRICTING ACCESS TO RESIDENTIAL POOLS

Openable windows and doors that provide access to the immediate pool area must be carefully considered in the building design stage by the designer, paying particular attention to any requirements for restrictor stays or self-closing and self-latching door hardware. The design of windows and doors and their hardware specifications in these instances are outside the scope of this Product Certificate. NZBC Acceptable Solution F9/AS1 provides guidance for meeting these requirements.

8. Basis for Certification

TESTING

- Testing has been carried out on APL Metro Series ThermalHEART® with Centrafix™ joinery to NZS 4211. This testing covered positive and negative deflection, operating force (static and moving), air infiltration (negative and positive), water penetration, ultimate strength and torsional strength. Testing was undertaken at the Architectural Profiles Limited test laboratory, which is an IANZ (International Accreditation New Zealand) accredited laboratory. The test reports have been reviewed by BRANZ experts and found to be satisfactory.
- BRANZ expert opinion on NZBC E2 code compliance for APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery was based on testing and evaluation of the details within the scope and as stated within this Product Certificate. APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery was tested to NZBC Verification Method E2/VM1 to verify the systems performance in NZS 3604 Wind Zones up to, and including, Extra High, or situated in specific design wind pressures up to a maximum design differential ULS of 2.5 kPa. The testing assessed the performance of the window head, jamb and sill details with cavity-based wall cladding systems. In addition to the weathertightness test, the details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery will meet the performance levels of NZBC Acceptable Solution E2/AS1 for window and door joinery installation.

EXPERT JUDGEMENT

- Opinions on durability, strength and stability of the joinery have been given by BRANZ technical experts.

QUALITY

- The Reference Documents have been examined by BRANZ and found to be satisfactory.
- APL Windows Solutions are responsible for both the design and quality of the fabricated joinery supplied.
- Building designers are responsible for the design of the building and for the incorporation of APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery into their design in accordance with the instructions of APL Window Solutions.
- The quality of installation, handling and storage on-site is the responsibility of the installer, in accordance with the instructions of APL Window Solutions.



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- Building owners are responsible for the maintenance of the joinery in accordance with the instructions of APL Window Solutions.

9. Supporting Documentation for Certification

- Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B1 Structure, 1st Edition, Amendment 20, 29 November 2019.
- Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B2 Durability, 2nd Edition, Amendment 12, 28 November 2019.
- Acceptable Solutions and Verification Methods for New Zealand Building Code Clause F2 Hazardous Building Materials, 1st Edition, Amendment 3, 1 January 2017.
- AS/NZS 4666:2012 Insulating glass units.
- BRANZ Appraisal No. 1188 (2023) APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors.
- BRANZ Bulletin Issue 634 Finishing Aluminium, February 2019.
- BRANZ Durability Opinion TP13315-01-1 Durability Opinion on the APL Thermally Broken Recessed Window System, dated 3 March 2023.
- E2 External Moisture, Verification Methods E2/VM2, Cladding systems for buildings up to 25 m in height - including junctions with windows, door and other penetrations, 2nd Edition, 29 November 2021.
- H1 Energy Efficiency, Acceptable Solution H1/AS1, Energy efficiency for all housing, and buildings up to 300 m², 5th Edition, Amendment 1, 4 August 2022.
- H1 Energy Efficiency, Acceptable Solution H1/AS2, Energy efficiency for buildings greater than 300 m², 1st Edition, Amendment 1, 4 August 2022.
- H1 Energy Efficiency, Verification Method H1/VM1, Energy efficiency for all housing and buildings up to 300 m², 5th Edition, Amendment 1, 4 August 2022.
- H1 Energy Efficiency, Verification Method H1/VM2, Energy efficiency for buildings greater than 300 m², 1st Edition, Amendment 1, 4 August 2022.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4211:2008 Specification for performance of windows.
- NZS 4223 Part 3:2016 Glazing in buildings.
- Test Report No. T0605: APL Face Fixed Window Frame E2 VM1. Date Tested 7 October 2020.
- Test Report No. T0648: Metro 44 CFX TH Awning Window to NZS4211:2008. Date Tested 10/11 November 2021.
- Test Report No. T0649: Metro CFX 56 Open out Hinged Door to NZS4211:2008. Date Tested 27-29 April 2022.



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- Test Report No. T0650: Metro CFX Thermal 56 Open In Hinged Door to NZS4211:2008. Date Tested 4-8 August 2022.
- Test Report No. T0651: Metro CFX 56 Open Out French Door to NZS4211:2008. Date Tested 2-3 June 2022.
- Test Report No. T0652: Metro Thermal CFX 56 2+1 Bifold Door. Date Tested 28-29 September 2022.
- Test Report No. T0653: Metro Thermal CFX 56 2+2 Bifold Door. Date Tested 10-17 October 2022.
- Test Report No. T0656: Metro Centrafix 44 Bi-parting Sliding Door. Date Tested 08 June 2022.
- Test Report No. T0659: Metro Centrafix 44 Stacking Sliding Door. Date Tested 02 March 2022.
- Test Report No. T0665: Metro Centrafix TH 2 Panel Sliding Door to NZS4211:2008. Date Tested February 2022.
- Verification Methods E2/VM1 and Acceptable Solutions E2/AS1, E2/AS2 and E2/AS3 for New Zealand Building Code Clause E2 External Moisture, 3rd Edition, Amendment 10, 5 November 2020.
- Window & Glass Association New Zealand, Maintenance, Version 1, undated.

10. Supporting Information About Description

PRODUCT SPECIFICATION

APL Metro Series APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery is fabricated from aluminium extrusions that are thermally broken with a polyamide spacer within the profile sections. The extrusions are polyester powder-coated or anodised prior to cutting to length in the joinery fabrication process.

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery units have a perimeter fin for face fixing the unit to the outer face of the wall framing. Fixing holes are pre-formed in the fixing fin at 300 mm centres and no more than 150 mm from the corner of the unit. The joinery units incorporate an integral sill support mechanism and sill tray. The sill fin of each unit is supplied with a compressible foam strip.

Each joinery unit is assembled with aluminium profiles, insulating glass units [IGUs], connectors, window fasteners, seals, sealant and opening hardware to meet the requirements of NZS 4211. Where specified, the joinery units are supplied with H3.1 treated timber reveals attached to the aluminium frames by stapling through the nailing fin. APL Window Solutions provide a head flashing with integral cavity closer and clip on end dams to suit a 20 mm cavity. The joinery unit can also be supplied with a factory fitted soffit trim, a sill extension bar or a sill support bar.

APL Window Solutions can supply The AGP System® (IGUs) with the joinery units. The IGUs are manufactured by Architectural Glass Products Limited (AGP®). The IGUs meet the relevant requirements of NZS 4223 Parts 1 to 4 and are marked with AGP® on the spacer bar. If IGUs are supplied by other manufacturers, these must also meet the relevant requirements of these standards, but these IGUs have not been assessed and are outside the scope of this Product Certificate.



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11. Supporting Information About Intended Use

GENERAL

APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors incorporate an external fixing flange (fin) that allows the joinery to be installed and sealed to the face of the wall underlay or floor edge. The joinery is designed for use with cavity-based wall cladding systems and features an integrated aluminium facing that extends 58 mm from the wall framing line.

A weather and airtight barrier around the joinery perimeter is created when the fin and the wall underlay is taped with a suitable flashing tape. The flashing tape must not be exposed to the weather or ultraviolet (UV) light for a period greater than that specified by the flashing tape proprietor before being covered by the cladding system.

The installation method for APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery is an alternative solution to the installation method contained within NZBC Acceptable Solution E2/AS1. Flexible flashing tapes are not required around the window opening as specified in NZBC Acceptable Solution E2/AS1, Paragraph 9.1.10.2 c).

Design of the joinery units is carried out to meet the requirements of NZS 4211, NZS 4223 Part 3 and sill support deflection limits.

Where combinations of fixed lights and opening sashes are required, the height of the window will depend on the maximum allowable mullion height for the wind exposure and the mullion spacing selected. The joinery can be of any width, provided the width of any light is within the maximum allowable transom length and the maximum allowable sash width. In all cases, the glass must meet the structural requirements for the wind exposure selected.

It is recommended that APL Window Solutions be consulted for information and recommendations on window size, configuration and glass requirements.

Where a proprietary cladding manufacturer provides window and door joinery installation detailing as part of their system, permission must be obtained from the cladding supplier before APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery installation detailing is substituted.

Where required, installations of APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery can be complemented by the use of cladding trims (e.g. scribes, facings) to ensure a weathertight joint between the window facing and the cladding. Refer to the Reference Documents for typical details.

Where APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery is used with cladding systems not covered by this Product Certificate (refer to Section 6), designers must detail the junction between the joinery and the cladding to meet their own requirements and the performance requirements of the NZBC. Details not included within the Reference Documents have not been assessed and are outside the scope of this Product Certificate.

Joinery Security

The design of the joinery units is such that when closed, sashes cannot be readily opened from the outside by, for example, the insertion of a thin blade.



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BUILDING CODE

B1 STRUCTURE

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery units are designed to be supported directly by a sill trimmer, or a timber or concrete floor. As such, there is no requirement for a joinery support bar or any additional means of sill support.

The structural performance of APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery units meet the requirements of NZS 4211.

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery is suitable for use in NZS 3604 defined Wind Zones up to, and including, Extra High, or situated in specific design wind pressures up to a maximum design differential ULS of 2.5 kPa.

Ease of Operation

The sashes meet the opening force requirements of NZS 4211, Paragraph 7, and can be opened without difficulty.

B2 DURABILITY

Serviceable Life

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery and associated gaskets and seals are expected to remain serviceable under New Zealand conditions for at least 15 years. Over time, some loss of gloss and some colour fade may affect the appearance of the surface finish.

During the life of the joinery, components such as IGUs, fittings and seals may need to be replaced due to environmental exposure and damage.

Maintenance

Regular maintenance is required for APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery to continue to meet the NZBC durability performance requirements and to maximise its serviceable life. BRANZ Bulletin issue 634 and the Window & Glass Association New Zealand (WGANZ) guidance documentation should be used as a reference for the maintenance of the powder coating and anodised surfaces, and the required frequency of washing determined by pollution levels. Joinery installed in polluted areas such as severe industrial, geothermal and marine exposures are recommended to be cleaned every 3 months. Regular cleaning (at least every 6 months) is recommended for unpolluted rural and urban areas.

Annual inspections must be made to ensure that all aspects of APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery, including visible flashings, seals and cladding junctions remain in a weathertight condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately in accordance with the instructions of APL Window Solutions.

Hardware should be periodically lubricated to minimise wear and to ensure smooth operation and can be readily replaced by the window manufacturer if necessary.

Care must be taken to avoid damage or discolouration of the aluminium members when stripping paint from adjacent timber, for example, by means of a blowlamp or paint stripper.

Concrete, mortars and other alkaline type materials must not come into contact with the aluminium or glass surfaces. If accidental splattering of these materials onto the aluminium or glass does occur, it must be removed immediately by wiping and washing it from the surface with clean water. Paint or other coating material splashes or splatters must also be removed from the surfaces immediately with a clean cloth.



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Re-glazing, if required, must be undertaken by glazing tradespersons.

C3 CONTROL OF INTERNAL FIRE AND SMOKE SPREAD

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery is not suitable for use where fire rated windows, fire doors or smoke control doors are required by the NZBC.

C4 MEANS OF ESCAPE

Where APL Metro Series ThermalHEART® with Centrafix™ doors are used on escape routes, the relevant provisions of NZBC Clause C4 must be met. This may be achieved, for example, by meeting the relevant requirements of NZBC Acceptable Solution C/AS2 Part 3 for access, door fastenings, locking devices, direction of opening, degree and width of opening, hardware and provision of vision panels.

E2 EXTERNAL MOISTURE

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery is an alternative solution to the window and door joinery solutions provided in NZBC Acceptable Solution E2/AS1. When installed in accordance with this Product Certificate and the Technical Literature, APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery prevents the penetration of moisture that could cause undue dampness or damage to building elements.

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery must be installed with flashing tape to the head and jamb fins to seal the unit to the wall underlay. At the sill, the joinery has a compressible foam seal which seals the sill fin to the wall underlay or floor edge. The gap between the reveal and framing is filled with an expanding foam seal to improve the thermal performance. Flashing tapes around the window and door trim opening as detailed in NZBC Acceptable Solution E2/AS1, Paragraphs 9.1.5 b] and 9.1.6 are not required.

The details given in the Reference Documents for weather sealing are based on the design principle of having a first and second line of defence against moisture entry for cladding junctions. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Reference Documents. Weathertightness details that are developed by the designer are outside the scope of this Product Certificate and are the responsibility of the designer for compliance with the NZBC.

Air and Water Leakage

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery complies with the air and water leakage requirements of NZS 4211, Sections 8 and 9. Air leakage ratings for the joinery achieve the NZS 4211 air conditioning rating. Water leakage ratings allow for their installation in NZS 3604 defined Wind Zones up to, and including, Extra High or situated in specific design wind pressures up to a maximum design differential ULS of 2.5 kPa.

G4 VENTILATION

APL Metro Series ThermalHEART® with Centrafix™ windows can be used to meet the ventilation performance requirements of the NZBC if the joinery is installed in exterior walls that enclose occupied spaces, in sufficient quantity or size with opening sashes to provide a net openable area of not less than 5% of the room floor area.

G7 NATURAL LIGHT

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery can be used to meet the performance requirements of the NZBC for natural light, provided a sufficient number of joinery units are installed with an acceptable glazing transmittance value, and they are located



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correctly within exterior walls along with an acceptable interior surface reflectance. NZBC Acceptable Solution G7/AS1 provides guidance for meeting the area, glazing transmittance value, location and surface reflective requirements.

H1 ENERGY EFFICIENCY

APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery supplied with IGUs will assist the building envelope in meeting the performance requirements of NZBC H1.3.1 and H1.3.2E. Refer to NZBC Acceptable Solutions H1/AS1 and H1/AS2 and Verification Methods H1/VM1 and H1/VM2 for means of demonstrating compliance with the H1 Energy Efficiency performance provisions. For APL Metro Series ThermalHEART® with Centrafix™ Window and Door joinery, the construction R-values from NZBC Acceptable H1/AS1, Table E.1.1.1 should be used. The relevant construction R-values are detailed in Table 1.

Table 1: Selected NZBC Acceptable Solution H1/AS1, Table E.1.1.1 Window R-values

IGU Spacer Type	IGU Type	Thermally broken aluminium frame R-value (m²K/W)
Aluminium	Clear/Clear: Air	0.32
Aluminium	Clear/Low E1: Argon	0.39
Thermally Improved	Clear/Low E2: Argon	0.42
Thermally Improved	Clear/Low E3: Argon	0.46
Thermally Improved	Clear/Low E4: Argon	0.50
Thermally Improved	Clear/Low E4: Krypton	0.54

The installation method for APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors requires applying expanding foam to all interior trim cavities. In this instance, the expanding foam does not require a backing rod as it contributes to the thermal performance of the installed joinery only and is not required for air sealing.

SYSTEM INSTALLATION

APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors must be installed strictly in accordance with Reference Documents. The following is a summary of key elements of the installation process:

- The timber framing around the window opening must be checked to ensure that the framing is aligned and free from any protrusions. Where the joinery unit extends to the floor, the framing line must finish flush with the floor edge or overhang by up to 5 mm. The framed opening size clearance is not important, however a 5-7 mm clearance all-round the joinery reveal is recommended.
- The selected wall underlay must be installed by the building contractor in accordance with the underlay manufacturer's instructions prior to the installation of the joinery.



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- Installation of the joinery must be carried out before the installation of the cavity battens and selected cladding. The joinery unit is fitted into the formed opening with the outer fixing fin finished hard against the face of the wall frame over the wall underlay. The sill must be set true and level and jambs plumb before fixing the joinery permanently in place.
- The head, sill and jambs are fixed through the pre-formed holes in the fixing fins to the framing or floor edge at 300 mm centres. After the joinery unit has been fixed in place, the jamb and head fixing fins must be taped to the wall underlay with flashing tape. The tape must be installed with minimum 25 mm covering the fixing fin and the remainder onto the wall underlay. All fixings and unused fixing holes must be covered. (Note: Where tape installation is not possible, e.g. where the joinery finishes hard under a soffit, a compressible foam tape is used to create an airtight seal.)
- The cavity battens and wall cladding system are installed around APL Metro Series ThermalHEART® with Centrafix™ Windows and Doors joinery in accordance with the Technical Literature and the cladding system proprietor's instructions.
- Appropriately specified windows and doors must be installed where required to comply with the requirements of Safety from Falling, Restricting Access to Residential Pools and Human Impact Safety.

12. Supporting Information About Conditions and Limitations of Use (Optional)

All conditions and limitations provided as stated in this Product Certificate.

Signatures

A handwritten signature in black ink that reads "Falck".

Claire Falck
CEO, BRANZ Limited

All CodeMark certificates that are current much be registered with MBIE. MBIE maintains a register of valid product certificates. [Please find the register here.](#)

If the certificate is not listed on this register or it appears as (SUSPENDED), it is not a valid CodeMark certificate and does not have to be accepted by a building consent authority as establishing compliance with the New Zealand Building Code.



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