



BRANZ Appraised

Appraisal No. 543 [2022]

HOMERIT PREMIUM SERIES PVC-U WINDOWS AND DOORS

Appraisal No. 543 [2022]

This Appraisal replaces BRANZ
Appraisal No. 543 [2007]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Homerit Premium Series PVC-U Windows and Doors are a range of single, double and triple-glazed PVC-U window and door joinery units for use in residential and commercial buildings. The joinery units are available with fixed glazing or opening sashes.
- 1.2 The opening sash window styles covered by this Appraisal include:
 - Awning [open out]
 - Bifold
 - Casement [open out]
 - Hinged [open in]
 - Slide and Stack
 - Tilt and Turn.
- 1.3 The opening door styles covered by this Appraisal include:
 - Bifold
 - French Doors [open out]
 - Hinged [open in and open out]
 - Slide and Stack
 - Tilt and Turn.
- 1.4 The joinery is fabricated in New Zealand from PVC-U profiles manufactured by VEKA.

Scope

- 2.1 Homerit Premium Series PVC-U Windows and Doors have been appraised for use as window and door joinery within the following scope:
 - designed and manufactured in accordance with NZS 4211 for weathertightness, airtightness and structural design; and,
 - as an alternative to the aluminium windows and doors specified in NZBC Acceptable Solution E2/AS1, Paragraph 9.1.10; and,
 - in buildings within the scope of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - with cladding systems complying with NZBC Acceptable Solution E2/AS1; and,
 - situated in NZS 3604 defined Wind Zones up to, and including, Very High for Bifold, Casement, French and Slide and Stack windows and doors and up to, and including, Extra High for all other window and door types.

- 2.2 Homerit Premium Series PVC-U Windows and Doors have also been appraised for compliance with NZS 4211 where they are specified for use outside the scope of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.10.1 [as the product is PVC-U, not aluminium] and/or the building is outside the scope limitations of NZBC Acceptable Solution E2/AS1 Paragraph 1.1 but is within the wind exposure limitations of NZS 4211. The building weathertightness design and installation of the window and door joinery in these situations is subject to specific design and is outside the scope of this Appraisal.
- 2.3 Homerit Premium Series PVC-U Windows and Doors in sizes above those tested have also been appraised for compliance with NZS 4211 where the proprietary VEKA window system engineering design system, or a design engineer, is able to verify that the strength and deflection requirements are within the limitations of the applicable wind zone.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Homerit Premium Series PVC-U Windows and Doors, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet, or contribute to meeting the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. Homerit Premium Series PVC-U Windows and Doors meet the requirements for loads arising from self-weight, wind and impact, i.e. B1.3.3[a], [h] and [j]. See Paragraphs 9.1-9.3.

Clause B2 DURABILITY: Performance B2.3.1 [b] 15 years for the windows and doors and B2.3.1 [c] 5 years for the hardware. Homerit Premium Series PVC-U Windows and Doors meet these requirements. See Paragraphs 10.1-10.5.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Homerit Premium Series PVC-U Windows and Doors meet this requirement for the joinery unit and contribute to the wall cladding system meeting this requirement. See Paragraphs 14.1-14.4.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.2 and F2.3.3 [a]. Homerit Premium Series PVC-U Windows and Doors meet these requirements. See Paragraph 15.1.

Clause F4 SAFETY FROM FALLING: Performance F4.3.1. Homerit Premium Series PVC-U Windows and Doors can be used to meet this requirement. See Paragraph 16.1.

Clause G4 VENTILATION: Performance G4.3.1 and G4.3.3. Homerit Premium Series PVC-U Windows and Doors can be used to meet these requirements. See Paragraph 18.1.

Clause G7 NATURAL LIGHT: Performance G7.3.1 and G7.3.2. Homerit Premium Series PVC-U Windows and Doors can be used to meet these requirements. See Paragraph 19.1.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 and H1.3.2E. Homerit Premium Series PVC-U Windows and Doors contribute to meeting these requirements. See Paragraphs 20.1 and 20.2.

Technical Specification

- 4.1 Homerit Premium Series PVC-U Windows and Doors frames and sashes are fabricated with a variety of extruded PVC-U profiles using a 58 mm platform width with internal steel core profiles for additional rigidity. The finished profiles are of different cross sectional designs, both in sizing and format to allow for differing strength and design purposes. The 'S' [severe climate] formulation only is used to extrude PVC-U profile for the New Zealand market.
- 4.2 Coloured PVDF acrylic foils can be used to give a variety of coloured finishes to the profiles. These foils are laminated onto the surface when the PVC-U profile is manufactured. Colour stability testing has been assessed by BRANZ for the following colours: Mahogany, Golden Oak, Rustic Oak, Natural Oak, Dark Oak, White, Choco Brown, Charcoal Grey, Dark Brown, and Dark Green. Other colours in the available range have not been assessed and are outside the scope of this Appraisal.
- 4.3 Seals and gaskets used in the Homerit PVC-U Window and Doors are extruded EPDM gaskets.



- 4.4 Each joinery unit is assembled from PVC-U profiles selected according to the window or door sizing. Window and door accessories include fasteners, safety stays, friction stays, sash locks, and door hardware.
- 4.5 Each joinery unit bears the brand name, a rating showing the appropriate NZS 4211 wind zone, and an indication of air leakage level.
- 4.6 H3.1 treated timber reveals are attached to PVC-U frames.
- 4.7 For single glazing, the glazing must be selected in accordance with the requirements of NZS 4223, Part 3. For double and triple glazing, the glazing must be selected in accordance with the requirements of NZS 4223, Part 3 and AS/NZS 4666.

Accessories

- 4.8 Accessories used with Homerit Premium Series PVC-U Windows and Doors which can be supplied on request are:
 - Joinery sill support bars and fixings complying with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.10.5 b) v).
 - Head flashings complying with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.10.1.
 - Sill flashings [for direct fixed claddings] complying with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.10.5.

[Note: The building contractor is responsible for the supply of these accessories if they are not supplied by the window fabricator.]
- 4.9 Fixings used to fit Homerit Premium Series PVC-U Windows and Doors to the framing which are supplied by the window installer are minimum:
 - 65 mm x 8 g stainless steel screws, or
 - 75 x 3.15 mm hot-dip galvanised nails.

Handling and Storage

- 5.1 Handling and storage of Homerit Premium Series PVC-U Window and Doors on-site is the responsibility of the window 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 [e.g. timber blocking] to avoid damage and distortion.
- 5.2 Bituminous products must be kept off the surface of PVC-U to avoid staining. Solvent-based products must not be allowed to come into contact with the surface of the PVC-U.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
 - Homerit Premium Series, PVC-U Windows and Doors, Technical Literature, January 2022, Version 1.5.
- 6.2 All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

- 7.1 Design of the joinery units is carried out to meet the requirements of NZS 4211 and NZS 4223, Part 3.
- 7.2 It is recommended that NZ Investment and Trading Ltd is consulted for information and recommendations on window size, configuration and glass requirements.
- 7.3 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 installed must meet the structural requirements for the wind exposure selected.

- 7.4 Where Homerit Premium Series PVC-U Windows and Doors are used with proprietary cladding systems not covered by NZBC Acceptable Solution E2/AS1, designers must detail the junction between Homerit Premium Series PVC-U Windows and Doors and the cladding to meet their own requirements and the performance requirements of the NZBC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

Joinery Security

- 8.1 The joinery units incorporate multi-point locks, and as such that when closed, sashes cannot be readily opened from the outside by, for example, the insertion of a thin blade.

Structure

- 9.1 Homerit Premium Series PVC-U Windows and Doors meet the structural performance requirements of NZS 4211.

Wind Zones

- 9.2 Homerit Premium Series PVC-U Window and Doors are suitable for use in NZS 3604 defined Wind Zones up to, and including, Very High for Bifold, Casement, French and Slide and Stack windows and doors, and up to, and including, Extra High for all other window and door types.

Ease of Operation

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

Durability

Serviceable Life

- 10.1 The white Homerit PVC-U joinery profiles and associated EPDM gaskets and seals are expected to remain serviceable under New Zealand conditions for a period of at least 15 years, if installed and maintained in accordance within the specifications of NZ Investment and Trading Ltd. Over time, some loss of gloss, and some colour fade may affect the surface appearance of the PVC-U profile.
- 10.2 Coloured PVDF acrylic foils laminated onto the PVC-U profiles can also be expected to remain serviceable for at least 15 years. Over time, some loss of gloss and some colour fade may affect the surface appearance of the foil.
- 10.3 During the life of the joinery, components such as hardware fittings and seals may need to be replaced due to environmental exposure and damage.
- 10.4 Glazing installed in Homerit Premium Series PVC-U Windows and Doors is subject to the performance requirements of NZS 4223. Double and triple glazing is also subject to the performance requirements of AS/NZS 4666. Glazing installed to the above requirements is expected to have a serviceable life of at least 15 years.
- 10.5 H3.1 timber reveals meet the 15 year durability performance requirements of NZS 3602.

Maintenance

- 11.1 Homerit Premium Series PVC-U Windows and Doors must be regularly cleaned (at least annually) using warm water containing a mild household detergent to remove any grime, dirt and organic growth that may have accumulated and to maximise the life and appearance of the joinery. If proprietary cleaners are used on the glass, care must be taken to ensure that deposits do not discolour or damage the PVC-U surface or window seals. Organic solvents, particularly acetone and toluene-based solvents, and similar products must not be used for cleaning as they could damage the surface of the PVC-U profiles. NZ Investment and Trading Ltd should be consulted first to ascertain suitability before any solvent-based product is used for cleaning.
- 11.2 Hardware should be periodically lubricated to minimise wear and to ensure smooth operation. Hardware can be readily replaced by NZ Investment and Trading Ltd if necessary.
- 11.3 Drainage channels should be cleaned periodically and kept clear of any blockages.



- 11.4 Care must be taken to avoid damage or discolouration of the PVC-U profiles when stripping paint from adjacent timber, for example, by means of a blowlamp or paint stripper.
- 11.5 PVC-U should not need painting at any time. Should painting be contemplated for any reason, only specialised paint may be used. The advice of NZ Investment and Trading Ltd must be sought before any painting is undertaken.
- 11.6 Re-glazing if required, must be undertaken by a glazier following NZ Investment and Trading Ltd installation instructions.

Movement to Place of Safety

- 12.1 Where Homerit Premium Series PVC-U 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 Solutions C/AS1 and C/AS2, Part 3 for access, door fastenings, locking devices, direction of opening, degree and width of opening, hardware, and provision of vision panels.

Control of Internal Fire and Smoke Spread

- 13.1 Homerit Premium Series PVC-U Windows and Doors are not suitable for use as fire rated windows or where fire doors or smoke control doors are required by the NZBC.
- 13.2 Risk Group SH buildings have no surface finish requirements [Group Number]. Window components and individual doorsets in other Risk Groups are also exempt from the surface finish requirements. Refer to NZBC Acceptable Solution C/AS2, Paragraphs 4.17.6 d) and 4.17.6 g).

External Moisture

General

- 14.1 Homerit Premium Series PVC-U Windows and Doors, when installed in accordance with the Technical Literature and installation detailing, perform similarly to, and are an Alternative Solution to the windows and doors specified in NZBC Acceptable Solution E2/AS1. Homerit Premium Series PVC-U Windows and Doors, when correctly installed, prevent the penetration of moisture that could cause undue dampness or damage to building elements.
- 14.2 Buildings outside the scope of NZBC Acceptable Solution E2/AS1 must be the subject of specific weathertightness design for the joinery installation details. The designer must develop these joinery installation details to meet their own requirements and the performance requirements of the NZBC. These details have not been assessed and are outside the scope of this Appraisal.
- 14.3 All window and door joinery must be installed using flexible flashing tapes and air seals in accordance with NZBC Acceptable Solution E2/AS1, Paragraphs 9.1.5 and 9.1.6, or when used outside the scope of NZBC Acceptable Solution E2/AS1, specific weathertightness design details must also follow these principles.

Air and Water Leakage

- 14.4 Homerit Premium Series PVC-U Windows and Doors comply with the air and water leakage requirements of NZS 4211, Sections 8 and 9. Air leakage rates for the joinery can reach the NZS 4211 air-conditioning rating. Water leakage ratings allow for their installation in NZS 3604 defined Wind Zones up to, and including, Very High for Bifold, Casement, French and Slide and Stack windows and doors, and up to, and including, Extra High for all other window and door types.

Hazardous Building Materials

Human Impact Safety

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

Safety from Falling

16.1 Opening windows must comply with the requirements of NZBC Acceptable Solution F4/AS1, Paragraph 1.0. In cases where the fitting of a window opening restrictor is an appropriate solution, these can be fitted on request by NZ Investment and Trading Ltd during manufacture, or universal restrictor stays can be retrofitted to the joinery units by others.

Restricting Access to Residential Pools

17.1 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 Appraisal. NZBC Acceptable Solution F9/AS1 provides guidance for meeting these requirements.

Ventilation

18.1 Homerit Premium Series PVC-U Windows and Doors contain openable sashes which will contribute to the compliance of building with NZBC Clause G4. Consideration must be given to the net openable area required for a particular space by the designer. NZBC Acceptable Solution G4/AS1 provides guidance on required ventilation.

Natural Light

19.1 Homerit Premium Series PVC-U Windows and Doors can be used to meet the performance requirements of the NZBC for natural light. NZBC Acceptable Solution G7/AS1 provides guidance for meeting these requirements.

Energy Efficiency

- 20.1 Homerit Premium Series PVC-U Windows and Doors supplied with insulating glass units (IGUs) will assist 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 NZBC Verification Methods H1/VM1 and H1/VM2, for minimum construction R-values for windows and doors.
- 20.2 The total window R-value [glazing and frame] for a Standard Window using Homerit Premium Series PVC-U, with various double [and a triple] glazing options, are given in Table 1. The values in Table 1 are calculated for a Standard Window, in accordance with NZS 4218 Appendix C2. Contact NZ Investment and Trading Ltd for R-value calculations for other glazing options, and specific window and door sizes and configurations.

Table 1: R-values of a Standard Window using Homerit Premium Series PVC-U

Centre of Glazing U_g values [W/m ² K]	R-value [m ² K/W]
2.63	0.41
2.27	0.46
2.02	0.50
1.60	0.58
1.30	0.67
1.10	0.74
1.00	0.78
0.90	0.82
0.60	1.00

Installation Information

Installation Skill Level Requirements

21.1 Where the installation of Homerit Premium Series PVC-U Windows and Doors requires a building consent, the installation must be carried out by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant licence class in accordance with this Appraisal and the Technical Literature. Where the installation is exempt from requiring building consent, the installation of Homerit Premium Series PVC-U Windows and Doors must comply with the NZBC and be completed by builders or installers with experience in window and door installation.

Joinery Installation

- 22.1 NZ Investment and Trading Ltd provides Technical Literature covering the installation details for the Homerit Premium Series PVC-U Windows and Doors. Information may also be obtained from NZBC Acceptable Solution E2/AS1.
- 22.2 The selected underlay must be installed by the building contractor in accordance with the underlay supplier's instructions. Flexible flashing tape must be fitted to the sill and the head/jamb junction in accordance with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.5, prior to installation of the joinery.
- 22.3 The framed opening size must be large enough to give approximately 7.5-10 mm clearance all round between the wall framing and the reveal liner. Installation of joinery may be carried out before or after the fixing of the cladding, depending on the type of cladding and sealing or flashing system being used.
- 22.4 Sills must be set true and level and jambs plumb before fixing the joinery permanently in place.
- 22.5 Fixings into the supporting framing for the jambs and head shall be in accordance with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.10.8 with regard to fixing type and position. Refer to the Technical Literature for sill fixing requirements. Packing must be provided between the joinery reveal and framing or substrate at the point of fixing to set the joinery frame in correct alignment. There must be no vertical or lateral pressures transmitted to the joinery frames from the building structure, cladding or packers. All packers must be in a sound condition suitable for supporting the selected fastener or fixing.
- 22.6 The installation of the joinery and associated flashings must be in accordance with the details provided in NZBC Acceptable Solution E2/AS1, or details of a specific design.
- 22.7 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.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests and Investigations

- 23.1 Testing has been carried out on the joinery by an IANZ accredited laboratory and meets the requirements of NZS 4211. This testing covered positive and negative deflection, operating force [static and moving], air infiltration [positive and negative], water penetration, ultimate strength, and torsional strength. Test reports were reviewed by BRANZ experts and found to be satisfactory.
- 23.2 NZBC E2/VM1 testing to assess the weathertightness of the junction between the window and doors and typical cladding types has been conducted by BRANZ.
- 23.3 Opinions on the durability of the joinery components and a weathertightness opinion have been given by BRANZ experts.
- 23.4 Site inspections have been carried out by BRANZ to assess the practicability of installation of the PVC-U joinery systems, and to examine completed installations for use and ease of operation, and long term durability.



Quality

- 24.1 The manufacture of VEKA PVC-U profiles has not been examined by BRANZ, but details regarding the quality and composition of the materials has been obtained by BRANZ and found to be satisfactory. The manufacture of the VEKA PVC-U profiles is certified to ISO 9001: 2015 by Quality Austria.
- 24.2 The fabrication of Homerit Premium Series PVC-U Windows and Doors has been examined by BRANZ including methods adopted for quality control and found to be satisfactory.
- 24.3 NZ Investment and Trading Ltd is responsible for both the design and quality of the fabricated joinery supplied.
- 24.4 Building designers are responsible for the design of the building, and for the incorporation of the joinery into their design in accordance with this Appraisal.
- 24.5 Installers and glaziers are responsible for the quality of installation in accordance with the installation instructions of NZ Investment Trading Ltd.
- 24.6 Building owners are responsible for the maintenance of the joinery in accordance with this Appraisal, see also Paragraphs 11.1-11.6.

Sources of Information

- AS/NZS 4666:2012 Insulating glass units.
- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4211:2008 Specification for performance of windows.
- NZS 4218:2009 Thermal insulation - Housing and small buildings.
- NZS 4223.3:2016 Glazing in Buildings - Part 3: Human impact safety requirements.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 12 January 2023

This Appraisal has been amended to update Table 1.



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Appraisal No. 543 [2022]

BRANZ Appraisal
Appraisal No. 543 [2022]
09 February 2022

HOMERIT PREMIUM SERIES
PVC-U WINDOWS AND DOORS



In the opinion of BRANZ, **Homerit Premium Series PVC-U Windows and Doors** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **NZ Investment and Trading Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. **NZ Investment and Trading Ltd:**
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by **NZ Investment and Trading Ltd**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **NZ Investment and Trading Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

09 February 2022