



**BRANZ Appraised**  
Appraisal No. 1140 [2021]

## EVS GLAZING SYSTEM

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### BRANZ Appraisals

Technical Assessments of products for building and construction.



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## Product

- 1.1 The EVS Glazing System is an external retrofit secondary glazing system for residential and light commercial type buildings with timber window and door joinery. It features a double-glazed insulating glass unit (IGU) in a proprietary uPVC frame which is painted to colour match the existing joinery.

## Scope

- 2.1 The EVS Glazing System is suitable for use on buildings within the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 in instances where it is desirable to increase the thermal and acoustic performance of existing timber window and door joinery. It is intended for use in buildings that pre-date present-day thermal performances required by the NZBC. It is suitable for use on buildings situated in NZS 3604 Wind Zones up to, and including, Extra High.

## Building Regulations

### New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, the EVS Glazing System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

**Clause B1 STRUCTURE:** Performance B1.3.1, B1.3.2 and B1.3.4. The EVS Glazing System meets the requirements for loads arising from self-weight, wind, impact and creep [i.e. B1.3.3 (a), (h), (j) and (q)]. See Paragraph 8.1.

**Clause B2 DURABILITY:** Performance B2.3.1 (a) 5 years and B2.3.2. The EVS Glazing System meets these requirements. See Paragraph 9.1.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. The EVS Glazing System meets this requirement. See Paragraphs 13.1-13.2.

**Clause H1 ENERGY EFFICIENCY:** Performance H1.3.1 (a). The EVS Glazing System contributes to meeting this requirement. See Paragraphs 16.1-16.3.

## Technical Specification

- 4.1 The EVS Glazing System consists of externally mounted, ventilated uPVC-framed double-glazing units for retrofitting to existing timber window and door joinery. The EVS Glazing System units are glazed with two panes of 4 mm glass contained in an IGU, which forms a triple-glazed retrofit solution. EVS Glazing System units are affixed to existing timber window and door joinery with an integrated support system, screw fixed to the timber window frame or sash. Once installed, the units are sealed to the timber window frame or sash with a bead of flexible sealant. The cavity between the EVS Glazing System unit and the existing window glazing is ventilated – ensuring that incidental moisture introduced to the cavity is actively dried to prevent fogging or condensation within the cavity.

## Handling and Storage

- 5.1 All components must be protected from damage prior to installation and be kept clear of items that could damage the frame or the glazing i.e. nearby tree branches or similar. Care must be taken when handling or cleaning secondary glazing to avoid marking or scratching the exterior surfaces.

## Technical Literature

- 6.1 No Technical Literature for design or inspection purposes is referenced by this Appraisal.

## Design Information

### General

- 7.1 The EVS Glazing System are a range of glazed window and door attachments, which are manufactured specifically for each installation by licensed agents of EVS Window Technology Limited.
- 7.2 The EVS Glazing System are intended for use on windows and glazed doors of existing residential and non-residential buildings in order to improve the thermal and acoustic insulation performance of the joinery, and to reduce the incidence of condensation.
- 7.3 The EVS Glazing System is suitable for use with joinery fitted with any type of existing glazing – clear float, obscure or decorative leadlight glass. The EVS Glazing System design ensures there is an insulating air gap between the existing glazing pane and the IGU fitted within the EVS Glazing System unit frame.
- 7.4 EVS Glazing System units can be manufactured to suit installation to a single window, or to a window with multiple smaller glazing panes to the same size. Physical sizing limitations of EVS Glazing System will be determined in some cases by glazing spans or support and fixing limitations within the existing timber joinery. Contact EVS Window Technology Limited for further information.
- 7.5 The attachment of EVS Glazing System to the joinery frames is by means of a system of concealed fixing clips placed around the edge of the EVS Glazing System units, which are screw fixed to the timber window and door joinery. When required, EVS Glazing System can be removed and re-fitted for the redecoration or maintenance of the joinery. It is advised that EVS Window Technology Limited is contacted to assist with the removal and re-fitting process.



- 7.6 It is recommended that joinery to be fitted with the EVS Glazing System is bought up to a good serviceable condition immediately prior to installation, with particular attention paid to the exterior surfaces of the joinery. Such maintenance and refurbishment work may include:
- the removal of any rotten or damaged timber;
  - replacement of cracked glazing;
  - refurbishment of worn or damaged hardware – hinges, latches, window stays;
  - replacement of loose or missing glazing putty;
  - replacement of concealed steel fixings that show signs of corrosion (evidenced by rust staining present on the painted surface).
- All exterior surfaces of remediated joinery should be repainted and maintained with a quality exterior timber paint system. Where required, EVS Glazing System units can be removed and re-fitted to allow further redecoration or maintenance of the joinery. It is advised that EVS Window Technology Limited is contacted to assist with the removal and re-fitting process.
- 7.7 The EVS Glazing System unit frames are uPVC and are either pre-painted or painted in-situ once installed to match the paint coating and colour of the timber joinery it is affixed to. The paint coating to the uPVC serves as both a protective coating to the uPVC frame and ensures the frame is aesthetically inobtrusive.
- 7.8 The EVS Glazing System is appraised for use on the exterior side of timber windows and doors. The use of EVS Glazing System on joinery frames of other material types, or skylights and other sloping glazing applications such as conservatories is outside the scope of the Appraisal.

## Structure

### General

- 8.1 The EVS Glazing System is suitable for use in all Wind Zones up to, and including, Extra High [2.36 kPa], based on the assumption that the glazing within the existing joinery is adequate to resist expected in service wind loadings.

## Durability

### Serviceable Life

- 9.1 The EVS Glazing System is anticipated to have a serviceable life of at least 10 years providing normal maintenance is carried out as described below.

## Maintenance

- 10.1 The EVS Glazing System must be maintained in accordance with the instructions given by EVS Window Technology Limited.
- 10.2 Regular inspection of the EVS Glazing System should be undertaken to ensure that the sealant joints between the frame and the existing joinery are effectively sealed and that the paint coatings to the units are undamaged. All ventilation holes within the EVS Glazing System units must be kept free of obstruction.
- 10.3 EVS Glazing System units should not be cleaned with harsh or abrasive cleaning products as these may scratch either the glazing surfaces, or the painted frame surface.
- 10.4 Paint coatings applied to both the timber window joinery and the EVS Glazing System unit frames shall be maintained as recommended by the paint manufacturer.
- 10.5 Flexible sealant beads shall be replaced as necessary throughout the life of the EVS Glazing System with flexible sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal for use as a weather sealing sealant for exterior use.

## Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to the EVS Glazing System from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.



### Internal Moisture

- 12.1 When the EVS Glazing System is used in accordance with this Appraisal, it will contribute to the reduction of condensation on windows in high moisture spaces within buildings, owing to the increased thermal efficiency provided by the additional glazing.
- 12.2 However, indoor moisture control is reliant upon a number of aspects additional to installing the EVS Glazing System. This can be best achieved by giving attention to the following matters:
- ensuring weathertightness of existing joinery;
  - minimising sources of indoor moisture – cooking, laundering, bathrooms, etc.;
  - providing adequate general levels of ventilation and special ventilation in high moisture release areas;
  - providing adequate heating [solar and purchased];
  - insulating external walls, ceilings and floors to discourage condensation and mould growth.

### Hazardous Building Materials

- 13.1 The EVS Glazing System shall not be considered to be a substitute for safety glass in situations where the existing glazing within timber window and door joinery is required to meet the Human Impact Safety requirements of NZBC Clause F2 [Hazardous Building Materials]. Joinery required to meet such requirements must be fitted with compliant glazing materials.
- 13.2 The EVS Glazing System can be fabricated with safety glazing that meets the requirements of NZS 4223.3 upon request. Consult EVS Window Technology Limited for more information.

### Ventilation

- 14.1 Where installed, the installation of EVS Glazing System is not expected to impede the opening of window and door joinery or limit ventilation provided by opening windows.

### Sound

- 15.1 The use of the EVS Glazing System can be expected to increase the acoustic performance of joinery within existing buildings, thereby delivering an increase in occupant comfort through lower sound transmission from outdoor sources.
- 15.2 The degree of increased acoustic performance will vary, dependent on the manner in which the EVS Glazing System is installed and other existing factors. Initial acoustic performance of the existing joinery, audio frequency, sound level, glazing orientation and proximity to the noise source are among the variables that will affect the degree of acoustic performance increase that can be expected from the installation of the EVS Glazing System.

### Energy Efficiency

- 16.1 The EVS Glazing System is expected to increase the thermal performance of joinery within existing buildings, thereby delivering both direct and indirect cost savings to the occupants through reducing the amounts of heating and/or cooling required to achieve comfortable interior temperatures.
- 16.2 The degree of increased thermal performance will vary, dependent on other existing factors. Initial thermal performance and airtightness of the existing joinery, glazing orientation, degree of potential solar gain and amount of glazed surface within the thermal envelope are among the variables that will affect the degree of thermal performance increase that can be expected from the installation of the EVS Glazing System.

16.3 Timber-framed windows fitted with the EVS Glazing System can be expected to achieve the following indicative R-values:

		Window Size		
		500 x 600 mm	600 x 1,200 mm	1,200 x 1,200 mm
		R-value [m <sup>2</sup> K/W]		
IGU specification (glass/spacer/ glass)	4/6/4 clear	0.43	0.45	0.45
	4/6/4 low-E	0.49	0.50	0.50
	4/6/4 low-E + Argon fill	0.55	0.58	0.59

## Installation Information

### Installation Skill Level Requirements

17.1 The EVS Glazing System must be installed by EVS Window Technology Limited, their franchisees or licensees.

### System Installation

18.1 Installation must be in accordance with the installation protocols of EVS Window Technology Limited and this Appraisal.

### Health and Safety

19.1 Typical practices for safe use of glazing shall be observed in the installation and in service use of the EVS Glazing System.

## Basis of Appraisal

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

### Investigations

- 20.1 Structural and durability opinions have been provided by BRANZ technical experts.
- 20.2 BRANZ has completed thermal modelling to assess the thermal performance of the EVS Glazing System, installed on a typical timber-framed window with 4 mm glass.
- 20.3 The Appraisal Holder's manufacturing, installation procedures and owner guides have been examined by BRANZ and found to be satisfactory.
- 20.4 Site inspections were carried out by BRANZ to assess methods used for the installation of the EVS Glazing System and to examine completed installations.

### Quality

- 21.1 Details of the quality and composition of the materials and components used within the system were obtained by BRANZ and found to be satisfactory.
- 21.2 The quality of installation on-site is the responsibility of EVS Window Technology Limited in accordance with the instructions of EVS Window Technology Limited.
- 21.3 Building owners are responsible for the maintenance of the EVS Glazing System in accordance with the instructions of EVS Window Technology Limited.



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## Sources of Information

- NZS 3604:2011 Timber-framed 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.



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28 July 2021

EVS GLAZING SYSTEM



In the opinion of BRANZ, **EVS Glazing System** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **EVS Window Technology Limited**, 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. **EVS Window Technology Limited:**
  - 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 **EVS Window Technology Limited**.
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 **EVS Window Technology Limited** or any third party.

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For BRANZ

**Chelydra Percy**

Chief Executive

Date of Issue:

28 July 2021