CodeMark

Certificate no: CMNZ10010
Version: 02
Original issue date: 15 May 2020
Version date: 29 May 2025

Product Certificate

Velux Sun Tunnels

1. Certificate Holder Details

VELUX®

Velux New Zealand Ltd
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2. Product Certification Body

BRANZ Limited
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RD1, Porirua 5381
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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/

3. Description of Building Method or Product

Velux Sun Tunnels are for use on roofs of buildings to provide natural light into interior spaces within buildings. Velux offer four models of Sun Tunnels: TWF which features flexible internal ducting, TWR, TLR and TCR which use rigid ducting. All models are suitable for roof pitches between 15° and 60°, however the TCR model can be used at pitches between 0° and 60°. Some models can also be used to provide ventilation.

Velux Sun Tunnels can be identified by their brand markings on the units and the packaging.

4. Intended use of Building Method or Product

Velux Sun Tunnels are aluminium-framed, double-glazed roof windows with a light transmission tunnel and ceiling mounted light diffuser. Velux Sun Tunnels are designed to provide natural light into small areas such as corridors, hallways, walk-in wardrobes or spaces where it is not possible to install a Velux Skylight.

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 (g), (h) and (j) [i.e. loads arising from snow, wind and impact].

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1 and F2.3.3 (a).

Clause G7 NATURAL LIGHT: Performance G7.3.1 and G7.3.2 (contributes).

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

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6. Conditions and Limitations of Use

Velux Sun Tunnels (TWF, TWR and TLR) are for use on buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regard to building height and maximum floor plan area; and,
- with roof structures designed and constructed to meet the requirements of the NZBC; and,
- with pitched roof cladding types and profiles specified in NZBC Acceptable Solution E2/AS1; and,
- with a roof pitch between 15° and 60°; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.
- on buildings designed for up to a 1 kPa snow loading.

Velux Low-Pitch Sun Tunnels (TCR) are for use on buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regard to building height and maximum floor plan area; and,
- with roof structures designed and constructed to meet the requirements of the NZBC; and,
- with pitched roof cladding types and profiles and minimum pitches as specified in NZBC Acceptable Solution E2/AS1; or,
- for use on flat or nominally flat roofs making use of membrane roof systems; and,
- with a roof pitch between 0° and 60°; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.
- on buildings designed for up to a 1 kPa snow loading.

HANDLING AND STORAGE

Handling and storage of all components of Velux Sun Tunnels is under the control of the Velux Sun Tunnel installer. Components must be kept dry and under cover at all times. Care must be taken to avoid surface damage to the window components and flashings during the installation process.

INSTALLATION SKILL LEVEL REQUIREMENT

The installation of Velux Sun Tunnels must be completed by installers trained by Velux New Zealand Ltd, or by competent, experienced tradespeople with an understanding of roof window installation and weathertightness details.

Velux Sun Tunnels must be installed in accordance with the Reference Document supplied by Velux New Zealand Ltd, and this Product Certificate.

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REFERENCE DOCUMENT

This Product Certificate must be read in conjunction with:

- Technical Manual for Velux Sun Tunnels, dated May 2025.

7. Health and Safety Information

There are no particular health and safety issues relating to the installation or use of Velux Sun Tunnels. Installers must however observe safe working practices for working on roofs and at heights.

8. Basis for Certification

TESTING

The following tests have been carried out on Velux Sun Tunnels:

- Resistance to impact loads, snow loads and resistance to wind pressures (non-cyclonic regions). These assessments have been reviewed by BRANZ and were found to be satisfactory.
- Dynamic weather resistance testing by a National Association of Testing Authorities (NATA) registered laboratory in Australia.

EXPERT JUDGEMENT

- Opinion on durability and thermal performance of Velux Sun Tunnels by BRANZ technical experts.
- The Velux Schedule Method has been reviewed by BRANZ experts.
- Weathertightness detailing of the Velux Sun Tunnels has been assessed by BRANZ and found to be satisfactory. Instructions for installation of units and associated flashing components for different roof types have also been reviewed and found to be satisfactory.

QUALITY

- The Reference Document has been examined by BRANZ and found to be satisfactory.
- The quality of materials, components and accessories supplied to the market is the responsibility of Velux New Zealand Ltd.
- Quality of installation on-site of Velux Sun Tunnel components and accessories is the responsibility of the installer.
- Designers are responsible for building design, and specification of natural lighting and ventilation systems.

- Building owners are responsible for any required maintenance of Velux Sun Tunnels, in accordance with the advice of Velux New Zealand Ltd.

9. Supporting Documentation for Certification

- Acceptable Solutions and Verification Methods for New Zealand Building Code Clause B1 Structure, 1st Edition, Amendment 21, 2 November 2023.
- 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.
- Acceptable Solutions and Verification Methods for New Zealand Building Code Clause G4 Ventilation, 4th Edition, 27 June 2019.AS 4285:1995 Skylights.
- AS/NZS 1170.0:2002 Structural design actions - Permanent, imposed and other actions.
- BRANZ Appraisal No. 970 Velux Sun Tunnels.
- BRANZ Consulting Report DC16020-001, H1 compliance for Velux - Phase 1, issue date 21 April 2022.
- BRANZ Consulting Report DC16020-002 H1 compliance for Velux - Phase 2, issue date 31 March 2022.
- BRANZ Consulting Report DC16020-003 H1 compliance for Velux – Phase 3, issue date 25 May 2022.
- BRANZ Durability Opinion DA0359/1, Durability opinion on Velux Skylights, Roof Windows and Sun Tunnels, issue date 14 June 2017.
- BRANZ Report No. DA0359/2, E2 and H1 opinion - Velux weathertightness and thermal performance, issue date 19 June 2017.
- BRANZ Report No. TV18116-01-01, Structures technical opinion for Velux revalidations, issue date 27 November 2024.
- BRANZ Structural Memorandum for Velux Skylights, issue date 11 May 2017.
- BRANZ Structural Memorandum for Velux 968, 969, 970, issue date 10 March 2023.
- BRANZ Test Report No. DA0359 Dynamic weather resistance test of a Velux Skylight, issue date 29 May 2017.
- Calderone and Associates Pty Ltd, Skylight glass design report for Velux Australia Pty Ltd, dated 15 May 2023.
- C1-C6 Protection from Fire Acceptable Solution C/AS1 Protection from fire for buildings with sleeping (residential) and outbuildings (risk group SH), 2nd Edition, 2 November 2023.
- C/AS2 Acceptable Solution for Buildings other than risk group SH For New Zealand Building Code Clauses C1-C6 Protection from Fire, 1st Edition, Amendment 3, 2 November 2023.

- G7 Natural Light Acceptable Solution G7/AS1 Natural light for simple buildings up to three storeys, excluding those with borrowed daylight, 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.
- Ian Bennie and Associates Test Report No. 2022-086-S1-R1 Velux FCM 4672 Flat Roof Skylight, Skylight test to AS 4285:2019, dated July 2023.
- NZS 3604:2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.
- 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.

10. Supporting Information About Description

PRODUCT SPECIFICATION

Velux Sun Tunnels are complete roof to ceiling skylight systems.

Velux Sun Tunnels incorporate a square external roof window. The TWF and TWR models have integral flashings which are suitable for profiled metal and tiles roofing. The TLR model has integral flashings which are suitable for use with slate and shingle roofing. Velux Sun Tunnels comprise a ceiling mounted, frosted acrylic double diffuser with a white ceiling trim ring. The roof window is connected to the ceiling diffuser with either a flexible (TWF) or a rigid (TWR and TLR) highly reflective, aluminium light transmission tunnel. The rigid 'light tunnel' is made up of one straight and two adjustable angle sections which are suitable for most direct 'line of sight' installations. A rigid extension kit ZTR 0K14 is available to extend the rigid 'light tunnel' up to a maximum length of 6 m.

The Velux TCR Sun Tunnel incorporates a light-capture dome above roof level attached to a highly reflective aluminium light transmission tunnel providing light to the interior via a diffuser unit mounted on the ceiling below. The rigid aluminium 'light-tunnel' is made up of straight and adjustable-angle tunnel sections to allow passage of light through the roof-space.

The minimum ceiling to roof distance is 400 mm for the TWF models and 900 mm for the TWR, TLR and TCR models.

The Velux Sun Tunnel models covered by this Product Certificate are:

- TWF 0K14: 1,500 mm long 350 mm diameter tube.
- TWR 0K10: 250 mm diameter tube.
- TWR 0K14: 1,700 mm long, 350 mm diameter tube.
- TLR 0K14: 1,150 mm long, 350 mm diameter tube.
- TCR 014: 1,150 mm long, 350 mm diameter tube.

GLAZING

Velux Sun Tunnels TWF, TWR and TLR all use a single pane of 4 mm toughened glass to the exterior, which has a coating that is designed to reduce the buildup of dirt and to ease cleaning. Velux Sun Tunnel TCR features an acrylic dome to the exterior.

FLASHINGS

Flashings and roof detailing for the Velux Low-Pitch Sun Tunnels (TCR) must be specifically designed and are outside the scope of this Product Certificate and will need to be considered by the designer at the time of preparing design documentation.

11. Supporting Information About Intended Use

GENERAL

Velux Sun Tunnels are for use on roofs of buildings to provide natural light into interior spaces within buildings. Velux offer four models of Sun Tunnels. The TWF model features flexible internal ducting and the TWR, TLR and TCR models use rigid ducting. All models are suitable for roof pitches between 15° and 60°, however the TCR model can be used at pitches between 0° and 60°.

Velux Sun Tunnels are suitable for most existing timber-framed roofs. For such installations, it is important that the roof structure is checked by a suitably qualified person for structural adequacy and suitability of the existing roof cladding.

When installed on new roofs, whenever possible the installation should be carried out concurrently with the roof cladding installation.

BUILDING CODE

B1 STRUCTURE

Velux Sun Tunnels are suitable for use in NZS 3604 Wind Zones up to, and including, Extra High.

Velux Sun Tunnels are suitable for use in areas where buildings are designed for a 1 kPa snow loading.

Velux Sun Tunnels have not been tested for point loads from AS/NZS 1170 because the size of the sun tunnels would not require a point load to be applied.

B2 DURABILITY

Velux Sun Tunnels are expected to have a serviceable life of at least 15 years, provided they are maintained in accordance with this Product Certificate and the Reference Document.

On exposure to the weather, the coil coated aluminium may gradually lose the original surface finish. A faster reduction in both surface finish and overall serviceable life can be anticipated in severe industrial, geothermal and marine exposures.

C2 PREVENTION OF FIRE OCCURRING

Separation or protection must be provided to Velux Sun Tunnels from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Acceptable Solution C/AS1 and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

E2 EXTERNAL MOISTURE

Velux Sun Tunnels, when installed in accordance with this Product Certificate and the Reference Document, will prevent the penetration of moisture that could cause undue dampness or damage to building elements.

E3 INTERNAL MOISTURE

Experience has shown that in normal domestic or similar applications, ceiling mounted double-glazed acrylic diffusers do not pose a significant risk of condensation when correctly installed.

G4 VENTILATION

Velux Sun Tunnel models TWR 0K14 and TWF 0K14 can be fitted with the Velux ZTV ventilation adaptor which is available from Velux New Zealand Ltd. It allows the connection of any in-line mechanical ventilation device so extract ventilation can be provided without the need for additional roof penetrations. The Velux Sun Tunnel, when fitted with the ventilation adaptor, will contribute to the compliance of a building with NZBC Clause G4. Consideration must be given to the 'mechanical ventilation' required for a particular space by the designer. NZBC Acceptable Solution G4/AS1 provides guidance on required ventilation.

G7 NATURAL LIGHT

Velux Sun Tunnels all contain transparent apertures that will contribute to the compliance of a building with NZBC Clause G7. Consideration of the amount of illuminance provided by the Velux Sun Tunnel for a particular space will depend on a wide range of factors unique to each installation e.g. room size, position, sun orientation, angle, etc. The use of Velux Sun Tunnels to supplement natural light from other sources is an alternative solution to NZBC Clause G7.

H1 ENERGY EFFICIENCY

Velux Schedule Method

The Velux Schedule Method may be used as an alternative solution to the Schedule Method contained in the NZBC Acceptable Solution H1/AS1 for housing, and other buildings up to 300 m² in floor area. The Velux Schedule Method requires that:

- the sum of the vertical glazing area and the Velux product area (Velux skylights, roof windows and sun tunnels) is 30% or less of the total wall area; and,
- the combined glazing area on the east, south, and west facing walls is 30% or less of the combined total area of these walls; and,
- the Velux product area is no more than 1.5 m² or 1.5% of the total roof area (whichever is greater); and,
- the opaque door area is no more than 6 m² or 6% of the total wall area (whichever is greater); and,
- the roof, wall, floor, window and door glazing R-values are in accordance with Section 2.1.2 of NZBC Acceptable Solution H1/AS1.

Calculation and Modelling Methods

Alternatively, designers can use the calculation methods contained in NZBC Acceptable Solutions H1/AS1 or H1/AS2, or the modelling methods contained in NZBC Verification Methods H1/VM1 or H1/VM2. Contact Velux New Zealand Ltd for the relevant product R-values.

MAINTENANCE REQUIREMENTS

The exterior glazing surfaces of Velux Sun Tunnels can only be cleaned from the exterior of the building.

The glazing and external surfaces of Velux Sun Tunnels can be cleaned using a mild, non-abrasive glass cleaner along with a soft brush or other non-abrasive applicator to maintain the surface appearance. Solvent-based cleaners must be avoided when cleaning the acrylic dome on the TCR model as they may damage the surface.

Keep all leaves clear from around sun tunnels. Make sure all exposed fasteners are secure. Inspect the unit and flashing for excessive wear or scratches. Scratches on the unit may be fixed with touch up paint available through Velux New Zealand Ltd. Damaged units or flashings should be repaired or replaced as soon as they are detected

The interior diffuser pane of the Velux Sun Tunnels can be cleaned from the inside. Before cleaning, the diffuser can be removed according to the installation instructions. Solvent-based cleaners must be avoided when cleaning the plastic interior components as they may damage the surface.

12. Supporting Information About Conditions and Limitations of Use

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

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Signatures

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.