BRANZ Appraised
Appraisal No. 987 [2018]

STEALTH ROOFLIGHTS

Appraisal No. 987 (2018)
Amended 30 August 2018

BRANZ Appraisals
Technical Assessments of products for building and construction.

STEELFORMERS
MANUFACTURERS OF STEELFORM ROOFING
WWW.STEELFORMERS.CO.NZ

Registered trademark of:
Taranaki Steelformers T/A Steelformers
Tel: 0800 4 ROOFING (476 634)
Web: www.steelformers.co.nz

OMEGA WINDOWS + DOORS BY MCKECHNIE

Manufactured by:
McKechnie Aluminium Solutions Ltd T/A Omega Windows and Doors
Tel: 0800 500 141
Web: www.omegawindows.co.nz

BRANZ

BRANZ
1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz

WFTAO
WORLD FEDERATION OF TECHNICAL ASSESSMENT ORGANISATIONS

Product

1.1 Stealth Rooflights are for use on roofs of buildings to provide natural light into interior spaces. Stealth Rooflights are available in a range of sizes or can be custom made to order and feature thermally-broken aluminium frames suitable for use with profiled metal, metal tile and low slope membrane roofing. Stealth Rooflights are designed to be installed in raised (curb) mount applications and are factory glazed using sealed double-glazed insulated glass units (IGU's). Stealth Rooflights are available as a fixed rooflight or as an opening rooflight which can be used to provide ventilation.

Scope

2.1 Stealth Rooflights have been appraised for use on buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with respect 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, profiles and roof pitches specified in E2/AS1; and,
- with roof penetrations and flashings detailed by way of specific design in accordance with the requirements of E2/AS1 or the New Zealand Metal Roof and Wall Cladding Code of Practice; or,
- with low slope membrane roofing types and pitches specified in E2/AS1; and,
- with roof penetrations and flashings detailed by way of specific design in accordance with E2/AS1; and,
- situated in NZS 3604 Wind Zones, up to and including Extra High.

2.2 Stealth Rooflights must be installed in accordance with the Technical Literature supplied by Omega Windows and Doors.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Stealth Rooflights, if designed, used, 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 B1.3.3. Stealth Rooflights meet the requirements for loads arising from snow, wind and impact [i.e. B1.3.3 (g), (h) and (j)]. See Paragraphs 8.1 to 8.3.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years. Stealth Rooflights meet this requirement. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Stealth Rooflights meet these requirements. See Paragraph 11.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. and F2.3.3 (a). Stealth Rooflights meet these requirements and will not present a health hazard to people and are unlikely to cause injury to people. See Paragraph 7.3.

Clause G4 VENTILATION: Performance G4.3.1 and G4.3.3. Stealth Rooflights will contribute to meeting these requirements. See Paragraph 13.1.

Clause G7 NATURAL LIGHT: Performance G7.3.1 and G7.3.2. Stealth Rooflights will contribute to meeting these requirements. See Paragraph 14.1.

Clause G9 ELECTRICITY: Performance G9.3.1. Stealth Rooflights meets this requirement. See Paragraphs 15.1 and 15.2.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 and H1.3.2E. Stealth Rooflights will contribute to meeting these requirements. See Paragraph 16.1.

Technical Specification

4.1 Stealth Rooflights are a range of fixed and opening rooflights which are fabricated from thermally broken aluminium frames and sashes, finished on the exterior faces in a variety of factory-applied finishes.

4.2 The Stealth Rooflight models covered by the Appraisal are:

Rooflights

- Fixed Rooflight - Maximum size: 1200 mm wide x 2400 mm high
- Opening Rooflight - Maximum size: 780 mm wide x 1380 mm high

Glazing

4.3 Stealth Rooflights are factory glazed using sealed double-glazed insulated glass units (IGU's). The IGU's can be fabricated from either toughened or laminated safety glass as specified when placing the order with Omega Windows and Doors. In some instances, laminated safety glass to the bottom pane is required, see paragraph 7.3. All IGU's feature a 70 mm wide black edge banding that conceals the inner portions of the rooflight frame when viewed from the exterior.

4.4 The IGU's carry markings to show identify the glazing materials used in accordance with the requirements of NZS 4223.3.

Flashings

4.5 Stealth Rooflights are designed to be installed in raised (curb) mount applications. In all instances, the curb must be constructed to achieve a minimum upstand height of 110 mm from the top face of the roof cladding.

4.6 Purpose made colorsteel flashings shall be detailed in accordance with the parameters stated in the Technical Literature. The information contained within E2/AS1, the New Zealand Metal Roof and Wall Cladding Code of Practice and the relevant roofing manufacturers technical literature should be referred to by the designer for guidance in the design of the flashings for individual installations. The design must give regard to roof cladding type and profile, roof pitch, catchment area, wind exposure and other similar considerations. Specific flashing solutions and detailing have not been assessed by BRANZ and are outside the scope of the Appraisal.

4.7 Stealth Rooflights are able to be installed in raised (curb) mount applications in low slope membrane roofs. In all cases, the curb upstand must be constructed to fully support the perimeter of the unit. Construction of the raised curb must ensure a minimum installation pitch of 3° for the Stealth Rooflight is achieved, irrespective of the roof pitch. Detailing of roofing membranes shall be carried out in accordance with the membrane Technical Literature and is outside the scope of the Appraisal and must be specifically designed.

4.8 Installations of Stealth Rooflights with flashings otherwise than in accordance with the parameters stated in the Technical Literature are outside the scope of the Appraisal and must be specifically designed.

Handling and Storage

5.1 Handling and storage of all components of Stealth Rooflights is under the control of the rooflight installer. Components must be kept dry and under cover at all times. Care must be taken to avoid surface damage to the rooflight components and flashings during the installation process.

Technical Literature

6.1 Refer to Omega Windows and Doors for details of the current Technical Literature for Stealth Rooflights. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed. A set of technical literature is supplied with each rooflight.

Design Information

General

7.1 Stealth Rooflights are for use on roofs of buildings to provide natural light into interior spaces within buildings. Subject to being installed in conjunction with metal roofing or low slope membranes appropriate for the desired roof pitch, Stealth Rooflights are suitable for use on roof slopes between 3° and 60°. Installation of Stealth Rooflights on roofs with other pitches is outside the scope of this Appraisal and their installation must be specifically designed in all instances.

7.2 Stealth Rooflights 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.

7.3 Stealth Rooflights meet the safety glass requirements of NZS 4223.4 for sloping overhead glazing at an installed height above floor level of not more than 5 metres. Where the installed height shall be more than 5 metres above the interior floor level, Stealth Rooflights must be ordered from Omega Windows and Doors to feature laminated safety glass to the lower (interior) pane. See Paragraphs 4.3 to 4.4. Refer to Omega Windows and Doors for advice or confirmation of glazing material if necessary.

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

Structure

Wind

8.1 Stealth Rooflights are suitable for use in NZS 3604 Wind Zones up to and including Extra High.

Snow

8.2 Stealth Rooflights are suitable for use in areas where buildings are designed for a 1 kPa snow loading.

Point Loads

8.3 Stealth Rooflights have not been tested for point loads from AS/NZS 1170 because the relatively small surface area of the rooflights should never require a point load to be applied.

Durability

Serviceable Life

9.1 Stealth Rooflights are expected to have a serviceable life of at least 15 years, provided they are maintained in accordance with this Appraisal and the Technical Literature.

9.2 On exposure to the weather, the 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.

Maintenance

10.1 The internal surface of the glazing on Stealth Rooflights can be simply cleaned from inside the building where reasonable access is provided. The exterior glass surface of Stealth Rooflights can only be cleaned from the exterior of the building.

10.2 The glazing and external surfaces of the rooflights 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.

10.3 Keep all leaves clear from around rooflights. Ensure all exposed fasteners are secure. Inspect roofing and flashings for excessive wear or scratches on the finish. Scratches in the finish may be fixed with touch up paint available through Omega. Damaged flashings should be replaced as soon as they are detected.

10.4 The internal workings of the manual and the electric roof window operators are considered maintenance free over the lifetime of the rooflight. Mechanisms are pre-lubricated and do not require additional lubrication. The chains and hinges should be checked and lubricated as required.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to Stealth Rooflights from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

12.1 Stealth Rooflights when installed in accordance with this Appraisal and the Technical Literature will prevent the penetration of moisture that could cause undue dampness or damage to building elements. The responsibility for design of flashings for individual installations is that of the designer. The design must give regard to roof cladding type and profile, roof pitch, catchment area, wind exposure and other similar considerations. Specific flashing solutions and detailing have not been assessed by BRANZ and are outside the scope of the Appraisal.

Internal Moisture

13.1 Experience with double-glazed rooflights has shown that in normal domestic or similar applications, the windows do not pose a significant risk of condensation when correctly installed.

Ventilation

14.1 Stealth Rooflights that contain an openable aperture will contribute to the compliance of a 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

15.1 Stealth Rooflights all contain transparent apertures which can contribute to the compliance of a building with NZBC Clause G7. Consideration of the amount of illuminance provided by the rooflight 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 Stealth Rooflights to supplement natural light from other sources is an Alternative Solution to G7.

Electricity

16.1 Where a new electrical supply is required for Stealth Rooflights, the installation must be completed by a Registered Electrician in accordance with New Zealand Electrical Code of Practice NZECP 51.

16.2 Electrical safety of the electric rooflight operator complies with IEC 60335.

Energy Efficiency

17.1 Stealth Rooflights have R-values as specified in Table 1 that satisfy the minimum requirements for rooflights, all exceeding R 0.31 m2K/W as specified in NZBC Verification Method H1/VM1 and NZBC Acceptable Solution H1/AS1. Where the total area of rooflights exceeds 1.5 m^2 or 1.5% of the total roof area (whichever is the greater) the calculation or modelling methods of NZS 4218 must be used for building designs.

Table 1: Omega Rooflight R-values

Omega Rooflight Series	R-value (m^2K/W)
Fixed Rooflight	0.59
Opening Rooflight	0.49

Installation Information

Installation Skill Level Requirements

19.1 The installation of Stealth Rooflights must be completed by installers trained by Omega Windows and Doors or by competent, experienced tradespersons with an understanding of roof window installation and weathertightness details. The installation must be in accordance with the Technical Literature and this Appraisal.

System Installation

20.1 Installation must be completed in accordance with instructions given in the Stealth Rooflights Technical Literature and this Appraisal.

Health and Safety

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

Basis of Appraisal

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

Tests

22.1 Stealth Rooflights have been subjected to dynamic weather resistance testing by BRANZ.

Investigations

23.1 Stealth Rooflights have been assessed for resistance to impact loads, snow loads and resistance to wind pressures. These assessments have been reviewed by BRANZ and were found to be satisfactory.

23.2 An assessment was made of the durability of Stealth Rooflights by BRANZ.

23.3 The window units have been assessed for thermal resistance by BRANZ experts.

23.4 Site visits have been carried out by BRANZ to assess fit for purpose and the practicability of installation, and to assess in service performance.

23.5 Weathertightness detailing of the Stealth Rooflights has been assessed by BRANZ and found to be satisfactory. Instructions for installation of units and associated flashing components have also been reviewed and found to be satisfactory.

23.6 The Technical Literature for Stealth Rooflights has been examined by BRANZ and found to be satisfactory.

Quality

24.1 The extrusion and fabrication process for Stealth Rooflights has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained and found to be satisfactory.

24.2 The quality of materials, components and accessories supplied to the market is the responsibility of Omega Windows and Doors.

24.3 Quality of installation on site of Stealth Rooflight components and accessories is the responsibility of the installer.

24.4 Designers are responsible for building design, and specification of natural lighting and ventilation systems.

24.5 Building owners are responsible for any required maintenance of Stealth Rooflights in accordance with the advice of Omega Windows and Doors.

Sources of Information

- AS 4285: 2007 Skylights.
- AS/NZS 1170: 2002 Structural Design Actions – Permanent, imposed and other actions.
- IEC 60335 Household and similar electrical appliances – safety.
- NZECP 51: 2004 New Zealand Electrical Code of Practice for Homeowner/Occupier's Electrical Wiring Work in Domestic Installations, Ministry of Economic Development, 2004.
- NZS 3604: 2011 Timber Framed Buildings.
- NZS 4218: 2009 Thermal Insulation – Housing and small buildings.
- NZS 4223.4: 2016 Code of practice for glazing in buildings - Dead, wind and snow loading.
- Compliance document for NZBC External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third edition July 2005 [Amendment 7, 01 January 2017].
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- New Zealand Metal Roof and Wall Cladding Code of Practice: 2008 New Zealand Metal Roofing Manufacturers Inc.
- The Building Regulations 1992.

Amendments

Amendment No 1, dated 30 August 2018.

This Appraisal has been updated to include the Omega Rooflights R-values.

BRANZ

In the opinion of BRANZ, Stealth Rooflights 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 McKechnie Aluminium Solutions Ltd T/A Omega Windows and Doors, 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. McKechnie Aluminium Solutions Ltd T/A Omega Windows and Doors:
   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 McKechnie Aluminium Solutions Ltd T/A Omega Windows and Doors.
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 McKechnie Aluminium Solutions Ltd T/A Omega Windows and Doors or any third party.

For BRANZ

Chelydra Percy
Chief Executive

Date of Issue:
3 July 2018