



BRANZ Appraised

Appraisal No.749 [2011]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 749 (2011)**

HOMETECH FAKRO ROOF WINDOWS AND SKYLIGHTS

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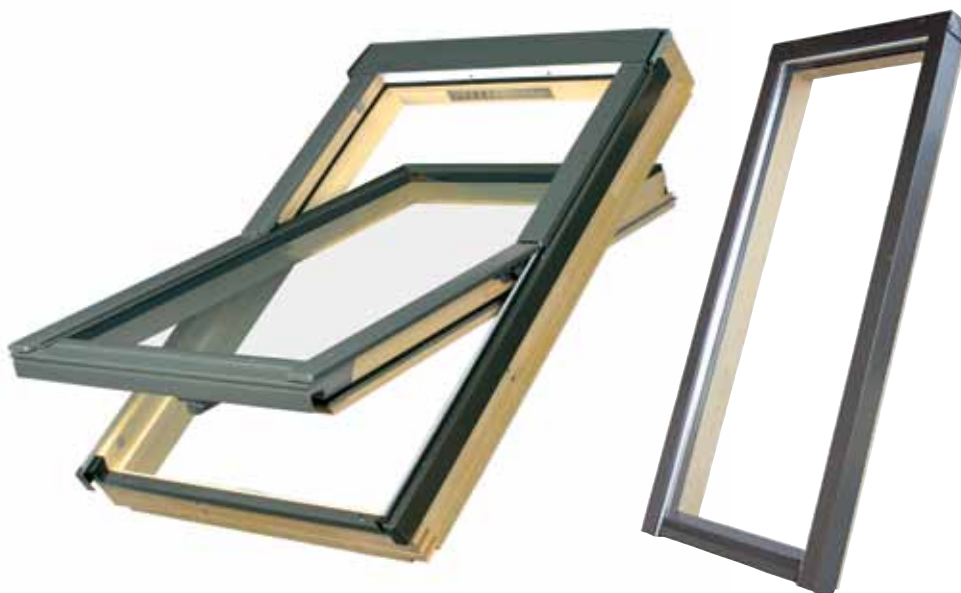


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Product

1.1 Homotech Fakro Roof Windows and Skylights are for use on roofs of buildings with a roof pitch between 15° and 60° to provide natural light and ventilation.



Scope

2.1 Homotech Fakro Roof Windows and Skylights 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 masonry tile, pressed metal tile, and corrugated profiled metal roof cladding systems complying with 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 'Very High'.

2.2 Homotech Fakro Roof Windows and Skylights must be installed in accordance with the Technical Literature supplied by Homotech Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Homotech Fakro Roof Windows and Skylights, 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 B1.3.4. Homotech Fakro Roof Windows and Skylights 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. Homotech Fakro Roof Windows and Skylights meet this requirement. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Homotech Fakro Roof Windows and Skylights meet these requirements. See Paragraph 12.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1 and F2.3.3 (a). Homotech Fakro Roof Windows and Skylights meet these requirements. They will not present a health hazard to people and are unlikely to cause injury to people.

Clause G4 VENTILATION: Performance G4.3.1 and G4.3.3. Homotech Fakro Roof Windows and Skylights will contribute to meeting these requirements. See Paragraph 14.1.

Clause G7 NATURAL LIGHT: Performance G7.3.1 and G7.3.2. Hometech Fakro Roof Windows and Skylights will contribute to meeting these requirements.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 and H1.3.2 (E). Hometech Fakro Roof Windows and Skylights will contribute to meeting these requirements. See Paragraph 15.1.

3.2 Hometech Fakro Roof Windows and Skylights have been appraised as an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Hometech Fakro Roof Windows and Skylights are manufactured from preservative treated softwood frames and sashes, which are covered on the external faces with coil-coated aluminum and finished on the interior faces with a clear water-based acrylic lacquer. The roof flashings are also formed from coil-coated aluminium. The range comprises of fixed sash lights and single opening sash lights revolving around a centre pivot in the sizes noted in Paragraph 4.2.

4.2 The Fakro Roof Window models covered by this Appraisal are:

- Roof Window (Centre pivot opening Sash) sizes: (FTS)

Model number: FTS-V02: 550 x 980 mm
FTS-V05: 780 x 980 mm
FTS-V07: 780 x 1400 mm

Roof Window opening sashes are supplied with flashing component kits – Fakro code Ref: EHN

4.3 The Fakro Skylight models covered by this Appraisal are:

- Skylight (Fixed Sash) sizes: (FX)

Model Number: FX 02: 623 x 978 mm
FX 05: 826 x 978 mm
FX 07: 826 x 1397 mm

Skylight fixed sashes are supplied with flashing component kits – Fakro code Ref: EH

4.4 Hometech Fakro Roof Windows and Skylights are factory glazed using sealed double-glazed insulated glass units (IGU's). The units comprise of a 4 mm thick outer pane of toughened glass with a 16 mm argon-filled cavity. The skylights have an inner pane of 4 mm thick toughened glass, the roof windows have an inner pane of 6 mm thick laminated glass. Both inner pane types feature a low emissivity coating and carry CE Marking to show compliance with EN 1279.5.

4.5 The window units are supplied as a complete kit including all of the necessary flashings and fixings needed to install the window into a variety of roof cladding types.

Handling and Storage

5.1 Handling and storage of all components of Hometech Fakro Roof Windows and Skylights is under the control of the roof window 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.

Technical Literature

6.1 Refer to Hometech Ltd for details of the current Technical Literature for Hometech Fakro Roof Windows and Skylights. 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. Technical literature is supplied with all windows and must be followed for the purpose of installation.

Design Information

General

7.1 Hometech Fakro Roof Windows and Skylights are for use on roofs of new and existing buildings with a roof pitch between 15° and 60°. (*Installation of Hometech Fakro Roof Windows and Skylights on roofs with pitches less than 15° and of more than 60° is outside the scope of this Appraisal.*)

7.2 The roof windows and skylights are suitable for most existing timber frame 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 Hometech Fakro Roof Windows and Skylights IGU's meet the Grade A safety glass requirements of NZS 4223.4 Section 3 Sloped Glazing. See Paragraph 19.1. The inner glass panes carry CE Marking to show compliance with EN 1279.5, however they are not marked AS/NZS 2208.

7.4 Hometech Fakro Skylights are restricted to installations with a maximum height of 5 m to the top of the glazing from the finished floor level as specified in NZS 4223.4 Section 3.2.

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

Structure

Wind

8.1 Hometech Fakro Roof Windows and Skylights are suitable for use in Wind Zones of NZS 3604 up to and including 'Very High'.

Snow

8.2 Hometech Fakro Roof Windows and Skylights are suitable for use in areas where buildings are designed for a 1 kPa snow loading.

Point Loads

8.3 Hometech Fakro Roof Windows and Skylights have not been tested for point loads from AS/NZS 1170.1 because the size of the windows would never require a point load to be applied.

Durability

Serviceable Life

9.1 Hometech Fakro Roof Windows and Skylights 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 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.

Maintenance

10.1 The external surface of the glazing on roof windows can be cleaned from inside the building by pivoting the window through 180° and locking the window temporarily in this position.

10.2 The glazing and external surfaces of the windows can be cleaned using water and household detergent to avoid the build-up of dirt and to maintain the surface appearance.

10.3 Re-painting of the external finishes of the windows can be considered if a high aesthetic standard is required. Hometech Ltd can recommend a suitable paint for this purpose.

10.4 Hometech Fakro Roof Windows and Skylights can be re-glazed, and the gaskets, seals and weather-stripping replaced. Advice and materials can be obtained from Hometech Ltd.

10.5 The pivot hinges and locking mechanism should be periodically lubricated to minimise wear and maintain smooth operation.

Outbreak of Fire

11.1 Hometech Fakro Roof Windows and Skylights must be separated from chimneys and flues in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9 for the protection of combustible materials.

External Moisture

12.1 Hometech Fakro Roof Windows and Skylights 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.

Internal Moisture

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

Ventilation

14.1 Hometech Fakro Roof Windows and Skylights can be used to assist in providing adequate ventilation to the building.

Energy Efficiency

15.1 Hometech Fakro Roof Windows and Skylights have R values that satisfy the minimum requirements for skylights of 0.31 m²K/W as specified in NZBC Verification Method H1/VM1 and NZBC Acceptable Solution H1/AS1. Where the total area of skylights exceeds 1.2 m² the calculation or modelling methods of NZS 4218 must be used for designs.

Installation Information

Installation Skill Level Requirements

16.1 Installation of Hometech Fakro Roof Windows and Skylights must be completed by persons with experience and a clear understanding of the installation of roof penetrations, or by licensed installers registered with Hometech Ltd.

System Installation

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

17.2 Particular attention must be paid to the sizing and creation of apertures in the roofing material and associated placing and installation of the flashing elements supplied as part of the kit. Weathertightness details must be followed as indicated in the Technical Literature.

Health and Safety

18.1 There are no special Health and Safety issues relating to the installation or the use of Hometech Fakro Roof Windows and Skylights. Installers must however observe safe working practices for working on roofs.

Basis of Appraisal

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

Tests

19.1 Hometech Fakro Roof Windows and Skylights toughened and laminated safety glass has been tested by BRANZ to the impact requirements of AS/NZS 2208.

19.2 Hometech Fakro Roof Windows and Skylights have been subjected to dynamic weather resistance testing by BRANZ to the requirements of AS 4046.9.

Investigations

20.1 Hometech Fakro Roof Windows and Skylights have been assessed for resistance to impact loads, snow loads and wind pressures (non cyclonic regions). The results of these assessments were found to be satisfactory.

20.2 An assessment was made of the durability of Hometech Fakro Roof Windows and Skylights by BRANZ.

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

20.4 Site visits have been carried out by BRANZ to assess fitness for purpose, practicability of installation, and to assess in-service performance.

20.5 Weathertightness detailing of the Hometech Fakro Roof Windows and Skylights 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.

20.6 The Technical Literature for Hometech Fakro Roof Windows and Skylights has been examined by BRANZ and found to be satisfactory.

Quality

21.1 The manufacture of Hometech Fakro Roof Windows and Skylights has not been examined by BRANZ, but details of the Manufacturing Quality Plan, and quality and composition of the materials used were obtained and found to be satisfactory.

21.2 The Fakro Thermo insulated glass units have IFT Certification to the performance characteristics set out by EN 1279-5 : 2006. Fakro Roof Windows are the subject of a British Board of Agrément Certificate 02/3944.

21.3 The quality of materials, components and accessories supplied to the market is the responsibility of Hometech Ltd.

21.4 Quality of installation on site of Hometech Fakro Roof Windows and Skylights is the responsibility of the installer.

21.5 Designers are responsible for building design incorporating Hometech Fakro Roof Windows and Skylights.

21.6 Building owners are responsible for any required maintenance of Hometech Fakro Roof Windows and Skylights in accordance with the advice of Hometech Ltd.

Sources of Information

- AS 4285: 1995 Skylights.
- AS/NZS 1170.1: 2002 Structural design actions - Permanent, imposed and other actions.
- NZS 4223: Part 4: 2008 Glazing in buildings.
- AS/NZS 4666: 2000 Insulating glass units.
- NZS 3604: 2011 Timber framed buildings.
- AS/NZS 2208: 1996 Safety glazing materials in buildings (and draft update: June 2010).
- EN 1279-5: 2006 Insulating glass units.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (including Amendment 5, 1 August 2011).
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition September 2010.
- The Building Regulations 1992.



BRANZ

In the opinion of BRANZ, **Hometech Fakro Roof Windows and Skylights** 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 **Hometech 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. **Hometech 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 **Hometech 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 **Hometech Ltd** or any third party.

For BRANZ

P Burghout
Chief Executive

Date of issue: 10 October 2011