BRANZ Appraised

Appraisal No. 908 [2021]

DYNEX SOFFIT SYSTEM

Appraisal No. 908 (2021)

This Appraisal replaces BRANZ Appraisal No. 908 (2016)

BRANZ Appraisals

Technical Assessments of products for building and construction.

Dynex Extrusions Ltd
PO Box 19 133
Avondale
Auckland
Tel: 09 828 2800
Fax: 09 828 2801
Web: www.dynex.nz

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

Product

1.1 The Dynex Soffit System consists of white uPVC boards used as exterior soffit linings. The boards are extruded with an inter-locking tongue and groove profile that when fitted together, resembles the finished look of traditional tongue and groove panelling. The system is complete with uPVC jointer and end cap accessories.

Scope

Timber Framing

2.1 The Dynex Soffit System has been appraised for use as an external soffit lining for timber-framed buildings within the following scope:

- constructed with timber framing in accordance with the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

Steel Framing

2.2 The Dynex Soffit System has been appraised for use as an external soffit lining for steel-framed buildings within the following scope:

- constructed with steel framing in accordance with the scope limitations of NASH Building Envelope Solutions, Paragraph 1.1; and,
- situated in NASH Standard Part Two Wind Zones up to, and including, Extra High.

Building Regulations

3.1 **In the opinion of BRANZ, the Dynex Soffit 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 Dynex Soffit System meets the requirements of loads arising from self-weight and wind [i.e. B1.3.3 (a) and (h)]. See Paragraph 9.1.

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years. The Dynex Soffit System meets this requirement. See Paragraph 10.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The Dynex Soffit System meets this requirement. See Paragraph 15.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Dynex Soffit System meets this requirement.

Technical Specification

4.1 System components and accessories for the Dynex Soffit System, which are supplied by Dynex Extrusions Ltd are:

Dynex Soffit

- Dynex soffit is manufactured with a twin wall structure from extruded uPVC and is nominally 5.5 mm thick. The soffit boards have an effective cover of 150 mm and are supplied 3.7m long.

Accessories

- **Jointers and end cap accessories** are extruded from uPVC. Jointers are used at corners where the direction of the soffit changes, and for jointing lengths of soffit boards. Jointers are available with a flush finish or negative joint profile. End caps are used as a start or end point for the soffit board, or for finishing off a ripped board.
- **Dynex soffit fixings (timber frame)** - 32 x 3.05 mm hot-dip galvanised flathead nails with a minimum head width of 9 mm.
- **Dynex soffit fixings (steel frame)** - self-drilling hot-dip galvanised Class 4 screws with a shank diameter of 3.5 mm and minimum head width of 9.25 mm. The screw length must allow a 10 mm minimum penetration through the steel framing.

Handling and Storage

5.1 Handling and storage of all materials supplied by Dynex Extrusions Ltd, whether on-site or off-site, is under the control of the building contractor. Dynex soffit boards and accessories are delivered to site in packs wrapped in plastic sleeves. The packs must be stacked flat, off the ground on bearers at maximum 600 mm centres and be restrained from collapse. Other materials must not be stacked on the Dynex soffit boards and accessories. Long term storage must be dry and under cover. Dynex soffit boards should always be carried on edge and care must be taken to avoid damage to edges, ends and surfaces of the boards.

Technical Literature

6.1 Refer to the Appraisals listings on the BRANZ website for details of the current Technical Literature for the Dynex Soffit System. The Technical Literature must be read in conjunction with this Appraisal. All aspects of use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

Framing

Timber Treatment

7.1 Timber framing behind the Dynex Soffit System must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

7.2 Timber framing must comply with NZS 3604. Supporting framing for the soffit must be at a maximum of 600 mm centres for NZS 3604 Wind Zones up to, and including, Medium, a maximum of 450 mm centres for NZS 3604 Wind Zones up to and including Very High, and a maximum of 300 mm centres for NZS 3604 Wind Zone Extra High.

7.3 Timber framing must have a maximum moisture content of 18% at the time of the soffit lining installation. *[Note: If Dynex soffit boards are fixed to framing with a moisture content greater than 18%, problems may occur at a later date due to excessive timber shrinkage.]*

Steel Framing

7.4 Steel framing must comply with NASH Standard Part Two

7.5 The minimum framing specification is 'C' section members with an overall section size of 75 mm web and 32 mm flange. Steel thickness must be minimum 0.55 mm.

7.6 Supporting framing for the soffit must be at a maximum of 600 mm centres for NASH Standard Part Two Wind Zones up to, and including, Medium, a maximum of 450 mm centres for NASH Standard Part Two Wind Zones up to and including Very High, and a maximum of 300 mm centres for NASH Standard Part Two Wind Zone Extra High.

Structure

Wind Zones

8.1 The Dynex Soffit System is suitable for use on buildings in NZS 3604 and NASH Standard Part Two Wind Zones up to, and including, Extra High. Refer to Paragraphs 7.2 and 7.6 for soffit framing requirements.

Durability

Serviceable Life

9.1 The Dynex Soffit System is expected to have a serviceable life equal to that of other soffit lining systems provided it is correctly maintained in accordance with this Appraisal and the Technical Literature.

9.2 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of Dynex soffit boards in areas subject to microclimatic conditions requires specific design in accordance with NZS 3604, Paragraph 4.2.4, and is outside the scope of this Appraisal.

Maintenance

10.1 Regular cleaning (at least annually) of the soffit surface is recommended to remove grime, dirt and organic growth, and to maximize the life and appearance of the surface finish. Build-up of residue, mould or dirt can be removed by brushing with a soft brush, warm water and detergent. Abrasive cleaners, thinners, solvents or petrol must not be used to clean the Dynex Soffit System.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to the Dynex Soffit System from heat sources such as fireplaces, heating appliances 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.

Control of External Fire Spread

Vertical Fire Spread

12.1 This Appraisal only covers use as an external soffit lining on buildings 10 m or less in height. NZBC Functional Requirement C3.2 identifies that external vertical fire spread to upper floors only needs be considered for buildings with a building height greater than 10 m. Control of external vertical fire spread is therefore outside the scope of this Appraisal.

Horizontal Fire Spread

12.2 Where the Dynex Soffit System is used as a soffit lining on Risk Group SH buildings, there are no control of external fire spread requirements where the soffit is more than 650 mm from a relevant boundary. Where the soffit is within 650 mm of a relevant boundary, the total eaves construction and external wall from which it projects shall have a fire resistance rating in accordance with NZBC Acceptable Solution C/AS1, Paragraph 5.2.2.

12.3 Where the Dynex Soffit System is used as the soffit lining to eaves, verandas, canopies or other such structures on buildings within all other Risk Groups, refer to the design requirements contained within NZBC Acceptable Solution C/AS2.

External Moisture

13.1 The Dynex Soffit System, 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.

Installation Information

Installation Skill Level Requirements

14.1 All design and building work must be carried out in accordance with the Dynex Soffit System Technical Literature and this Appraisal by competent and experienced tradespersons conversant with the Dynex Soffit System. Where the work involves Restricted Building Work (RBW) this must be completed by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant License Class.

System Installation

15.1 PVC components may be cut on-site by hand saw or power saw with a fine toothed blade, jigsaw or router. Holes and cut-outs may be formed by using a hole saw or router.

15.2 Dynex soffit boards are designed to be installed either perpendicular or parallel to the wall. One end of the soffit board must be inserted into the fascia groove and be fixed firmly through a full fixing slot in the nailing strip closest to the fascia line. The boards must then be fixed to soffit framing (at the maximum centres detailed in Paragraphs 7.2 and 7.6) with either 32 x 3.05 mm hot-dip galvanised flathead nails with a minimum head width of 9 mm (for timber frame), or self-drilling hot-dip galvanised Class 4 screws with a shank diameter of 3.5 mm and minimum head width of 9.25 mm (for steel frame). The fixings must be finished flush with the nailing strip and must not deform it. Subsequent boards clip over the nailing strip and conceal the nail or screw heads.

15.3 The change of direction at external and internal corners can be finished with a mitre or square finish. The junction between board ends must be finished with a Dynex soffit jointer.

15.4 At the soffit/wall junction, the end of the Dynex soffit boards must be concealed by the wall cladding, a timber bead, or the Dynex soffit end cap accessory.

15.5 The Dynex Soffit System should be installed when the air temperature is within the range of 10°C and 25°C. When the air temperature is outside this range, additional allowance for expansion and contraction must be considered in accordance with the Technical Literature.

Health and Safety

16.1 Hearing and eye protection must be worn while cutting Dynex soffit boards and accessories.

Basis of Appraisal

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

Tests

17.1 Wind face load testing to simulate wind pressures on the Dynex Soffit System was carried out by BRANZ. BRANZ determined the design wind suction pressures, and by comparing these pressures with the NZS 3604 design wind speeds and AS/NZS 1170 pressure coefficients, the fixing requirements were determined for timber and steel-framed soffits.

Other Investigations

18.1 Structural and durability opinions have been provided by BRANZ technical experts.

18.2 Site visits have been carried out by BRANZ to assess the practicability of installation and to examine completed installations.

18.3 Experience with single skin, double skin (twin wall), and cellular uPVC wall claddings and other fully exposed uPVC exterior building products in New Zealand and overseas for many years has been noted, including durability, and non-hazardous nature.

18.4 The manufacturer's Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

19.1 The manufacture of Dynex soffit boards and trim has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

19.2 The quality of materials, components and accessories supplied by Dynex Extrusions Ltd is the responsibility of Dynex Extrusions Ltd. The quality control system of Dynex Extrusions Ltd has been assessed and registered as meeting the requirements of ISO 9001.

19.3 The environmental management system of Dynex Extrusions Ltd has been assessed and registered as meeting the requirements of ISO 14001.

19.4 Quality of installation on-site of components and accessories supplied by Dynex Extrusions Ltd and the building contractor is the responsibility of the installer.

19.5 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and the Dynex Soffit System in accordance with the instructions of Dynex Extrusions Ltd.

19.6 Building owners are responsible for the maintenance of the Dynex Soffit System in accordance with the instructions of Dynex Extrusions Ltd.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- NASH Building Envelope Solutions: 2019 Light steel-framed buildings.
- NASH Standard Part Two: 2019 Light steel-framed buildings.
- 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.

BRANZ

In the opinion of BRANZ, the Dynex Soffit 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 Dynex Extrusions 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. Dynex Extrusions 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 Dynex Extrusions 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 Dynex Extrusions Ltd or any third party.

For BRANZ

Chelydra Percy
Chief Executive
Date of Issue:
25 August 2021