



BRANZ Appraised
Appraisal No.524 [2012]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 524 (2012)**

This Appraisal replaces
BRANZ Appraisal No. 524 (2007)
dated 21 March 2007.

**CAVIBAT CAVITY
BATTENS**

Cavity Batten Systems Limited

194 Oceanbeach Road
Mount Maunganui

Tel: 07 575 5567

Fax: 07 575 5569

Web: www.cavibat.co.nz



BRANZ
BRANZ Limited
Private Bag 50 908
Porirua City
New Zealand
Tel: +64 4 237 1170
Fax: +64 4 237 1171
www.branz.co.nz



Product

1.1 Cavibat Cavity Battens consist of a range of extruded fluted battens designed for use as non-structural cavity battens in cavity-based wall cladding systems. The Cavibat cavity batten is designed for use with timber framed buildings and the Cavibat R cavity batten is designed for use with steel framed buildings where a thermal break is required.

1.2 Cavibat Cavity Battens create a minimum 18 mm cavity, providing a secondary means of weather resistance by separating the cladding from the external wall framing, as well as providing an unobstructed path for any occasional ingress of water that may get past the external skin to drain to the exterior of the building.



Scope

2.1 Cavibat Cavity Battens have been appraised for use as non-structural cavity battens for use with non-structural wall cladding systems on timber framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- with cavity-based wall cladding systems complying with NZBC Acceptable Solution E2/AS1 or a valid BRANZ Appraisal that specifies a nominal 20 mm (minimum 18 mm) drained and vented cavity; and,
- situated in NZS 3604 Wind Zones up to, and including 'Extra High'.

2.2 The Cavibat R cavity batten has also been appraised for use as a non-structural cavity batten incorporating a thermal break for use with non-structural wall cladding systems on steel framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- with cavity-based wall cladding systems complying with NZBC Acceptable Solution E2/AS1 or a valid BRANZ Appraisal that specifies a nominal 20 mm (minimum 18 mm) drained and vented cavity; and,
- situated in NZS 3604 Wind Zones up to, and including 'Extra High'.

(Note: Cavibat and Cavibat R cavity battens can also be used on buildings subject to specific weathertightness design. Weathertightness design and detailing of these installations is the responsibility of the designer and is outside the scope of this Appraisal. Cavibat and Cavibat R Cavity Battens are not suitable for use where pressure equalized cavities are required.)

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Cavibat Cavity Battens 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. Cavibat Cavity Battens meet the requirements for loads arising from wind and impact [i.e. B1.3.3 (h) and (j)]. See Paragraphs 8.1 - 8.3.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years and B2.3.2. Cavibat Cavity Battens meet these requirements. See Paragraphs 9.1 to 9.3.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Cavibat Cavity Battens when used to form a drainage cavity behind a cladding system will contribute to meeting this requirement. See Paragraphs 12.1 - 12.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Cavibat Cavity Battens meets this requirement and will not present a health hazard to people.

3.2 Cavibat Cavity Battens have been tested to E2/VM1 and are an **Acceptable Solution** in terms weathertightness performance in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.4. Cavibat Cavity Battens are an **Alternative Solution** in terms of New Zealand Building Code compliance for all other provisions of the NZBC.

Technical Specification

4.1 System components and accessories supplied by Cavity Batten Systems Limited are:

Cavibat Cavity Battens

- Cavibat cavity battens are manufactured from extruded polypropylene. The battens are cut after extruding to a finished size of approximately 45 mm wide by 18 mm thick. The battens are coloured green and are supplied in 1200 mm long lengths.

Cavibat R Cavity Battens

- Cavibat R cavity battens are manufactured from 10 mm thick extruded polypropylene with 10 mm thick extruded polystyrene (XPS) adhered to the back face. The battens are cut after extruding to a finished size of approximately 45 mm wide by 20 mm thick. The battens are coloured blue and are supplied in 1200 mm long lengths.

4.2 System components and accessories supplied by the building contractor are:

- Cavibat and Cavibat R fixings (timber frame) – 50 mm hot-dip galvanised or stainless steel finishing brads used to temporarily fix the battens in place until the cladding is installed.
- Cavibat and Cavibat R fixings (steel frame) – 30 or 38 mm hot-dip galvanised finishing brads used to temporarily fix the battens in place until the cladding is installed.

Handling and Storage

5.1 Handling and storage of the Cavibat and Cavibat R cavity battens, whether on or off site, is under the control of the building contractor. The battens must be protected from direct sunlight and physical damage, and should be stored flat and under cover.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Cavibat Cavity Battens. 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.

Design Information

General

7.1 Cavibat Cavity Battens can be used to form drained cavities as specified by NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.2, except that Cavibat and Cavibat R cavity battens can also be installed continuously in a horizontal orientation as ventilation and drainage is permitted through the batten flutes.

7.2 Cavibat and Cavibat R cavity battens can be used as an alternative to the timber and polystyrene cavity battens specified within NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.4.

7.3 Cavibat and Cavibat R cavity battens do not provide vermin proofing to the bottom of the drained cavity. A cavity vent strip complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3 must be installed as part of the selected cladding system.

7.4 Where the Cavibat and Cavibat R cavity battens are installed vertically or horizontally at greater than 450 mm centres and a flexible building underlay is used, a building underlay support in accordance with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.8.5 must be installed over the building underlay behind the cavity battens at 300 mm centres horizontally to prevent bulging of the building underlay into the drainage cavity.

7.5 Cavibat Cavity Battens is compatible with wood based, cement based, fibre cement, polystyrene based, metal and uPVC cladding products and kraft paper based and synthetic building underlays.

Structure

8.1 The Cavibat and Cavibat R cavity battens must be treated as non-structural packers only. Fixing lengths for the cladding material must be as required for non-structural timber cavity battens. If the Cavibat and Cavibat R cavity battens are to be used with a cladding system that was originally direct fixed, the fixing length must be increased by a minimum of 20 mm to ensure frame penetration depths are maintained.

Impact Resistance

8.2 Cavibat and Cavibat R cavity battens have adequate resistance to impact loads likely to be encountered in normal residential and commercial use. The battens also have adequate resistance to compressive loads likely to be encountered during fixing of the cladding.

Wind Zone

8.3 Cavibat and Cavibat R cavity battens are able to transfer the positive wind loads on the wall cladding to the structural wall frame. Cavibat and Cavibat R cavity battens are suitable for use on buildings situated in all Wind Zones of NZS 3604, up to, and including 'Extra High'.

Durability

Serviceable Life

9.1 Provided the Cavibat cavity batten is not exposed to weather or ultra-violet (UV) light for a total of more than 60 days, it is expected to have a serviceable life of at least 15 years.

9.2 Provided the Cavibat R cavity batten is not exposed to weather or ultra-violet (UV) light for a total of more than 21 days, it is expected to have a serviceable life of at least 15 years.

9.3 Cavibat Cavity Battens will have a durability equivalent to that of the cladding to meet code compliance with NZBC Clause B2.3.2 provided the cladding system is maintained in accordance with this Appraisal and the battens are continually protected from UV light.

Maintenance

10.1 No maintenance is required for Cavibat Cavity Battens. Regular checks, at least annually, must be made of the wall cladding, flashings and penetrations to ensure they are maintained weathertight and continue to perform their function, to ensure that water will not penetrate the cladding.

Prevention of Fire Occurring

11.1 Cavibat Cavity Battens must be separated from chimneys and flues in accordance with the requirements of NZBC Acceptable Solutions C/AS1 to C/AS6, Paragraph 7.5.9 for the protection of combustible materials.

External Moisture

12.1 Cavibat Cavity Battens alone will not prevent airflow into the roof space. The cavity must be sealed off from the roof space to meet code compliance with NZBC Clause E2.3.5.

12.2 Drained cavities constructed using Cavibat Cavity Battens allow excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet code compliance with NZBC Clause E2.3.6.

12.3 Where a cladding manufacturer specifies a drained cavity that complies with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.2 as part of their system, Cavibat Cavity Battens may be used. Where a proprietary cladding system manufacturer specifies timber or polystyrene cavity battens as part of their system, permission must be obtained from the cladding manufacturer before the timber or polystyrene cavity battens are substituted with Cavibat or Cavibat R battens.

12.4 The detailing of the cladding system including junctions between the cladding system and external joinery, other wall penetrations, e.g. meter boxes, and other cladding and roofing junctions is the responsibility of the building designer for compliance with the NZBC. These details have not been assessed as part of this Appraisal.

12.5 The use of Cavibat Cavity Battens to form a drained cavity where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirements for junctions, penetrations etc of the cladding system to remain weather resistant.

Internal Moisture

13.1 The XPS layer of the Cavibat R cavity batten has an R-Value of $R0.3 \text{ m}^2\text{K/W}$. Where a cladding manufacturer specifies a drained cavity that complies with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.2 and thermal break that complies with NZBC Acceptable Solution E3/AS1, Paragraph 1.1.4(d) as part of their system, Cavibat R cavity battens may be used. Cavibat R cavity battens must be installed over the building underlay over each steel member to provide the thermal break. Where a proprietary cladding system manufacturer specifies timber or polystyrene cavity battens over a thermal break as part of their system, permission must be obtained from the cladding manufacturer before the timber or polystyrene cavity battens and thermal break are substituted with Cavibat R cavity battens.

Installation Information

Installation Skill Level Requirements

13.1 Installation of Cavibat Cavity Battens must be completed by competent tradespersons with an understanding of cavity construction.

System Installation

Building Underlay and Flexible Sill and Jamb Tape Installation

14.1 The selected building underlay and flexible sill and jamb flashing tape must be installed in accordance with the underlay and flashing tape manufacturer's instructions prior to the installation of the Cavibat and Cavibat R cavity battens.

Cavibat and Cavibat R Cavity Battens

14.2 The battens may be cut on site with a knife, hand saw or drop saw.

14.3 The battens must be installed over the building underlay to the wall framing. The cavity battens must be fixed in place with 40 x 2.5 mm galvanised flat head nails or galvanised or stainless steel finishing brads at approximately 400 mm centres.

14.4 Where the studs are at greater than 450 mm centres and a flexible building underlay is used, a building underlay support in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5 must be installed horizontally over the building underlay at 300 mm centres.

14.5 The battens must be installed in continuous lengths and may be installed vertically and/or horizontally to suit the requirements of the selected cladding.

14.6 Cavibat cavity battens can be installed with either of the batten faces against the wall underlay. Cavibat R cavity battens must be installed with the XPS face against the wall underlay.

Inspections

14.7 The Technical Literature must be referred to during the inspection of Cavibat Cavity Batten System installations.

Health and Safety

15.1 There are no specific health and safety requirements for Cavibat Cavity Battens, however safe use and handling procedures for the components that make up the cladding system must be followed in accordance with the requirements of the relevant manufacturer's Technical Literature.

Basis of Appraisal

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

Tests

16.1 The following testing has been completed by BRANZ:

Assessment of the face load strength of Cavibat Cavity Battens was completed by fixing a representative cladding material through the Cavibat cavity batten into timber framing. Power-driven nails, hand driven nails, wood screws and Tek screws were used to fix the cladding and the results were used in assessing the impact resistance of Cavibat Cavity Battens.

BRANZ expert opinion on NZBC E2 code compliance for Cavibat Cavity Battens was based on testing to the relevant components of E2/VM1 (as contained within NZBC Clause E2, Amendment 4). The testing assessed the performance of the Cavibat cavity batten in a continuous vertical and horizontal orientation. In addition to the weathertightness test, the Technical Literature has been reviewed, and an opinion has been given by BRANZ technical experts that Cavibat Cavity Battens will meet the performance levels of Acceptable Solution E2/AS1 for drained cavity claddings.

Other Investigations

17.1 A durability opinion has been given by BRANZ technical experts.

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

17.3 The Technical Literature for Cavibat Cavity Battens has been examined by BRANZ and found to be satisfactory.

Quality

18.1 The manufacture of the Cavibat and Cavibat R cavity batten has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

18.2 The quality of supply to the market is the responsibility of Cavity Batten Systems Limited.

18.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems, building underlays, flashing tapes, airseals and cladding system in accordance with the instructions of the designer.

18.4 The quality of installation, handling and storage on site of the Cavibat and Cavibat R cavity battens is the responsibility of the installer.

Sources of Information

- NZS 3604: 2011 Timber-framed buildings.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 5, 1 August 2011).
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition (Amendment 12, 10 October 2011).
- The Building Regulations 1992.



BRANZ

In the opinion of BRANZ, **Cavibat Cavity Battens** 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 **Cavity Batten Systems 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. **Cavity Batten Systems 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 **Cavity Batten Systems 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 **Cavity Batten Systems Limited** or any third party.

For BRANZ

P Burghout
Chief Executive

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