



**BRANZ Appraised**

Appraisal No.872 [2014]

BRANZ Appraisals

Technical Assessments of products  
for building and construction

**BRANZ  
APPRAISAL  
No. 872 (2014)**

**DECK JAK® AND  
JOIST JAK® TILE AND  
DECK LEVELLING AND  
SUPPORT**

Urban Building Products Ltd  
Unit 11 / 9 - 11 Rothwell Ave  
Rosedale  
Auckland 0632

Tel: 09 414 5567  
Fax: 09 414 5569  
Email: info@deckjak.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 Deck Jaks® and Joist Jaks® are adjustable height pedestals for supporting pavers, tiles or framed decking.



## Scope

2.1 Deck Jak® has been appraised for use as adjustable supports for concrete pavers, structural tiles, timber panels or other suitable segmented deck material.  
2.2 Joist Jak® has been appraised for use as adjustable supports for timber joists for timber decks.

## Building Regulations

### New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Deck Jak® and Joist Jak® 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. Deck Jak® and Joist Jak® meets the requirements for loads arising from self-weight and imposed gravity loads arising from use [i.e. B1.3.3 (a) and (b)]. See Paragraphs 8.1 - 8.3.

**Clause B2 DURABILITY:** Performance B2.3.1 (c) 5 years. Deck Jak® and Joist Jak® meet this requirement. See Paragraph 9.1.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Deck Jak® and Joist Jak® meet this requirement and will not present a health hazard to people.

3.2 This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

## Technical Specification

4.1 Deck Jaks<sup>®</sup>, Joist Jaks<sup>®</sup> and accessories are manufactured of black polypropylene. The Deck Jaks<sup>®</sup> and Joist Jaks<sup>®</sup> have 103 mm diameter bases, 80 mm diameter, 4 mm thick seating plates and a 40 mm diameter threaded core for height adjustment. They come in a range of sizes for a finished height of between 20 and 105 mm. The top is self-levelling to 2°. The Joist Jaks<sup>®</sup> have two 63 mm long x 35 mm high fins coming up from the seating plate.

### Accessories

- Base Spacers - 20 mm or 50 mm deep and 110 mm in diameter. Used under Deck Jaks<sup>®</sup> or Joist Jaks<sup>®</sup> to provide extra height. More than one Base Spacer may be used under each Deck Jak<sup>®</sup> or Joist Jak<sup>®</sup>.
- Base Plate - 200 mm diameter Base Plate that spreads the load from the deck over a greater area and also has splines that can provide an extra 2° slope for use on decks or substrates with a 4° fall.
- Mushroom Spacers - these have a 10 mm long x 6 mm diameter pin with a 6 mm deep x 11 mm diameter head. They are inserted into pre-drilled holes in the edge of perimeter tiles/panels to provide a non-movable grid whilst maintaining a 6 mm gap at the edge to allow water run-off.
- Tile Edge Clip - these are for clipping on to the edge of perimeter, 13 mm thick structural tiles to provide a non-movable grid whilst maintaining a 6 mm gap at the edge to allow water run-off.
- EPDM Spacer - 10 mm thick spacer with adhesive on one face to adhere to either the tile or the cladding.

4.2 Fasteners used with the Joist Jaks<sup>®</sup> are 30 mm long nails or screws. These must be hot dipped galvanised or stainless steel as required for the environment the deck is to be installed in.

### Handling and Storage

5.1 Deck Jaks<sup>®</sup> and Joist Jaks<sup>®</sup> and their associated accessories are reasonably robust. They should be stored out of direct sunlight and carefully handled to prevent physical damage.

## Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Deck Jak<sup>®</sup> and Joist Jak<sup>®</sup> systems. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, installation, use and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

## Design Information

7.1 Deck Jaks<sup>®</sup> and Joist Jaks<sup>®</sup> are used to provide a level and/or elevated deck surface. They can provide support for the decorative and protective finish of pavers, tiles or timber decking. They may be used to meet the requirements for level thresholds as described in NZBC Acceptable Solution E2/AS1 Clause 7.3.

7.2 Deck Jaks<sup>®</sup> and Joist Jaks<sup>®</sup> are suitable for use with most waterproofing membranes, however, confirmation as to their suitability should be sought from the membrane supplier.

7.3 The supporting structure for the Deck Jak<sup>®</sup> or Joist Jak<sup>®</sup> system that is to be installed must be designed to carry the imposed dead load of the tile or deck system along with any associated live load.

7.4 The completed tile or deck system must be laterally supported on all sides at the height of the finished system. The Deck Jaks<sup>®</sup> and Joist Jaks<sup>®</sup> are not designed to take lateral loads and have not been appraised to do so.

7.5 Deck Jaks<sup>®</sup> and Joist Jaks<sup>®</sup> are not fixed to the substrate that they sit on, so wind uplift of the elevated system may need to be considered. While solid balcony railings and walls provide protection against strong winds, designers and end users need to be aware of uplift from winds in exposed environments.

7.6 Deck Jaks<sup>®</sup> and Joist Jaks<sup>®</sup> can accommodate a supporting substrate slope of up to 2° whilst still providing a level surface. For substrate slopes of 2° - 4° the Base Plate should also be used as this provides a further 2° of slope allowance.

7.7 Combinations of Deck Jaks<sup>®</sup> or Joist Jaks<sup>®</sup> and Base Spacers should not exceed 400 mm in height.

### Structure

#### NZS 3604 Decks

8.1 Deck Jaks<sup>®</sup> are capable of carrying the maximum 2 kPa live load as specified for decks by NZS 3604. However, specific design of the supporting structure may be required to safely distribute the resultant point load from the Deck Jaks<sup>®</sup>. Refer to Paragraph 8.2, below.

#### Specific Design

8.2 For specific engineering design purposes, the capacity strength of the Deck Jaks<sup>®</sup> and Joist Jaks<sup>®</sup> is 3.36 kN.

8.3 The spacing of Joist Jaks<sup>®</sup> will be dependent on the depth of the timber joists used and the spacing between them.

### Durability

#### Serviceable Life

9.1 The expected serviceable life of the Deck Jaks<sup>®</sup> and Joist Jaks<sup>®</sup> along with the Base Spacers and Base Plates is at least 15 years.

### Maintenance

10.1 Due to natural settlement and movement of buildings, some raised, lowered or rocking tiles may become evident. If this is the case, the tile or tiles may be lifted, the Deck Jak<sup>®</sup> suitably adjusted and the tiles replaced to re-level the deck.

10.2 Wall spacers or tile edge clips must be in place and must be replaced if they become worn or are missing.

### Safety From Falling

11.1 Barriers that are required around the perimeter of decks that incorporate Deck Jak<sup>®</sup> or Joist Jak<sup>®</sup> installations must meet the height requirements of New Zealand Building Code Acceptable Solution F4/AS1 after the installation of the system.

## Installation Information

12.1 Installation of Deck Jaks<sup>®</sup> or Joist Jaks<sup>®</sup> must be in accordance with the Technical Literature and any specific design instructions.

12.2 Careful determination of the area and levels of the deck to be covered should be undertaken to determine the number and heights of Deck Jaks<sup>®</sup>, Joist Jaks<sup>®</sup>, Base Spacers and Base Plates required for the job.

12.3 At the corners or edges of decks, where a Deck Jak® may only be supporting one or two tiles the extra spacing lugs must be removed so that the tile will sit flat on to the seating plate. If Base Plates are used at these points it may be necessary to cut part of the Base Plate away so that the Deck Jak® can be placed up to the edge of the tile. It is important to ensure that, if this is done, no sharp edges are left that may damage any waterproof membrane that is under the system.

12.4 It is recommended that where concrete pavers or large structural tiles are used, an additional Deck Jak®, with its spacing lugs removed, be placed under the centre of each paver or along the perimeter as required by the tile or paver supplier.

12.5 Wall spacers or tile edge clips must be installed 50 mm from the corner of every perimeter tile to hold the tile off the wall for drainage, and to lock the system together.

## Basis of Appraisal

The following is a summary of the Technical Investigations carried out:

### Tests

13.1 Compressive strength tests have been carried out on Deck Jaks® by independent laboratories and BRANZ. The results of these tests have been reviewed and found to be satisfactory.

### Investigations

14.1 Structural calculations have been carried out by BRANZ based on the testing.

14.2 A durability assessment has been carried out on Deck Jaks® and Joist Jaks® by BRANZ technical experts.

### Quality

15.1 The manufacture of the Deck Jak® and Joist Jak® components has been examined by BRANZ and found to be satisfactory.

15.2 Quality of supply of the product to the market is the responsibility of Urban Building Products Ltd.

15.3 Designers are responsible for the design of the building and incorporating the Deck Jak® or Joist Jak® systems in accordance with this Appraisal and the Technical Literature.

15.4 Quality of installation is the responsibility of the installer.

### Sources of Information

- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3604:2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.



# BRANZ

In the opinion of BRANZ, **Deck Jak® and Joist Jak® Tile and Deck Levelling and Support** 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 **Urban Building Products 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. **Urban Building Products 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 **Urban Building Products 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 **Urban Building Products Ltd** or any third party.

For BRANZ

C Percy  
Chief Executive

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