



BRANZ Appraised

Appraisal No. 672 [2023]

SHADOW™ HIDDEN DECK FASTENERS

Appraisal No. 672 [2023]

This Appraisal replaces BRANZ Appraisal No. 672 [2017]



BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 Shadow™ Hidden Deck Fasteners provide hidden fastening of timber decking to a structural timber deck support.

Scope

- 2.1 Shadow™ Hidden Deck Fasteners have been appraised for use as a hidden method of fastening decking to deck structures designed and constructed in accordance with NZS 3604.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Shadow™ Hidden Deck Fasteners, 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. Shadow™ Hidden Deck Fasteners meet the requirements of loads arising from imposed gravity loads, wind, impact, and creep [i.e. B1. 3.3 (b), (h), (j), and (q)]. See Paragraphs 7.1 and 7.2.

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years. Shadow™ Hidden Deck Fasteners meet this requirement. See Paragraph 8.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Shadow™ Hidden Deck Fasteners meet this requirement.



Technical Specification

- 4.1 Shadow™ Hidden Deck Fasteners are black nylon clips that fit into slots that are machined into the edges of the timber decking. The clips are screw fixed to the deck timber supporting structure and are hidden in the gap between the decking.
- 4.2 There are three Shadow™ Hidden Deck Fastener types:
 - For 3 mm decking spacing.
 - For 5 mm decking spacing.
 - With no spacing for butt ends.
- 4.3 Shadow™ Hidden Deck Fasteners clips are injection moulded from black nylon resin.
- 4.4 Shadow™ Hidden Deck Fastener screws are 50 mm long, 6 g, grade 316 stainless steel.
- 4.5 The clips are pre-drilled to take the screws at 40°.
- 4.6 Decking requires slots machined into the edges.

Handling and Storage

- 5.1 There are no special requirements for handling and storage of the fastener components. Decking material should be properly supported and stored straight and under cover until required.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
 - Shadow™ Hidden Deck Fasteners, dated 2018.
- 6.2 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

Structure

- 7.1 Shadow™ Hidden Deck Fasteners provide an alternative means of fixing timber decking without the need to nail or screw through the decking face. The fasteners are hidden between the decking and provide a pre-set spacing of either 3 mm or 5 mm.
- 7.2 Decks must be designed and constructed in accordance with NZS 3604.
- 7.3 Timber species for decking and the treatment of timber decking must be in accordance with NZS 3602.
- 7.4 Shadow™ Hidden Deck Fasteners are for use with timber decking with dimensions 19-40 mm thick and 90-140 mm wide.
- 7.5 The visual effect required must be considered at the design stage such that supporting framing is provided at the appropriate places.
- 7.6 Slots are required in the edges of the decking to receive the locating clips. The slots must be 4 mm wide, 12 mm deep, and positioned with the bottom of the slot at 8 mm from the bottom of the decking. The slots can be machined prior to delivery or can be machined by the installer on site. For softwood decking, it is preferable for slots to be formed at the decking profiling stage prior to timber treatment.

Durability

Serviceable Life

- 8.1 Shadow™ Hidden Deck Fasteners are expected to have a service life in excess of 15 years.



Maintenance

- 9.1 There is no maintenance required for Shadow™ Hidden Deck Fasteners themselves, however normal deck maintenance must be observed such as clearing the gaps between the decking, and sweeping away any accumulated dead leaves, and washing off any fungal material.

Installation Information

Installation Skill Level Requirement

- 10.1 Shadow™ Hidden Deck Fasteners must be installed only by builders or deck installers with an understanding and experience of deck timber framing requirements and deck construction.

System Installation

- 11.1 Installation must be completed in accordance with instructions given in the Smarter Products Ltd installation instructions and this Appraisal.
- 11.2 An understanding of deck support requirements and deck surface detailing and finishing, including allowances made for expansion and contraction, is critical to the stability and ongoing visual quality of the finished deck.
- 11.3 It is important that decking timber is not wet when installed to minimise shrinkage after installation.
- 11.4 If slots are not pre-milled into the decking edges, they can be machined on site with the use of a carefully set up bench saw, however a blade with the correct kerf must be used to produce a 4 mm slot width. Care must be taken to continually verify the width, depth, and precise position of the slot during the process. The slot position relative to the bottom of the boards is critical to the use and effectiveness of the fastener system.
- 11.5 A biscuit cutter power tool can be used to cut the locating slot where the boards pass over each joist. The cutter must be carefully set up to provide the correct depth, width, and position of the slot relative to the joist surface. Advice must be sought from Smarter Products Ltd regarding the correct cutter and set-up.
- 11.6 The first decking board is fixed by a single screw through a pilot hole in the outside edge at each joist. Decking is then progressively fixed into place one decking-board at a time using the clips. The screws through the clips are tightened before the next board is placed in position. Depending on the fastener component chosen for the deck, an even gapping between laid decking of either 3 mm or 5 mm is ensured by the spacing component of the fastening.

Basis of Appraisal

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

Investigations

- 12.1 BRANZ has assessed Shadow™ Hidden Deck Fasteners for function and fitness for purpose.
- 12.2 An assessment of the durability of Shadow™ Hidden Deck Fasteners has been made by BRANZ technical experts.
- 12.3 An assessment of the methods used to install decking using Shadow™ Hidden Deck Fasteners was found to be satisfactory.
- 12.4 The manufacturer's Technical Literature and installation instructions have been reviewed by BRANZ and found to be satisfactory.



Quality

- 13.1 The manufacture of Shadow™ Hidden Deck Fasteners has been examined by BRANZ, including methods adopted for quality control. Details of the manufacturing processes, and quality and composition of the raw materials used were obtained and found to be satisfactory.
- 13.2 Smarter Products Ltd is responsible for the quality of the product supplied.
- 13.3 Quality of installation on-site is the responsibility of the deck installer.
- 13.4 Designers are responsible for building design, and the specification and use of Shadow™ Hidden Deck Fasteners with the advice of Smarter Products Ltd.
- 13.5 Building owners are responsible for the maintenance of decks installed with Shadow™ Hidden Deck Fasteners.

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 - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



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26 July 2023

SHADOW™ HIDDEN DECK
FASTENERS



In the opinion of BRANZ, **Shadow™ Hidden Deck Fasteners** 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 **Smarter 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. **Smarter 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 **Smarter 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 **Smarter Products Ltd** or any third party.

For BRANZ

Claire Falck
Acting Chief Executive

Date of Issue:
26 July 2023