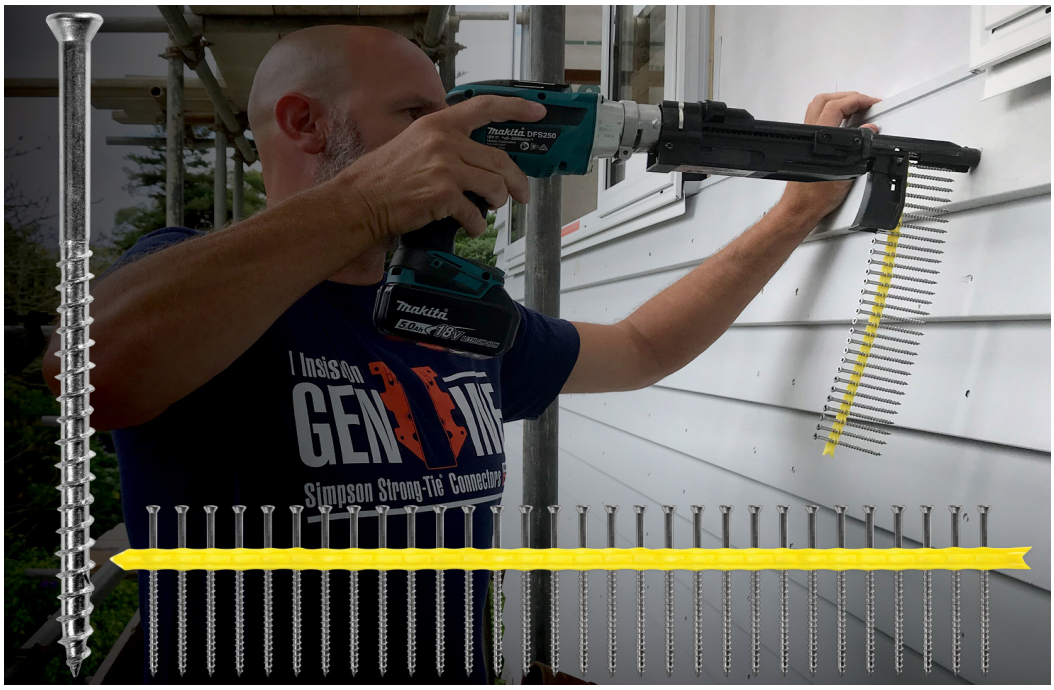
BRANZ Appraised

Appraisal No. 1044 (2024)

SIMPSON STRONG-TIE WEATHERBOARD SCREWS



Appraisal No. 1044 (2024)

This Appraisal replaces BRANZ Appraisal No. 1044 (2019)

BRANZ Appraisals

Technical Assessments of products for building and construction.

Simpson Strong-Tie New Zealand Ltd
52A Arrenway Drive
Albany
Auckland 0632
Tel: 09 477 4440
Web: www.strongtie.co.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 Simpson Strong-Tie Weatherboard Screws are a range of stainless steel screws for use to affix timber weatherboards to timber framing. They are available in various sizes and either 305 or 316 grades of stainless steel.

1.2 Simpson Strong-Tie Weatherboard Screws feature self-drilling tips, box threads and a proprietary trim-head profile. All screws in the range are driven using a #2 square driver bit and are collated for use with the Simpson Strong-Tie Quik-Drive auto-feed screwdriving system.

Scope

2.1 Simpson Strong-Tie Weatherboard Screws have been appraised for use as weatherboard fixings on timber-framed buildings, where the weatherboards meet the following specification:

- Weatherboards shall be manufactured from Radiata Pine - preservative treated in accordance with NZS 3602; and,
- Weatherboard profiles shall be in accordance with NZBC Acceptable Solution E2/AS1 Paragraph 9.4.1.1 (compliant with NZS 3617 or BRANZ Bulletin 411), which includes the following board profiles:
  - bevel-back (rebated and plain);
  - shiplap;
  - rusticated;
  - board and batten; and,
- Weatherboards shall be installed over a 20 mm drained and vented cavity, or directly fixed to the wall framing (as determined by NZBC Acceptable Solution E2/AS1 risk matrix score or Wind Zone), complying with NZBC Acceptable Solution E2/AS1; and,
  - at spacings no greater than 150 x 600 mm; and,
  - situated in NZS 3604 Wind Zones up to, and including, Extra High.

(Note: Substitution of Simpson Strong-Tie Weatherboard Screws for use as alternatives to fixings specified within proprietary cladding systems has not been assessed by BRANZ and is outside the scope of this Appraisal. In all instances, permission must be obtained from the cladding proprietor for any proposed substitutions prior to commencing installation.)

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Simpson Strong-Tie Weatherboard Screws, 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 B1.3.3. Simpson Strong-Tie Weatherboard Screws meet these requirements for loads arising from self-weight, wind and impact [i.e. B1.3.3 (a), (h) and (j)]. See Paragraphs 8.1-8.3.

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years and B2.3.2. Simpson Strong-Tie Weatherboard Screws meet these requirements. See Paragraphs 9.1-9.3.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Simpson Strong-Tie Weatherboard Screws contribute to meeting this requirement. See Paragraph 10.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Simpson Strong-Tie Weatherboard Screws meet this requirement.

Technical Specification

4.1 Simpson Strong-Tie Weatherboard Screws are manufactured from stainless steel and are available in the following sizes and grades:

Table 1: Product Codes and Sizes

Product Code	Description	Stainless Steel Grade
SST Code: SSDTH212S	65 mm x 7 g	305 SS
SST Code: SSDTH3S	75 mm x 7 g	
SST Code: SS3DSC212BS316	65 mm x 10 g	316 SS
SST Code: SS3DSC3BS316	75 mm x 10 g	

Accessories

4.2 Accessories used with Simpson Strong-Tie Weatherboard Screws which are supplied by Simpson Strong-Tie New Zealand Ltd are:

- **Simpson Strong-Tie Quik-Drive auto-feed screwdriving system** – an electric or cordless screwdriver and proprietary driver attachment for use with collated Simpson Strong-Tie Weatherboard Screws.
- **Replacement driver bits** – driver bits are included in each pack of Simpson Strong-Tie Weatherboard Screws.

[Note: Only the Simpson Strong-Tie Quik-Drive and driver bits supplied by Simpson Strong-Tie New Zealand Ltd are to be used to install Simpson Strong-Tie Weatherboard Screws. The Simpson Strong-Tie Quik-Drive and driver bits have not been assessed by BRANZ and are outside the scope of this Appraisal.]

Handling and Storage

5.1 Handling and storage of Simpson Strong-Tie Weatherboard Screws, whether on-site or off-site, is under the control of the installer. Simpson Strong-Tie Weatherboard Screws must be protected from physical damage and must be stored in clean, dry conditions.

Technical Literature

6.1 Refer to Simpson Strong-Tie New Zealand Ltd for details of the current Technical Literature for Simpson Strong-Tie Weatherboard Screws. 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 Simpson Strong-Tie Weatherboard Screws are a range of stainless steel screw fixings intended for use to affix timber weatherboards to timber framing and are proprietary alternatives to fixings given in NZBC Acceptable Solution E2/AS1 Table 24, where used within the scope of this Appraisal.

7.2 Simpson Strong-Tie Weatherboard Screws feature self-drilling tips, box threads and a trim-head profile which facilitate the screws being installed into weatherboards without the need for pre-drilling in most instances. See Paragraph 12.3 for further information.

7.3 Simpson Strong-Tie Weatherboard Screws can be used as weatherboard fixings for timber weatherboards that meet the dimensional criteria given in NZS 3617 or BRANZ Bulletin 411, for use in Wind Zones up to, and including, Extra High.

7.4 Selection of the correct Simpson Strong-Tie Weatherboard Screws is dependent on various wall cladding component choices and final assembly, as per Table 2.

Table 2: Cladding Fixing Selection

Screw type	Wall underlay	Cladding type
75 mm x 7 g or 75 mm x 10 g	Flexible underlay	Weatherboard over non-structural cavity battens 20 mm cavity
65 mm x 7 g or 65 mm x 10 g	Rigid wall underlay ≤ 10 mm	Weatherboard over structurally fixed cavity battens* 20 mm cavity
	Flexible underlay	Weatherboards direct fixed to wall framing

**Note: Structural fixing of cavity battens shall be carried out in accordance with the guidance given in BRANZ Bulletin No. 673 Cavity Battens. Where rigid wall underlays are to be used, structural cavity batten fixings given in Bulletin 673 must be increased in length by at least the thickness of the rigid wall underlay selected.*

7.5 Where used otherwise than in accordance with this Appraisal, the use of Simpson Strong-Tie Weatherboard Screws shall be by way of specific design and is outside the scope of this Appraisal.

7.6 Simpson Strong-Tie Weatherboard Screws are stainless steel and therefore have a high degree of corrosion resistance and do not require any protective coatings. However, the screw fixing locations provide a point for moisture to penetrate into the weatherboard. It is recommended that all screws are countersunk below the top surface of weatherboards and holes are overfilled with exterior grade wood filler and an acrylic paint system, within the time frames specified by the weatherboard proprietor.

7.7 Where a cladding proprietor identifies particular weatherboard fixings to be used as part of their cladding system, permission must be obtained from the cladding proprietor before substituting Simpson Strong-Tie Weatherboard Screws prior to commencing installation.

7.8 Simpson Strong-Tie Weatherboard Screws are not designed to overcome poor installation practices related to installation of weatherboards. Simpson Strong-Tie Weatherboard Screws are designed to be used as part of quality detailing, not as a substitute.

Structure

8.1 Simpson Strong-Tie Weatherboard Screws are designed for use to affix timber weatherboards to timber framing on buildings situated in NZS 3604 Wind Zones up to, and including, Extra High.

8.2 Where used otherwise than in accordance with this Appraisal, the use of Simpson Strong-Tie Weatherboard Screws shall be by way of specific design and is outside the scope of this Appraisal.

8.3 Specific design of weatherboard fixings for weatherboards that meet the specifications given within Paragraph 2.1 of this Appraisal can be carried out using Simpson Strong-Tie Weatherboard Screws based on a characteristic head pull through strength of 0.54 kN per fixing.

Durability

9.1 Simpson Strong-Tie Weatherboard Screws meet B2 durability requirements of the NZBC. This assessment of durability to meet the NZBC is based on difficulty of access and replacement, and the ability to detect failure of Simpson Strong-Tie Weatherboard Screws both during normal use and maintenance of the building.

Serviceable Life

9.2 Provided the exterior cladding system is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weathertight, Simpson Strong-Tie Weatherboard Screws are expected to have a serviceable life equal to that of the cladding.

Maintenance

9.3 No maintenance is required for Simpson Strong-Tie Weatherboard Screws. Annual inspections must be made to ensure that all aspects of the cladding system remain in a weathertight condition and free of water ingress. Any damage to weatherboards or the exterior paint coating that allows water to penetrate the exterior cladding must be repaired immediately.

External Moisture

10.1 Simpson Strong-Tie Weatherboard Screws when installed in accordance with this Appraisal and the Technical Literature will assist in preventing the penetration of moisture that could cause undue dampness or damage to building elements.

Installation Information

Installation Skill Level Requirement

11.1 Installation of Simpson Strong-Tie Weatherboard Screws must be completed by, or under the supervision of, Licensed Building Practitioners with the relevant License Class, in accordance with instructions given within the Technical Literature and this Appraisal.

Simpson Strong-Tie Weatherboard Screws Installation

12.1 Simpson Strong-Tie Weatherboard Screws shall be installed into the weatherboards using the Simpson Strong-Tie Quik-Drive auto-feed screwdriving system. The Quik-Drive screwdriver has an adjustable driving depth mechanism, which controls the degree of countersinking of the screws below the top surface of the weatherboards. It is recommended that trials of screw installation is carried out on weatherboard offcuts to ensure the driving depth is set to achieve the desired countersinking of screw heads before commencing with weatherboard installation.

12.2 Simpson Strong-Tie Weatherboard Screws must be used and installed in conjunction with the selected weatherboards in accordance with the installation methods and requirements given in NZBC Acceptable Solution E2/AS1, with attention paid to the position of fixings relative to weatherboard laps and edges of boards.

12.3 Simpson Strong-Tie Weatherboard Screws feature self-drilling tips, box threads and a trim-head profile which facilitate the screws being installed into weatherboards without the need for pre-drilling in most instances. Given the variable characteristics of timber products and the specifics of installation, pre-drilling of weatherboards is recommended in situations where screws are placed close to the ends of boards or in other locations where splitting of the boards resulting from fixing installation is likely to occur.

12.4 All screws shall be overdriven to countersink the screw heads into the weatherboards sufficiently to allow for overfilling with exterior grade wood filler. An acrylic paint system shall be applied across the overfilled weatherboard fixings and the entire exterior surface of the cladding.

Basis of Appraisal

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

Investigations

13.1 BRANZ expert opinion on NZBC B1 code compliance for Simpson Strong-Tie Weatherboard Screws was based on structural testing of connection details within the scope and as stated within this Appraisal. The details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that the screws will meet the performance levels required as alternative fixings to those given in NZBC Acceptable Solution E2/AS1.

13.2 An assessment was made of the durability of Simpson Strong-Tie Weatherboard Screws by BRANZ experts.

13.3 The practicability of installation of Simpson Strong-Tie Weatherboard Screws has been assessed by BRANZ.

13.4 The Technical Literature for Simpson Strong-Tie Weatherboard Screws has been examined by BRANZ and found to be satisfactory.

Quality

14.1 The manufacture of Simpson Strong-Tie Weatherboard Screws has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. BRANZ undertakes an ongoing review of product quality on an inwards goods basis.

14.2 The quality of materials, components and accessories supplied to the market is the responsibility of Simpson Strong-Tie New Zealand Ltd.

14.3 Quality on-site is the responsibility of the installer.

14.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the cavity battens, wall underlays and cladding systems in accordance with the instructions of the designer.

14.5 Building owners are responsible for the maintenance of the cladding system in accordance with the instructions of cladding manufacturer and designer.

Sources of Information

- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3604:2011 Timber-framed buildings.
- NZS 3617:1979 Specification for profiles of weatherboards, fascia boards, and flooring.
- BRANZ Bulletin 411 Recommended Timber Cladding Profiles, April 2001.
- BRANZ Bulletin 673 Cavity Battens, June 2022.
- 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, Simpson Strong-Tie Weatherboard Screws 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 Simpson Strong-Tie New Zealand 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. Simpson Strong-Tie New Zealand 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 quality of work;
   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 Simpson Strong-Tie New Zealand 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 Simpson Strong-Tie New Zealand Ltd or any third party.

For BRANZ

Claire Falck
Chief Executive

Date of Issue:
28 May 2024