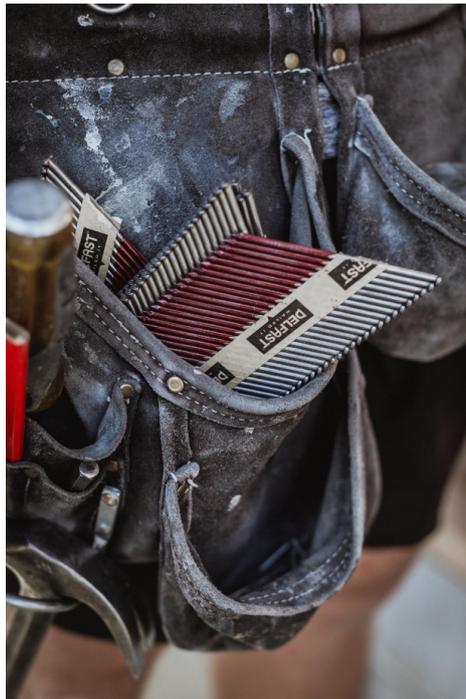


BRANZ Appraised

Appraisal No. 1154 [2021]

DELFAST NAILS



Appraisal No. 1154 [2021]

Amended 10 March 2022

BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 Delfast Nails covered by this Appraisal include hot-dip galvanised nails and bright steel nails. Delfast Nails are available in collated format in a range of sizes, and are designed for use with manual fixing and nail gun fixing.

Scope

- 2.1 This Appraisal covers the material durability performance of the Delfast Nails specified in Table 1 when used in timbers with different treatments, treated in accordance with NZS 3640 and used in accordance with NZS 3602, to comply with the New Zealand Building Code durability requirements. Timber treatments assessed include copper chrome arsenate (CCA) and light organic solvent preservative [LOSP].

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Delfast Nails, if used, installed and maintained in accordance with the statements 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. Delfast Nails contribute to meeting this requirement for the relevant loads from B1.3.3. See Paragraph 7.1.

Clause B2 DURABILITY: Performance B2.3.1 [a] not less than 50 years and B2.3.1 [b] 15 years. Delfast Nails meet these requirements. See Paragraphs 8.1-8.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Delfast Nails meet this requirement.

Technical Specification

Description

4.1 Delfast Nails come in a variety of types and sizes. The nails covered by this Appraisal are as detailed in Table 1 below.

Table 1: Delfast collated nails sizes and descriptions

Nail Type	Sizes (mm)	Description
Bright steel	90 x 3.15	D-Head
Hot-dip galvanised	90 x 3.15	D-Head
Hot-dip galvanised	50 x 3.10	Round head - Ring shanked
Hot-dip galvanised	65 x 3.10	Round head - Ring shanked

4.2 The Delfast Nail packaging has different coloured labels for the different nail types as described in Table 2.

Table 2: Collated nails label descriptions

Nail Type	Label Colour
Bright steel	Blue
Hot-dip galvanised steel, with and without black coating	Red

4.3 Collated Delfast Nails for use with gas and air powered nail guns are generally collated together with paper and plastic.

4.4 Gas and air powered nail guns are to be used to install Delfast collated nails. Gas and air powdered nail guns have not been assessed by BRANZ and are outside the scope of this Appraisal.

Handling and Storage

5.1 Delfast Nails should be stored in a clean, dry area until they are used.

Technical Literature

6.1 No specific Technical Literature is referenced by this Appraisal.

Design Information

Structure

7.1 Connections incorporating Delfast Nails must be designed and installed in accordance with the relevant non-specific design standards, e.g. NZS 3604, or as specified by specific engineering design to the relevant loading and design standards.

7.2 Where a proprietary system manufacturer specifies standard nails, permission must be obtained from them before Delfast Nails are substituted.

Durability

8.1 Delfast Nails are expected to have a serviceable life of at least 15 or 50 years (depending on their use) provided that they are installed and maintained in accordance with this Appraisal.

8.2 Table 3 gives information on where each of the types of Delfast Nails identified in Table 1 may be used based on the timber use, the environment, the timber moisture content and the timber treatment. Table 3 is for Corrosion Zone B as defined by NZS 3604. Table 4 gives the same information for Corrosion Zones C and D as defined by NZS 3604.

8.3 If ACQ-based or CuAz-based treatments are used for timber hazard classes H3.2, H4 or H5, then only stainless steel fasteners should be used in exposed or sheltered locations in accordance with NZS 3604, Clause 4.4.4. There is very little of these timber treatments in use in New Zealand at this time, and most timber is treated with CCA.



Maintenance

- 9.1 Delfast Nails need little or no maintenance in themselves. Where paint or coatings are required to ensure the required design life, then these must be maintained as per the relevant manufacturer's instructions.

Installation Information

Installation Skill Level Requirements

- 10.1 Delfast Nails are installed either with the aid of nailing tools or are manually fixed, and can be done so by any competent person.

Health and Safety

- 11.1 Guidelines for the safe use of portable mechanically powered nailers and staplers are available from the Department of Labour, and all aspects of these should be followed when using nail guns.



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Table 3: Allowable nail uses for NZS 3604 Corrosion Zone B, not less than 50 years, collated nails.

Use	Environment	Timber moisture content in use	H5	H4	H3.2	H3.1	H1.2	H1.1	Low-risk approved species, kiln-dried pine
Internal framing, ceiling joists and battens, internal beams	Assembled under full cover, never exposed to moisture/ weather, in-service use in air-conditioned or heated spaces	Less than 18%							
Roof trusses, exposed rafters and other roof framing	Minimum exposure to weather during construction, dry in-service environment	Less than 18%							
Internal finishing timbers and furniture requiring borer protection	Never exposed to construction moisture, in-service use in air-conditioned or heated spaces	Less than 18%							Timber not suitable for application
Sub-floor framing and floor joists supported on external walls	Exposed to construction moisture; increased risk of moisture	Less than 24% at close in, less than 20% in-service							Timber not suitable for application
Cavity battens	Possible wetting and drying	Periodically greater than 18%					Timber not suitable for application		Timber not suitable for application
Exterior trim or cladding	Exposed to weather but painted	Less than 18%. Assumes effective coating system					Timber not suitable for application		Timber not suitable for application
External unpainted trim	Exposed to weather but not in ground contact	Occasionally above 18%				Timber not suitable for application	Timber not suitable for application		Timber not suitable for application
Decking *	Exposed to weather, but excludes ground contact	Generally above 18%				Timber not suitable for application	Timber not suitable for application		Timber not suitable for application
Posts (not piles) *	In contact with ground or concrete/masonry	Alkaline and above 18%			Timber not suitable for application		Timber not suitable for application		Timber not suitable for application
Piles, poles, etc.	Embedded in ground or concrete	Alkaline and above 18%							Timber not suitable for application

* This timber use relates to a 15 year durability requirement only.





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Table 4: Allowable nail uses for NZS 3604 Corrosion Zones C and D, not less than 50 years, collated nails.

Use	Environment	Timber moisture content in use	H5	H4	H3.2	H3.1	H1.2	H1.1	Low-risk approved species, kiln-dried pine
Internal framing, ceiling joists and battens, internal beams	Assembled under full cover, never exposed to moisture/ weather, in-service use in air-conditioned or heated spaces	Less than 18%	● ●	● ●	● ●	● ●	● ●	● ●	● ●
Roof trusses, exposed rafters and other roof framing	Minimum exposure to weather during construction, dry in-service environment	Less than 18%	● ●	● ●	● ●	● ●	● ●	● ●	● ●
Internal finishing timbers and furniture requiring borer protection	Never exposed to construction moisture, in-service use in air-conditioned or heated spaces	Less than 18%	● ●	● ●	● ●	● ●	● ●	● ●	Timber not suitable for application
Sub-floor framing and floor joists supported on external walls	Exposed to construction moisture; increased risk of moisture	Less than 24% at close in, less than 20% in-service	●	●	●	●	●	●	Timber not suitable for application
Cavity battens	Possible wetting and drying	Periodically greater than 18%	●	●	●	●	Timber not suitable for application	Timber not suitable for application	Timber not suitable for application
Exterior trim or cladding	Exposed to weather but painted	Less than 18%. Assumes effective coating system	●	●	●	●	Timber not suitable for application	Timber not suitable for application	Timber not suitable for application
External unpainted trim	Exposed to weather but not in ground contact	Occasionally above 18%				Timber not suitable for application			
Decking *	Exposed to weather, but excludes ground contact	Generally above 18%		●	●	Timber not suitable for application			
Posts (not piles) *	In contact with ground or concrete/masonry	Alkaline and above 18%		●	Timber not suitable for application				
Piles, poles, etc.	Embedded in ground or concrete	Alkaline and above 18%		●					Timber not suitable for application

* This timber use relates to a 15 year durability requirement only.



Bright steel
Hot-dip galvanised steel



Basis of Appraisal

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

Tests

- 12.1 The following testing on Delfast Nails has been completed by BRANZ to assess whether:
- they meet the dimensional requirements for the specified size in accordance with the relevant standard AS 2334 Steel nails – Metric series; and,
 - they exhibit suitable ductility when tested in accordance with ASTM F1667 Standard specification for driven fasteners: Nails, spikes, and staples; and,
 - they meet the requirements of carbon content in accordance with ASTM F1667 Standard specification for driven fasteners: Nails, spikes and staples; and,
 - if zinc coated, they meet the requirements of 320 g/m² of galvanising in accordance with NZS 3604 Timber-framed buildings.

Other Investigations

- 13.1 A durability opinion has been provided by BRANZ technical experts.
- 13.2 Observations have been made by BRANZ to assess the practicability of installation, and to examine completed installations.

Quality

- 14.1 The methods of quality control for the manufacture of the Delfast Nails has been examined by BRANZ and found to be satisfactory.
- 14.2 The quality of the nails supplied by Delfast New Zealand is the responsibility of Delfast New Zealand.
- 14.3 Designers are responsible for the design and specification of joints incorporating Delfast Nails.
- 14.4 Quality of installation on-site of Delfast Nails is the responsibility of the installer.
- 14.5 Building owners are responsible for the maintenance of their buildings.

Sources of Information

- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3604:2011 Timber-framed buildings.
- NZS 3640:2003 Chemical preservation of round and sawn timber.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 10 March 2022

This Appraisal has been amended to update the technical specifications to add two nails.



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DELFAST NAILS



In the opinion of BRANZ, **Delfast Nails** 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 **Delta Group [NZ] 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. **Delta Group [NZ] 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 **Delta Group [NZ] 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 **Delta Group [NZ] Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

28 July 2021