Viking SuperStrand

Product Overview

Complies with E2 as an Alternative Solution. BRANZ Appraised - Certificate No. 891

BRANZ Appraised
Appraisal No. 891 [2015]

BRANZ Appraised
Appraisal No.276 [2006]

Viking SuperStrand Sarking H3.1 treated strand board

Technical Statement

Product Description

Viking SuperStrand Sarking is a BRANZ Appraised, engineered H3.1 treated strand board; designed specifically as a substrate for asphalt shingles and Viking EcoStar Roof Tiles - to be installed in New Zealand and the Pacific Islands.

Viking Roofspec's pitched roofing systems installed over SuperStrand Sarking; with a total weight of up to 25kg/m2, are considered 'light-weight' for design purposes in accordance loading impact.

The New Zealand Building Code sets the minimum standard; currently not requiring the substrate under asphalt shingles to be treated - with the exception of closed-cavity, skillion or roofs pitched below 12°, which require a treated substrate. SuperStrand follows the best practice by providing a H3.1 treated substrate, therefore exceeding code requirements at a comparable cost.

The manufacturing process also ensures that each individual timber strand is H3.1 treated. This is done in a large porridge-like mixture before being pressed; kiln-fired and cured to make SuperStrand panels. This ensures the treatment is distributed throughout the full thickness of the board (unlike mainstream treatment processes). Any cut edges or penetrations do not require further sealing in order to maintain full protection.

A SuperStrand Sarking board is 3600mm x 800mm which is exactly the same area (2.88m2) as a traditional 2400mm x 1200mm sheet of plywood. The extra length spans an extra truss, resulting in a stronger substrate and less double-nailing required at sheet edges which saves labour.

Other features:

- Viking SuperStrand Sarking is BRANZ Appraised as: (i) a stand-alone component, and (ii) as part of the Viking CertainTeed Asphalt Shingle system.
- SuperStrand Sarking provides a more rigid substrate. This minimises the propensity for the board to sag between trusses; thus creating a flatter and more pristine looking roof.
- Square-edged profile eliminates the need to align tongue-and-groove joins, significantly saving labour.
- No face grain, thus it can be laid in any direction with a maximum span of 900mm resulting in less wastage.
- See the *'Warranties'* section of this statement for warranty information.

Scope of Use

SuperStrand sarking has been appraised for use on buildings within the following scope:

- With timber roof framing designed in accordance with NZS 3604 or NZS 4229, or timber roof members subject to specific design; and,
- In NZS 3604 Wind Zones up to and including Extra High; and,

- Maximum eaves height of 10m above the ground; and,
- Snow loads up to 1kPa; and,
- Roof pitch of at least 10 degrees; and,
- With roof trusses or framing at maximum of 900mm centres; and,
- With roofing materials up to 150kg/m2.

SuperStrand sarking must be installed in accordance with the Technical Literature.

SuperStrand sarking has not been appraised for the following situations:

- As a diaphragm.
- For flat roofs, decks, trafficable areas or roofs with a pitch of less than 10 degrees.
- As a substrate for membrane roofs.

New Zealand Building Code (NZBC)

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- Clause B1 Structure: Performance B1.3.1, B1.3.2 and B1.3.4. SuperStrand sarking meets the requirements for loads arising from self-weight, gravity loads, temperature, snow, wind and creep (i.e. B1.3.3 (a), (b), (c), (g), (h) and (q)).
- Clause B2 Durability: Performance B2.3.1(b), 15 years. SuperStrand sarking meets this requirement.
- Clause F2 Hazardous Building Materials: Performance F2.3.1. SuperStrand sarking meets this requirement and will not present a health hazard to people.

Supporting Evidence

The product has and can make available, the following additional evidence to support the above statements:

BRANZ Appraisal 891 (2015).

BRANZ Appraisal 276 (2012).

Design Requirements

Product specification and incorporation of the Viking SuperStrand Sarking into the building design, shall be carried out by a designer/architect/engineer or a building professional who:

- Is qualified to design the buildings covered under the 'Scope' of use of the product, and; has ready access to the technical specifications including installation details and standards referenced in the BRANZ Appraisal No. 891 (2015) where the design limitations are outlined for the scope of this PTS.

Installation Requirements

Installation shall be carried out by a Viking Roofspec trained and licensed installer. Installation shall be undertaken in accordance with all relevant technical information related to the selected installation method, including information contained within the BRANZ Appraisal No. 891 (2015), BRANZ Appraisal No. 276 (2012) and Viking SuperStrand Substrate checklist.

Maintenance Installation

- Correctly installed SuperStrand requires no maintenance during its serviceable life, *(however in the event of any noticeable damage for whatever unorthodox reason, this should be repaired immediately.)*
- Adequate ventilation must be maintained to ensure the suitable on-going performance of the roof.

Warranties

Viking SuperStrand is backed by a 15 year product warranty.

Environmental

- Solvent-free treatment – The azoles and permethrins used to protect the board against fungal decay and insect attack respectively, are water-based treatments, so no solvents are used. The preservatives used are organic biodegradable compounds.

BRANZ Appraised
Appraisal No. 891 [2015]

STRANDSARKING
ROOF SARKING

Appraisal No. 891 (2015)

BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 Strandsarking is an engineered woodpanel sheet material for use as a roof sarking under asphalt shingles and other similar types of roofing materials.

1.2 Strandsarking is treated to hazard class H3.1.

Scope

2.1 Strandsarking has been appraised for use on buildings within the following scope:

- with timber roof framing designed in accordance with NZS 3604 or NZS 4229, or timber roof members subject to specific design; and,
- in NZS 3604 Wind Zones up to and including Extra High; and,
- maximum eaves height of 10 m above the ground; and,
- snow loads up to 1 kPa; and,
- roof pitch of at least 10°; and,
- with roof trusses or framing at maximum of 900 mm centres; and,
- with roofing materials up to 150 kg/m^2.

2.2 Strandsarking must be installed in accordance with the Technical Literature.

2.3 Strandsarking has not been appraised for the following situations:

- as a diaphragm.
- on flat roofs, decks, trafficable areas or roofs with a pitch of less than 10°.
- as a substrate for membrane roofs.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Strandsarking Roof Sarking, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the New Zealand Building Code:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. Strandsarking meets the requirements for loads arising from self-weight, gravity loads, temperature, snow, wind and creep [i.e. B1.3.3 (a), (b), (c), (g), (h) and (q)]. See Paragraphs 8.1 – 8.3.

Clause B2 DURABILITY: Performance B2.3.1(b), 15 years. Strandsarking meets this requirement. See Paragraph 9.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Strandsarking meets this requirement and will not present a health hazard to people. See Paragraphs 12.1 and 12.2.

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

Technical Specification

Strandsarking Sheets

4.1 Strandsarking is manufactured from strands of Radiata pine. The wood strands are bonded with a pMDI resin and are treated with a wax-based water repellent and a water based organic preservative and insecticide throughout the thickness of the sheet. At manufacture, the sheets have an average density of 685 kg/m^3 and average moisture content of 10%. The sheets are identified by the product name printed on one face. The sheet sizes and nominal masses are given in Table 1.

Table 1: Product Range

Sheet Size (mm)	Nominal Mass Per Panel (kg)	Nominal Mass per m^2 (kg)
3600 x 800 x 16.3	32	11

4.2 Strandsarking comes as square edge sheet. It has a textured surface to provide a macro-texture for a more slip resistant top surface than is available with smooth sanded panel products. It is branded on one face with the name of the product and date and time of manufacture.

Accessories

4.3 Accessories used with Strandsarking, which are supplied by the contractor, are fixings as described below:

- 65 mm x 2.8 mm diameter ring shanked hot dipped galvanised flat head nails; or,
- 65 mm x 2.8 mm diameter ring shanked stainless steel flat head nails; or,
- 40 mm x 3.45 mm diameter (6 gauge) stainless steel screws.

Handling and Storage

5.1 Strandsarking must not be stored on wet concrete floors. Sheets must always be block-stacked on bearers at maximum 1200 mm centres. For short-term storage, sheets must be protected from the weather with a waterproof breather-type cover that is supported clear of the sheet surface on battens, so that air can circulate freely around the stack.

5.2 For long-term storage, Strandsarking must be stored inside in well-ventilated, dry conditions.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Strandsarking. 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 Strandsarking has been appraised for use as a roof sarking material under asphalt shingles or other similar types of roofing products weighing up to 150 kg/m^2.

7.2 Timber roof framing must comply with NZS 3604, or be to a specific design in accordance with NZS 3603 and AS/NZS 1170.

7.3 Roof systems incorporating Strandsarking weighing up to 25 kg/m^2 may be considered as a Light Roof for design in accordance with NZS 3604.

7.4 A 3 mm gap must be left between each Strandsarking panel in order to allow for normal expansion of the panels in service. Failure to provide an adequate gap may result in panels distorting, causing visual impairment to the plane of the roof.

7.5 A 5 mm clearance must be left between Strandsarking panels and any other elements protruding through the roof such as vent pipes. Greater clearances than this may be required around flues and chimneys. Refer to 11.1.

7.6 The maximum allowable spans for different roof weights are given in Table 2.

7.7 Edges of panels at gutters or eaves must be protected by drip edges, flashings, fascia trims or similar.

7.8 Where blocking is required, this must be as close as possible to the edge of the Strandsarking panel. The maximum cantilever length allowed along the edge of a panel is 120 mm.

7.9 Strandsarking panels must be installed such that there is a minimum 25 mm air gap between the underside of the panel and any roof insulation material.

7.10 Ventilation to the roof space must be provided as specified by the roof cladding manufacturer.

7.11 The maximum exposure period for Strandsarking before being clad with the roofing system is 8 weeks.

Table 2: Maximum Spans

Maximum Imposed Cladding Weight	Maximum Span Between Support Centres
150 kg/m^2	600 mm
50 kg/m^2	900 mm

Structure

Mass

8.1 The approximate mass of the Strandsarking is given in Table 1.

Snow

8.2 Strandsarking is suitable for use in areas where buildings are designed for a 1 kPa snow loading. Strandsarking is able to take snow loads of up to 4.5 kPa, however this will require specific engineering design of the supporting structure, and is outside the scope of this Appraisal.

Wind Zones

8.3 When fixed in accordance with the Technical Literature and this Appraisal, Strandsarking is suitable for use in all NZS 3604 Wind Zones, up to, and including Extra High.

Durability

Serviceable Life

9.1 Strandsarking is expected to have a serviceable life of at least 15 years, provided the roof cladding is maintained and the Strandsarking is not exposed to the weather for more than 8 weeks during the construction period before installation of the roof.

Maintenance

10.1 Strandsarking should need no maintenance during its serviceable life. Any areas of damage that are noticed should be repaired immediately.

10.2 Adequate ventilation must be maintained to ensure the suitable ongoing performance of the roof. Roofing material suppliers should be consulted in order to ascertain the specific venting details and requirements for their particular system.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to Strandsarking from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

Hazardous Building Materials

12.1 The adhesive used to manufacture Strandsarking contains no formaldehyde and the amount emitted is significantly less than particleboards manufactured using melamine urea formaldehyde type adhesives. Formaldehyde emissions from Strandsarking meet the E zero classification when tested in accordance with AS/NZS 4266.16.

12.2 The level of formaldehyde emission will decrease with time. After installation, emission levels will be controlled by ventilation. Formaldehyde will generally be restricted from entering habitable spaces by the ceiling lining.

External Moisture

13.1 Strandsarking relies on the roof cladding system to shed precipitated moisture.

Internal Moisture

14.1 Adequate roof space ventilation is necessary to ensure roof space moisture levels and temperatures are controlled. Roofing material suppliers should be consulted in order to ascertain the specific venting details and requirements for their particular system.

Energy Efficiency

15.1 For the purposes of calculating the building performance index of the building envelope (refer NZBC H1.3.2) the R-value of Strandsarking 16.3 mm sheets should be taken as 0.14 m^2K/W.

Installation Information

Installation Skill Level Requirements

16.1 Strandsarking installation must be completed by a competent person with an understanding of sarking and roof installation, in accordance with the instructions given within the Technical Literature, and this Appraisal.

General

17.1 Check that the roof framing provides an in-plane surface for fastening the Strandsarking onto. Trusses or framing should be shimmed as necessary to provide this. If framing, or the top chord of trusses are warped or bowed, install blocking to straighten.

17.2 Ensure that adequate roof space ventilation is provided.

17.3 Lay the Strandsarking panels onto the roof framing in a staggered pattern.

17.4 Strandsarking panels should be laid continuous over at least two spans (three trusses or framing members). Where this is not possible then blocking must be used under the unsupported edges.

17.5 Fixings must be positioned no closer than 10 mm from the panel edges. Maximum fastner spacings are given in Table 3.

Table 3: Nail Fixing Requirements

Wind Zone as per NZS 3604	Fixing Centres (mm)	
	Panel Ends	Intermediate Supports
Up to and including High	150	150
Very High and Extra High	150	100

17.6 The roofing must be installed over the Strandsarking within 8 weeks.

Health and Safety

18.1 Exposure to wood dust may cause irritation to the respiratory system and skin and may cause sensitisation resulting in asthma, and by skin contact resulting in dermatitis. A dust mask and eye protection must be worn when working with Strandsarking. Work areas must be ventilated and kept clean. Machinery used must be fitted with dust extractors. Off cuts, shavings and dust must be disposed of in accordance with the requirements of local authorities.

Basis of Appraisal

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

Tests

19.1 A BRANZ durability assessment of the physical properties of Strandsarking, such as modulus of rupture, modulus of elasticity, internal bond strength, thickness swell and surface water absorption after natural weathering have been undertaken and found to be satisfactory.

19.2 The thermal resistance of Strandsarking has been determined by BRANZ.

19.3 Formaldehyde emission levels have been determined by testing by Juken New Zealand Limited to AS/NZS 4266.16. The results of these tests have been reviewed by BRANZ and found to be satisfactory.

19.4 A review of structural calculations relating to Strandsarking has been undertaken by BRANZ and found to be satisfactory.

Other Investigations

20.1 The Technical Literature for Strandsarking has been reviewed by BRANZ and found to be satisfactory.

Quality

21.1 The manufacture of Strandsarking 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.

21.2 Laminex New Zealand is responsible for the quality of the product supplied.

21.3 Quality of installation of the product on site is the responsibility of the installer.

21.4 Maintenance of the roofing system is the responsibility of the building owner.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 4266.16: 2004 Reconstituted wood based panels - Methods of test. Method 16: Formaldehyde emission - Dessicator method.
- NZS 3603: 1993 Timber structures standard.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4229: 2013 Concrete masonry buildings not requiring specific engineering design.
- Ministry of Building, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.

BRANZ

In the opinion of BRANZ, Strandsarking Roof Sarking 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 Laminex New Zealand, 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. Laminex New Zealand:
   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 Laminex New Zealand.
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 Laminex New Zealand or any third party.

For BRANZ

Chelydra Percy
Chief Executive
Date of Issue:
18 June 2015

BRANZ Appraised
Appraisal No. 276 [2012]

VIKING CERTAINTEED ASPHALT ROOFING SHINGLES

Appraisal No. 276 (2012)

Amended 19 August 2015.

BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 Viking CertainTeed Asphalt Roofing Shingles are glass-fibre reinforced asphalt shingles surfaced with mineral chips with a ceramic coating. They are available in four shingle types: CT20, Landmark Series (30, 40 and 50), Hatteras and Independence.

1.2 The shingles and flashing accessories form a roofing system when installed over a plywood or Strandsarking substrate and roofing underlay.

Scope

2.1 Viking CertainTeed Asphalt Roofing Shingles have been appraised as a roof cladding for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, with regard to floor plan area and building height; and,
- constructed with timber roof framing and sheathing complying with the NZBC; and,
- where the roof slope is 9° or greater for plywood and 10° or greater for Strandsarking; and,
- situated in NZS 3604 Wind Zones up to and including High, or Extra High for the Landmark Series, Hatteras and Independence shingles only.

2.2 The system must be installed in accordance with the Technical Literature by a Viking Roofspec Trained and Approved Installer.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Viking CertainTeed Asphalt Roofing Shingles, 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. Viking CertainTeed Asphalt Roofing Shingles meet the requirements for loads arising from self-weight, gravity loads, temperature, snow, wind, impact and creep [i.e. B1.3.3 (a), (b), (c), (g), (h), (j), and (q)]. See Paragraphs 8.1 - 8.9.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years. Viking CertainTeed Asphalt Roofing Shingles meet this requirement. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Viking CertainTeed Asphalt Roofing Shingles meet these requirements. See Paragraphs 13.1 and 13.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Viking CertainTeed Asphalt Roofing Shingles 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 Viking CertainTeed Asphalt Roofing Shingles are glass-fibre reinforced asphalt shingles surfaced with ceramic coated mineral chips, available in four profile types. The shingles are combined with plywood or Strandsarking sheathing, a roofing underlay and various flashing accessories to form a roofing system.

4.2 System components and accessories supplied by Viking Roofspec are as follows:

Shingles

- Viking CertainTeed Asphalt Roofing Shingles are based on the range of roofing shingles with profiles, sizes and weights as shown in Table 1.
- Single layer shingles are composed of a fibre glass mat base where ceramic-coated mineral granules are embedded in a water-resistant asphalt. The underside of the shingles is coated with fine sand and has intermittent strips of self-bonding, heat-activated adhesive.
- Double layer shingles are manufactured by laminating two single-layer sheets together with asphaltic cement. The top sheet is cut to a profile which gives a random tab pattern when overlaying the lower sheet.

Table 1: Shingle Profiles

Shingle	CT20	Landmark Series*	Hatteras	Independence
Type	3 tab	Dimensional	4 tab	3 tab overlay
Layers	Single	Double	Single	Double
Size [mm]	300 x 1000	300 x 1000	450 x 920	300 x 900
Weather Exposure [mm]	125	135	200	125
Approx. mass [kg/m^2]	9.5	11 - 14	11	14
Available colours	14	17	9	10

* Landmark 30, 40 and 50.

Accessories

- Viking 15W Saturated Felt - a shingle underlay of asphalt - impregnated organic felt.
- Viking Peel and Stick Waterproofing Membrane - a shingle underlay of 1 mm thick, self-adhering, rubberized asphalt sheet membrane reinforced with inorganic glass - fibre mat.
- Viking Synthetic Roofing Underlay - a synthetic woven polypropylene roofing underlayment. It is supplied in rolls 1.1 m wide x 87 m long.
- Shingle starter strips - pre-cut shingle starters for use at eaves to ensure straight edges.
- Shadow Ridge shingles - a three-piece shingle available in 300 x 900 mm and 250 x 1000 mm sizes for use on hips and ridge.
- Viking Roofing Sealant - a black mastic type sealant for use as a weather sealant and wind uplift adhesive.
- Butyl strip flashing - a 300 mm wide butyl strip for use as apron and step flashings.
- ShingleVent - a ridge vent incorporating an external baffle and a weather filter, used to ventilate roof spaces.
- EcoVent - a compression resistant ridge vent, used to ventilate roof spaces and provide a breathable weather barrier.
- Continuous soffit vent - a PVC vent strip installed in the eave/soffit to allow air flow into the roof space.
- Shingle nails - hot-dipped galvanised or stainless steel, 11 or 12 gauge roofing nails with a minimum head diameter of 9 mm. Nail shanks must be long enough to penetrate the shingle and then go 20 mm into the plywood sheathing or completely through the plywood, whichever is less.
- Viking Skirt Vent - is a vent for when a roof meets a wall. It is supplied in 1200 mm lengths.

4.3 Accessories used with the system which are supplied by the building contractor are as follows:

- Plywood sheathing - Minimum 15 mm thick, grade DD or better plywood complying with AS/NZS 2269. Minimum treatment requirements are untreated plywood for ventilated truss roof cavities above 12° and H3 treated plywood for all closed cavity roofs, skillion roofs, and roofs 12° and below. H3 treated plywood must also be used where the plywood edge is unprotected at the eaves. Concealed plywood edges at the eaves do not need to be treated. *(Note: When using plywood sheathing as a structural bracing element, there are additional requirements. Refer to plywood suppliers technical literature.)*
- Plywood fixings - 60 x 2.8 mm flat head hot-dipped galvanised or stainless steel nails for 15 mm and 17 mm plywood. *(Note: Hot-dip galvanising must comply with AS/NZS 4680. Stainless steel must be grade 316.)*
- Strandsarking from Laminex New Zealand - an engineered wood panel sheet material, treated to Hazard Class 3.1. It is available in a nominal thickness of 16.3 mm and panel sizes of 3600 mm x 800 mm. Strandsarking is covered by Appraisal No. 891 (2015).
- Strandsarking fixings:
  - 65 mm x 2.8 mm diameter ring shanked hot dipped galvanised flat head nails; or,
  - 65 mm x 2.8 mm diameter ring shanked stainless steel flat head nails; or,
  - 40 mm x 3.45 mm diameter (6 gauge) stainless steel screws.

(Note: Hot-dip galvanising must comply with AS/NZS 4680. Stainless steel must be grade 316.)

Handling and Storage

5.1 Viking CertainTeed Asphalt Shingles must be transported and handled with care to avoid damaging the pre-finished surfaces.

5.2 Long term storage of shingles and accessories must be under dry, ventilated cover. For short term storage on site, shingles must be stored flat, no more than two pallets high, and off the ground.

5.2 Handling and storage of all materials supplied by Viking Roofspec, whether on or off site, is under the control of the Viking Roofspec Approved Installer. Materials must be handled and stored in accordance with the relevant manufacturer's instructions.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Viking CertainTeed Asphalt Roofing Shingles. 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 Roof framing must comply with NZS 3604, or be to a specific design in accordance with NZS 3603 and AS/NZS 1170.

7.2 Timber roof framing and plywood or Strandsarking sheathing must be treated as required by NZBC Acceptable Solution B2/AS1 and NZS 3602 for the building design application.

7.3 Roof design must take into account any requirements for areas subject to regular snowfalls as per the requirements of NZBC E2/AS1, Paragraph 1.3.

7.4 The roof slope for plywood sheathing is 9° - 60° and for Strandsarking sheathing 10° - 60°.

7.5 For roof pitches where the roof slope is between 9° and 18°, the shingle underlay must be Viking Peel & Stick Waterproofing Membrane or two layers of either Viking 15W Saturated Felt or Viking Synthetic Roofing Underlay. For roof pitches greater than 18°, the shingle underlay must be one layer of Viking 15W Saturated Felt or Viking Synthetic Roofing Underlay. See Paragraphs 17.4 and 17.5 for further information.

7.6 Viking CertainTeed Asphalt Roofing Shingles need sufficient exposure to heat in order to fully activate the bonding of the adhesive strips. This bonding minimises the risk of the tabs lifting and tearing-off in windy conditions. In summer, the required exposure period may be as little as one to three days, but in winter the period may be as long as two to four months. Before bonding is complete, damage is possible if unusually high wind gusts occur. For this reason, Viking Roofing Sealant can be used in order to minimise the short-term risk of wind damage. See Paragraphs 16.9 - 16.11 for further information.

7.7 The collection of potable water has not been assessed and is outside the scope of this Appraisal.

Structure

Mass

8.1 The approximate mass of the Viking CertainTeed Asphalt Roofing Shingles including sarking is given in Table 2. A light roof is defined in NZS 3604 as a roof with a roofing material (cladding and any sarking) having a mass not exceeding 20 kg/m^2. When CertainTeed Shingles are installed over plywood or Strandsarking, the system weighs up to 25 kg/m^2. This may still be considered a light roof in accordance with NZS 3604.

Table 2: Approximate Roof Covering Masses (kg/m^2)

Shingle Type	15 mm plywood	17 mm plywood	Strandsarking
CT20	18	19	21
Landmark Series	19	20	22
Hatteras	19	20	22
Independence	22	23	25

Snow

8.2 Viking CertainTeed Asphalt Roofing Shingles are suitable for use in areas where buildings are designed for a 1 kPa snow loading. Refer to Viking Roofspec for installation details for snow-prone areas.

Wind Zones

8.3 When fixed in accordance with the manufacturer's instructions and this Appraisal, Viking CertainTeed Asphalt Roofing Shingles are suitable for use in all NZS 3604 Wind Zones, up to, and including High.

8.4 In addition, Hatteras, Landmark Series and Independence shingles may be used in NZS 3604 Wind Zones, up to, and including Extra High.

Sheathing

8.5 Rafters or trusses must be at maximum 900 mm centres for 15 and 17 mm thick plywood and Strandsarking. *(Note: Plywood Manufacturer's Technical Literature must be referred to for confirmation of minimum plywood thickness and grades relative to roof pitch and framing centres. Laminex New Zealand Technical Literature must be referred to for Strandsarking).*

8.6 Plywood and Strandsarking must be fixed in accordance with Paragraph 17.2.

8.7 Where LOSP treated plywood is used, the solvents must be allowed to evaporate off for at least one week before installation of the shingle underlay.

8.8 The plywood face grain must be laid at right angles to supports. The sheets must be laid with staggered joints in a brick bond pattern.

8.9 Tongue and groove plywood edges must be butt-jointed with no gaps between the sheet edges. Square plywood edges must have a 2 - 3 mm gap between the sheet edges. A 3 mm gap must be left between each Strandsarking panel.

Durability

Serviceable Life

9.1 Viking CertainTeed Asphalt Roofing Shingles are expected to have a serviceable life of at least 15 years provided maintenance is carried out in accordance with this Appraisal.

Weathering

9.2 Viking CertainTeed Asphalt Roofing Shingles may lose stone granules over a period of time. On ageing, some surface cracking may appear. These cracks will not affect the weathertightness of the roof covering within 15 years.

Maintenance

10.1 Little maintenance should be required apart from the removal of lichen, moss and organic growth that may become established and the removal of accumulations of the stone granules in spouting.

10.2 Annual inspections must be made to ensure that all aspects of the roof cladding, including the pre-finished coating, the flashings and any joints remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress must be repaired immediately.

10.2 A water-based chemical treatment recommended by Viking Roofspec as being suitable for use with bitumen-based products must be used for the removal of organic material. Petroleum-based solvents or cleaners must not be used.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to Viking CertainTeed Asphalt Roofing Shingles from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 - C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

Control of External Fire Spread

12.1 Fire rated roof construction systems using the Viking CertainTeed Asphalt Roofing Shingles have not been assessed and are outside the scope of this Appraisal.

External Moisture

13.1 Viking CertainTeed Asphalt Roofing Shingles, when installed in accordance with this Appraisal, will shed precipitated moisture and therefore meet the performance requirements of NZBC Clause E2.3.1. They will also prevent the penetration of water that could cause undue dampness, or damage to building elements, therefore meeting the performance requirements of NZBC Clause E2.3.2.

Construction Moisture

13.2 Roofs clad with Viking CertainTeed Asphalt Roofing Shingles, if ventilation requirements are met as in the Technical Literature, allow excess moisture present at the completion of construction to be dissipated without permanent damage to building elements and therefore meet the performance requirements of NZBC Clause E2.3.6. This is achieved by ensuring the construction moisture levels are no higher than 18% when the shingles are laid and before the ceiling is closed-in, as well as providing an adequate level of roof cavity ventilation.

Water Supplies

14.1 Water is not contaminated by Viking CertainTeed Asphalt Roofing Shingles which comply with AS/NZS 4020.

14.2 The first 25 mm of rainfall from a newly installed Viking CertainTeed Asphalt Roofing Shingles roof must be discarded before drinking water collection starts. This is to remove residues which may have developed in the processes involved in the production of a Viking CertainTeed Asphalt Roofing Shingles.

14.3 Though Viking CertainTeed Asphalt Roofing Shingles have been shown to comply with AS/NZS 4020, it must be noted that all water collected off roof surfaces made from any material is considered to be non-potable due to possible contamination from other sources. Water collection in this way can only be considered potable if it has been passed through a suitable sterilization system. Sterilization systems such as this have not been assessed and are outside the scope of this Appraisal.

Internal Moisture

15.1 Adequate roof space ventilation is necessary to ensure roof space internal moisture levels and temperatures are controlled. Roof space ventilation requirements are given in the Technical Literature.

15.2 Ideally, air should be allowed to flow from the bottom to the top of the roof. In skillion-type roofs, a clear, uninterrupted, ventilated air gap of at least 25 mm must be present for plywood and 100 mm for Strandsarking. Plywood with tongue-and-groove joints should be used on skillion roofs to minimise the restrictions caused by timber blocking. If required by the roof design or occupancy, perforated soffit linings, soffits and ridge vents should be used to minimise the quantity of moisture and heat accumulating in the roof space.

15.3 Viking Roofspec should be consulted for further advice and information on roof ventilation and moisture control, especially when the roof design is unusual.

Installation Information

Installation Skill Level Requirements

16.1 Installation of all components and accessories supplied by Viking Roofspec must be completed by installers trained and approved by Viking Roofspec.

16.2 Installation of the components supplied by the building contractor must be completed by or under the control of a Licensed Building Practitioner with the relevant license class, in accordance with the instructions given within the Technical Literature and this Appraisal.

System Installation

Sheathing

17.1 Plywood, Strandsarking and framing must have a maximum moisture content of 18% at the time of the installation of the shingles.

17.2 Nails must be fixed according to Table 3 and Table 4 for plywood and Table 5 for Strandsarking. Fixings must be positioned no closer than 10 mm from the sheet edges. All sheet edges must be supported by framing or blocking, except that blocking is not required under the joints where tongue and grooved sheets are used.

Table 3: Fixing Centres for 15 mm and 17 mm Plywood - All sheet edges supported

NZS 3604 Wind Zone	Fixing Centres (mm), Sheet Edges, Intermediate Supports		
	Roof Slope 9° - 20°		Roof Slope 20 - 60°
	0.2w* from roof edge**	Beyond 0.2w* i.e. remainder of roof	
Low	150	300	300
Medium	125	225	250
High	75	150	150
Very High	75	125	120
Extra High	55	100	100

* Where w = width of building

**Roof edge = eaves, barge, hips, ridges, fascia, gables

Table 4: Fixing Centres for 15 mm and 17 mm Plywood - Tongue and Grooved Plywood

NZS 3604 Wind Zone	Fixing Centres (mm), at Supports		
	Roof Slope 9° - 20°		Roof Slope 20 - 60°
	0.2w* from roof edge**	Beyond 0.2w* i.e. remainder of roof	
Low	100	200	200
Medium	75	150	150
High	75	150	150
Very High	50	75	75
Extra High	35	65	65

* Where w = width of building

**Roof edge = eaves, barge, hips, ridges, fascia, gables

Table 5: Fixing Centres Requirements for Strandsarking

NZS 3604 Wind Zone	Fixing Centres (mm)	
	Panel Ends	Intermediate Supports
Up to and including High	150	150
Very High and Extra High	150	100

Shingle Underlay

17.3 The shingle underlay must be tightly laid horizontally across the roof, and completely cover hips, ridges (except where ridge vents are used), and valleys.

17.4 When the roof pitch is between 9° and 18°, either one layer of Viking Peel & Stick Waterproofing Membrane or two layers of either Viking 15W Saturated Felt or Viking Synthetic Roofing Underlay is required. When two layers are used the underlay must be lapped by half the width of the roll, resulting in a double thickness. End laps must be at least 100 mm.

17.5 When the roof pitch is greater than 18°, one layer of Viking 15W Saturated Felt or Viking Synthetic Roofing Underlay is required. The upper sheets must be lapped by at least 50 mm over the lower sheets.

17.6 Only sufficient fasteners to temporarily hold the underlay in place need be used.

Fixing Shingles

17.7 The number and location of fasteners required for each shingle type and roof slope is given in the Technical Literature. Care must be taken to ensure the fasteners are driven in straight and are flush with the shingle surface.

17.8 Viking Roofing Sealant must be laid in spots on top of all 'drip edges' or eaves where present. The spots of sealant should be approximately 20 mm from the edge of the roof. Where required, Viking Roofing Sealant must also be used to seal under or hold down shingles at ridges, hips, upstands and around penetrations.

17.9 When installing the shingles in all Wind Zones, shingle tabs can be bonded with a dab of Viking Roof Sealant, whenever unusually cold or windy conditions occur.

17.10 In High, Very High and Extra High Wind Zones, Viking Roofing Sealant may be used when installing the shingles at times of the year when conditions warrant it.

17.11 Dabs of Viking Roofing Sealant must be about 20 mm in diameter, and placed in front of the sealing strips in a manner which does not interfere with the self-bonding process.

Inspection

18.1 The Technical Literature must be referred to during the inspection of Viking Certainteed Asphalt Roofing Shingles installations.

Health and Safety

19.1 Safe use and handling procedures for Viking CertainTeed Asphalt Roofing Shingles are provided in the manufacturer's Technical Literature.

Basis of Appraisal

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

Tests

20.1 The following tests have been carried out by overseas laboratories by, or on behalf of, Underwriters Laboratories Inc. in order to show compliance with ASTM D3462: behaviour on heating; tear strength; wind resistance; penetration of asphalt; asphalt softening point; compatibility; minimum net mass and average net mass; and mass of glass mat-asphalt, and mineral matter.

Other Investigations

21.1 Weathertightness, structural and durability opinions have been provided by BRANZ technical experts.

21.2 The manufacturer's Technical Literature has been examined by BRANZ and found to be satisfactory.

21.3 Site inspections have been undertaken by BRANZ to assess the practicability of installation.

21.4 The long-term performance of properly installed mastic-bonded and self-adhesive roofing shingles in New Zealand and many countries overseas, along with durability and non-hazardous nature of the materials used, has been noted. The overseas and New Zealand experience of asphalt roofing shingles forms the basis of the durability opinion.

Quality

22.1 The manufacture of Viking CertainTeed Asphalt Roofing Shingles 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.

22.2 The quality of the materials and accessories supplied by Viking Roofspec is the responsibility of Viking Roofspec.

22.3 Quality on site is the responsibility of the Viking Roofspec trained and Approved Installer.

22.4 Designers are responsible for the building design, and the building contractor is responsible for the quality of installation of the roof framing and plywood or Strandsarking sheathing in accordance with Viking Roofspec's instructions.

22.5 Building owners are responsible for the maintenance of Viking CertainTeed Asphalt Roofing Shingles in accordance with the instructions of Viking Roofspec.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269: 2012 Plywood - Structural.
- AS/NZS 4680: 1999 Hot-dip galvanised (zinc) coatings on fabricated ferrous articles.
- AS/NZS 4020: 2005 Testing of products for use in contact with drinking water.
- ASTM D3462-92 Standard Specification for asphalt shingles made from glass felt and surfaced with mineral granules.
- NZS 3602: 2003 Timber and wood-based products for use in building.
- NZS 3603: 1993 Timber structures standard.
- NZS 3604: 2011 Timber-framed buildings.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 6, 14 February 2014).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 12 June 2013.

This Appraisal has been amended to update clause changes as required by the introduction of NZBC Fire Clauses C1 – C6 Protection from Fire and A3 Building Importance Levels.

Amendment No. 2, dated 9 June 2014.

This Appraisal has been amended to add Viking Synthetic Roofing Underlay.

Amendment No. 3, dated 2 April 2015.

This Appraisal has been amended to include Water Supplies.

Amendment No. 4, dated 19 August 2015.

This Appraisal has been amended to update Strandsarking information.

BRANZ

In the opinion of BRANZ, Viking CertainTeed Asphalt Roofing Shingles 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 Viking Roofspec, 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. Viking Roofspec:
   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 Viking Roofspec.
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 Viking Roofspec or any third party.

For BRANZ

Pieter Burghout
Chief Executive
Date of Issue:
21 November 2012