



BRANZ Appraised

Appraisal No.276 [2006]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 276 (2006)**

This Appraisal replaces BRANZ
Appraisal No. 276 (1994)
issued July 1994.
Amended 11 July 2008.

**SKELLERUP
CERTAINTeed ASPHALT
ROOFING SHINGLES**

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Waterproofing**
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Product

- 1.1 Skellerup 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), Independence and Hatteras.
- 1.2 The shingles and flashing accessories form a roofing system when installed over a plywood substrate and roofing underlay.



SKELLERUP

ROOFING & WATERPROOFING

A Division of Viking Group Limited

Scope

- 2.1 Skellerup 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 plywood sheathing complying with the NZBC; and,
 - where the roof slope is 10° or greater; and,
 - situated in NZS 3604 Building Wind Zones up to and including 'High', or 'Very High' for the Hatteras, Landmark and Independence shingles only.
- 2.2 The system must be installed in accordance with the Technical Literature by a Skellerup Roofing & Waterproofing Trained and Approved Installer.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Skellerup 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. Skellerup 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 – 8.8.

Clause B2 DURABILITY: Performance B2.3.1(b), 15 years. Skellerup 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. Skellerup CertainTeed Asphalt Roofing Shingles meet these requirements. See Paragraphs 13.1 and 13.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Skellerup 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 Skellerup 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 sheathing, a roofing underlay and various flashing accessories to form a roofing system.

4.2 System components and accessories supplied by Skellerup Roofing & Waterproofing are as follows:

Shingles

- Skellerup 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 an asphaltic cement. The top sheet is cut top 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

- Skellerup 15W Saturated Felt - a shingle underlay of asphalt - impregnated organic felt.
- Skellerup Peel and Stick Waterproofing Membrane - a shingle underlay of 1 mm thick, self-adhering, rubberized asphalt sheet membrane reinforced with inorganic glass - fibre mat.
- 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 ridges.

- Skellerup 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.
- 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.

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, treated in accordance with the requirements of NZS 3602.
- 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.*)

Handling and Storage

5.1 Skellerup 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.

5.3 Handling and storage of all materials supplied by Skellerup Roofing & Waterproofing, whether on or off site, is under the control of the Skellerup Roofing & Waterproofing 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 Skellerup 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 NZS 4203.

7.2 Timber roof framing and plywood sheathing must be treated as required by 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 shingle underlay must be Skellerup Peel & Stick Waterproofing Membrane where the roof slope is between 10° and 18°, and Skellerup 15W Saturated Felt at roof pitches greater than 18°. See Paragraphs 16.4 and 16.5 for further information.

7.5 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, Skellerup 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.

7.6 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 Skellerup CertainTeed Asphalt Roofing Shingles 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/m². A heavy roof is defined in NZS 3604 as a roof with a roofing material (cladding and any sarking) having a mass in excess of 20 kg/m², but not exceeding 60 kg/m².

Table 2: Approximate Roof Covering Masses (kg/m²)

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

Snow

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

Wind Zones

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

8.4 In addition, Hatteras, Landmark and Independence shingles may be used in 'Very High' Building Wind Zones of NZS 3604.

Plywood Sheathing

8.5 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.

8.6 Rafters or trusses must be at maximum 900 mm centres for 15 and 17 mm thick plywood.

8.7 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.

8.8 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.

Durability

Serviceable Life

9.1 Skellerup 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 Skellerup 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.

10.3 A water-based chemical treatment recommended by Skellerup Roofing & Waterproofing 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.

Outbreak of Fire

11.1 Skellerup CertainTeed Asphalt Roofing Shingles must be separated from flues or chimneys in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9 for the protection of combustible materials.

Spread of Fire

12.1 Skellerup CertainTeed Asphalt Roofing Shingles may be used on buildings intended for all Purpose Groups, including SC and SD, subject to the requirements of NZBC Acceptable Solution C/AS1 Paragraph 7.9. When used for Purpose Groups SC and SD, solid timber sarking at least 18 mm thick must be used.

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

External Moisture

13.1 Skellerup 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 Skellerup 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.

Internal Moisture

14.1 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.

14.2 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. 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.

14.3 Skellerup Roofing & Waterproofing 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

15.1 Installation of all components and accessories supplied by Skellerup Roofing & Waterproofing must be completed by installers trained and approved by Skellerup Roofing & Waterproofing.

15.2 Installation of the components supplied by the building contractor must be completed by tradespersons with an understanding of roofing installation, in accordance with the instructions given within the Technical Literature and this Appraisal.

System Installation

Plywood Sheathing

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

16.2 Nails must be fixed according to Table 3 and Table 4. 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 Building Wind Zone	Fixing Centres (mm), Sheet Edges, Intermediate Supports		
	Roof Slope 10 – 20°		Roof Slope 20 – 60°
	0.2w* from roof edge**	Beyond 0.2w* i.e. remainder of roof	
Low, Med, High	100	150	150
Very High	75	150	150

* 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 Building Wind Zone	Fixing Centres (mm), at Supports		
	Roof Slope 10 – 20°		Roof Slope 20 – 60°
	0.2w* from roof edge**	Beyond 0.2w* i.e. remainder of roof	
Low, Med, High	75	150	150
Very High	50	100	100

* Where w = width of building

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

Shingle Underlay

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

16.4 When the roof pitch is greater than 18°, one layer of Skellerup 15W Saturated Felt is required. The upper sheets must be lapped by at least 100 mm over the lower sheets.

16.5 When the roof pitch is between 10° and 18°, either one layer of Skellerup Peel & Stick Waterproofing Membrane or two layers of Skellerup 15W Saturated Felt lapped by half the width of the roll plus 25 mm (resulting effectively in a double thickness of underlay) is required. End laps must be at least 100 mm.

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

Fixing Shingles

16.7 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.

16.8 Skellerup 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, Skellerup Roofing Sealant must also be used to seal under or hold down shingles at ridges, hips, upstands, and around penetrations.

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

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

16.11 Dabs of Skellerup 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.

Health and Safety

17.1 Safe use and handling procedures for Skellerup 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

18.1 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

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

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

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

19.4 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

20.1 The manufacture of Skellerup 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.

20.2 The quality management system of the Skellerup CertainTeed Asphalt Roofing Shingles manufacturer, CertainTeed Corp., has been assessed and registered as meeting the requirements of ISO 9001:2000 by Underwriters Laboratories Inc., File Number A6735.

20.3 Skellerup CertainTeed Asphalt Roofing Shingles are the subject of Underwriters Laboratories Certificate Nos. 081601-R684A, C, D, F & G and 050801-R684B & E.

20.4 The quality of the materials and accessories supplied by Skellerup Roofing & Waterproofing is the responsibility of Skellerup Roofing & Waterproofing.

20.5 Quality on site is the responsibility of the Skellerup Roofing & Waterproofing trained and approved installer.

20.6 Designers are responsible for the building design, and the building contractor is responsible for the quality of installation of the roof framing and plywood sheathing in accordance with Skellerup Roofing & Waterproofing's instructions.

20.7 Building owners are responsible for the maintenance of Skellerup CertainTeed Asphalt Roofing Shingles in accordance with the instructions of Skellerup Roofing & Waterproofing.

Sources of Information

- AS/NZS 2269:2004 Plywood – Structural.
- AS/NZS 4680: 1999 Hot-dip galvanised (zinc) coatings on fabricated ferrous articles.
- 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 3604:1999 Timber framed buildings.
- NZS 4203:1992 General structural design and design loadings for buildings.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005.
- New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, 1992.
- The Building Regulations 1992, up to, and including October 2004 Amendment.

Amendment No. 1, dated 11 July 2008.

This Appraisal has been amended to update the Appraisal Holder details.



BRANZ

In the opinion of BRANZ, **Skellerup CertainTeed Asphalt Roofing Shingles** 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 **Skellerup Roofing & Waterproofing**, 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. **Skellerup Roofing & Waterproofing:**
 - 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.
3. 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.
4. 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 **Skellerup Roofing & Waterproofing**.
5. 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.
6. BRANZ provides no certification, guarantee, indemnity or warranty, to **Skellerup Roofing & Waterproofing** or any third party.

For BRANZ

P Robertson
Chief Executive

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