



BRANZ Appraised
Appraisal No. 1096 [2020]

**ROSS ROOF GROUP
ROOFING SYSTEMS**

Appraisal No. 1096 [2020]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 The Ross Roof Group Roofing Systems are available in seven different pressed metal roofing tile profiles with stone coated surface finishes or painted satin finishes in a range of finishing colours.
- 1.2 The pressed metal roofing tiles and flashing accessories form roofing systems installed over roofing underlay and roofing battens.
- 1.3 The tiles are branded with Ross Roof Group on the underside of the tile.

Scope

- 2.1 The Ross Roof Group Roofing Systems have been appraised as roof claddings 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 timber battens specified in this Appraisal; and
 - with a minimum roof pitch in accordance with Table 1 of this Appraisal and a maximum roof pitch of 60°; and,
 - situated in NZS 3604 Wind Zones up to and including Extra High.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, the Ross Roof Group Roofing Systems, 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. The Ross Roof Group Roofing Systems 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 – 8.7.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years. The Ross Roof Group Roofing Systems meet this requirement. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. The Ross Roof Group Roofing Systems meet these requirements. See Paragraphs 13.1 and 13.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Ross Roof Group Roofing Systems meet this requirement and will not present a health hazard to people.

Technical Specification

4.1 The Ross Roof Group Roofing Systems are pressed metal tile roofing systems manufactured from Zinalume® steel and finished with a stone chip coating or painted satin finish. These are available in seven profiles as set out in Table 1.

Table 1: Ross Roof Group Roofing Systems Specifications

Profile	Antica	Bond	Classic	Roman
Dimensions [l x w]	1300 mm x 428 mm	1330 mm x 425 mm	1330 mm x 418 mm	1295 mm x 420 mm
Effective coverage [l x w]	1220 mm x 368 mm	1260 mm x 368 mm	1260 mm x 368 mm	1215 mm x 365 mm
Profile height	29 mm	14 mm	18 mm	29 mm
weight/tile	2.0 kg [satin] 3.0 kg [stone chip]	2.1 [satin] 3.0 [stone chip]	2.1 [satin] 3.0 [stone chip]	2.9 [stone chip]
weight/m ²	4.3 kg [satin] 6.4 kg [stone chip]	4.4 [satin] 6.4 [stone chip]	4.5 [satin] 6.4 [stone chip]	6.3 [stone chip]
Tile fasteners in Wind Zone up to and including extra high	4 per tile as specified in E2/AS1	4 per tile as specified in E2/AS1	4 per tile as specified in E2/AS1	4 per tile as specified in E2/AS1
Tile fastener dimensions	50 mm x 3.05 mm	50 mm x 3.05 mm	50 mm x 3.05 mm	50 mm x 3.05 mm
Batten dimensions	50 mm x 40 mm	50 mm x 40 mm	50 mm x 40 mm	50 mm x 40 mm
Min/max roof pitch*	12.5°/60°	12.5°/60°	12.5°/60°	12.5°/60°

Table 1 continued...

Profile	Royal	Shake	Tudor
Dimensions [l x w]	1350 mm x 420 mm	1345 mm x 411 mm	1335 mm x 414 mm
Effective coverage [l x w]	1260 mm x 368 mm	1260 mm x 368 mm	1260 mm x 368 mm
Profile height	24 mm	10 mm	18 mm
weight/tile	3.0 [stone chip]	2.1 [satin] 3.0 [stone chip]	2.1 [satin] 3.0 [stone chip]
weight/m ²	6.4 kg [stone chip]	4.5 kg [satin] 6.4 kg [stone chip]	4.5 [satin] 6.4 [stone chip]
Tile fasteners in Wind Zone up to and including extra high	4 per tile as specified in E2/AS1	4 per tile as specified in E2/AS1	4 per tile as specified in E2/AS1
Tile fastener dimensions	50 mm x 3.05 mm	50 mm x 3.05 mm	50 mm x 3.05 mm
Batten dimensions	50 mm x 40 mm	50 mm x 40 mm	50 mm x 40 mm
Min/max roof pitch*	15°/60°	15°/60°	12.5°/60°

*Where the rafter/truss length exceeds 12 m, the minimum roof pitch shall increase by 1° per additional 0.5 m.

Accessories

- **Roofing battens** - 50 mm x 40 mm or 50 mm x 50 mm rough sawn H1.2 treated timber, as specified in NZS 3604, Table 10.12.
- **Roof underlay** - BRANZ Appraised roof underlay, specified and supplied by the Ross Roof Group.
- **Batten Fasteners** - 90 mm x 3.15 mm D head, bright steel for battens to trusses in Wind Zones up to and including Very High, and 10g self-drilling 80 mm long screws for Extra High Wind Zone, as specified in NZS 3604, Table 10.12.
- **Tile Fasteners** - 50 x 3.05 mm hot-dipped galvanized painted flat-head annular-grooved nails. For fastening through the top of the tiles the nails must be fitted with a neoprene washer.
- **Flashings** - as specified in the Technical Literature and manufactured by the Ross Roof Group.



Handling and Storage

- 5.1 The Ross Roof Group Roofing Systems must be transported and handled with care to avoid damaging the pre-finished surfaces.
- 5.2 Long term storage of the roofing tiles and accessories must be under dry, ventilated cover. For short term storage on site, the tiles must be stored flat, no more than one pallet high, and off the ground.
- 5.3 Handling and storage of all materials supplied by the Ross Roof Group Ltd, whether on or off site, are under the control of the 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 the Ross Roof Group Roofing Systems. 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 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 required by NZBC Acceptable Solution E2/AS1, Paragraph 1.3.
- 7.4 Roof underlay must be installed as required by NZBC Acceptable Solution E2/AS1, Paragraph 8.3.6 and Paragraph 8.1.5.
- 7.5 The minimum roof pitch is profile dependent and listed in Table 1. Where the rafter/truss length exceeds 12 m, the minimum roof pitch shall increase by 1° per additional 0.5 m. The maximum roof pitch is 60°.
- 7.6 Roof penetrations not detailed in the Technical Literature are the responsibility of the designer and are outside the scope of this Appraisal.
- 7.7 Tile battens must be installed in accordance with the Technical Literature and NZS 3604.
- 7.8 The collection of potable water has not been assessed and is outside the scope of this Appraisal.

Structure

Mass

- 8.1 The approximate masses of the Ross Roof Group Roofing tiles are given in Table 1.
- 8.2 The total mass of the Ross Roof Group Roofing Systems are expected to not exceed 20 kg/m² and is therefore considered to be a light roof as defined in NZS 3604.

Snow

- 8.3 The Ross Roof Group Roofing Systems are suitable for use in areas where buildings are designed for a 1 kPa snow loading. Refer to the Ross Roof Group Ltd for installation details for snow-prone areas.

Wind Zones

- 8.4 When fixed in accordance with the manufacturer's instructions and this Appraisal, the Ross Roof Group Roofing Systems are suitable for use in all NZS 3604 Wind Zones, up to, and including Extra High. Refer to E2/AS1, NZS 3604 and the Technical Literature for fastening requirements.

Tile battens

- 8.5 Rafters or trusses must be at maximum 1200 mm centres.
- 8.6 For the Ross Roof Group Roofing Systems the batten dimensions are 50 mm x 40 mm. Tile battens must be H1.2 treated.
- 8.7 Tile battens must be fastened as described in NZS 3604 and the Technical Literature.

Durability

- 9.1 The Ross Roof Group Roofing Systems meet the durability requirement of 15 years provided maintenance is carried out in accordance with this Appraisal and the Technical Literature.

Serviceable Life

- 9.2 The Ross Roof Group Roofing Systems are expected to have a serviceable life as detailed in Table 2 if maintenance is carried out in accordance with the Technical Literature.

Table 2: Minimum expected serviceable life.

Roof care	NZS 3604:2011 Exposure Zone	
	Zone B	Zone C
Cleaning and re-coating	50 years	30 years
Cleaning only	35 years	20 years

Weathering

- 9.3 The Ross Roof Group Roofing Systems with a stone chip finish may lose some stone granules over a period of time.
- 9.4 The Ross Roof Group Roofing Systems with a satin coating may fade slightly over a period of time.

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 the Ross Roof Group Ltd as being suitable for use with the Ross Roof Group Roofing Systems must be used for the removal of organic material. Petroleum-based solvents or cleaners must not be used.
- 10.4 Areas of the roof that are not washed by rain should be washed down with fresh water approximately every six months.
- 10.5 In marine environments, or in areas exposed to industrial pollution, washing down should be carried out every two to three months.
- 10.6 To avoid cracking, denting or any other damage to the tiles, walking on the roof should be avoided. If it is necessary to walk on the roof, soft-soled shoes should be worn, and loads should be placed over battens or rafters.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to the combustible materials of the Ross Roof Group Roofing Systems from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Acceptable Solution C/AS1 and C/AS2, and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

- 12.1 The Ross Roof Group Roofing Systems, when installed in accordance with this Appraisal and the Technical Literature, 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

- 12.2 The Ross Roof Group Roofing Systems when installed in accordance with this Appraisal and the Technical Literature will 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 roofing tiles are laid and before the ceiling is closed-in, as well as providing an adequate level of roof cavity ventilation.

Internal Moisture

- 13.1 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.
- 13.2 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 under Ross Roof Group Roofing Systems.
- 13.3 The Ross Roof Group Ltd 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

- 14.1 All design and building work must be carried out in accordance with the Ross Roof Group Roofing Systems Technical Literature and this Appraisal. Where the work involves Restricted Building Work this must also be completed by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant License class.
- 14.2 Technical Literature must be referred to during all inspections of the Ross Roof Group Roofing Systems installations.

System Installation

Roofing Battens

- 15.1 Roofing battens and framing must have a maximum moisture content of 18% at the time of the installation of the roofing tiles.
- 15.2 The roofing battens must be designed and installed in accordance with NZS 3604 and the Technical Literature.
- 15.2 Roofing battens of 50 mm x 40 mm must be used for rafters or trusses at 900 mm centres and roofing battens of 50 mm x 50 mm must be used for rafters or trusses at 1200 mm centres.
- 15.3 Two gun nails per fastening point of 90 mm x 3.15 mm must be used for Wind Zones up to and including Medium for rafter or trusses at 1200 mm centres and for Wind Zones up to and including Very High for rafter or trusses at 900 mm centres as per NZS 3604.
- 15.4 One 80 mm x 10g self-drilling screw per fastening point must be used for Wind Zones High to Extra High for rafter or trusses at 1200 mm centres and for Extra High Wind Zone for rafter or trusses at 900 mm centres as per NZS 3604.

Roof Underlay

- 16.1 The roof underlay must be tightly laid horizontally across the roof, and completely cover hips, ridges [except where ridge vents are used], and valleys.



- 16.2 When plywood sheathing is used, the roof underlay is installed to the requirements of the Technical Literature.
- 16.3 When battens are used the roof underlay is installed to the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 8.3.6 and the Technical Literature.
- 16.4 Only sufficient fasteners to temporarily hold the underlay in place need be used.

Roofing Tiles Installation

- 17.1 The Ross Roof Group Roofing tiles must be fixed with 50 mm x 3.05 mm hot dipped galvanized painted flat-head annular-grooved nails. Tiles are fixed with four fasteners per tile through the turn-down for the body of the roof. Tiles at the eaves are fixed with four nail fasteners which include a neoprene washer. The fasteners must be near the high point in the tile profile. This follows the requirements of NZBC Acceptable Solution E2/AS1 and the Technical Literature.

System Installation

- 18.1 For the installation of the roofing tiles and the flashings the Technical Literature must be referred to.

Health and Safety

- 19.1 Safe use and handling procedures for the Ross Roof Group Roofing Systems are provided in the manufacturer's Technical Literature.



Basis of Appraisal

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

Other Investigations

- 20.1 Weathertightness, structural and durability opinions have been provided by BRANZ technical experts.
- 20.2 The manufacturer's Technical Literature has been examined by BRANZ and found to be satisfactory.
- 20.3 Site inspections have been undertaken by BRANZ to assess the practicability of installation.
- 20.4 The long-term performance of Ross Roof Group Roofing Systems in New Zealand and many countries overseas, along with the durability and non-hazardous nature of the materials used has been noted. The overseas and New Zealand experience of the Ross Roof Group Roofing Systems form the basis of the durability opinion.

Quality

- 21.1 The manufacture of the Ross Roof Group Roofing Systems have been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 21.2 The quality management system of the Ross Roof Group Ltd, has been assessed and registered by Telarc as meeting the requirements of ISO 9001:2015.
- 21.3 The quality of the supply of materials and accessories is the responsibility of the Ross Roof Group Ltd.
- 21.4 Quality on site is the responsibility of the installer.
- 21.5 Designers are responsible for the building design, and the building contractor is responsible for the quality of installation of the roof framing and sheathing or roofing battens in accordance with the Technical Literature.
- 21.6 Building owners are responsible for the maintenance of the Ross Roof Group Roofing Systems in accordance with the instructions of the Ross Roof Group Ltd.

Sources of Information

- NZS 3604: 2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



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28 February 2020

ROSS ROOF GROUP ROOFING
SYSTEMS



In the opinion of BRANZ, the **Ross Roof Group Roofing Systems** 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 **Ross Roof Group 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. **Ross Roof Group 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 **Ross Roof Group 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 **Ross Roof Group Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

28 February 2020