



**BRANZ
APPRAISAL
CERTIFICATE
No. 331 (2000)**

This Certificate replaces Appraisal
Certificate No. 331 (1996)

**METROTILE
PRESSED-METAL
TILE ROOFING
SYSTEMS**

Metrotile (N.Z.) Ltd
P O Box 62
Papakura
Auckland

Tel +64 9 299 9210

Fax +64 9 298 4114

Internet: <http://www.metrotile.com>

E-mail: metromail@metrotile.com

Readers are advised to check that this Certificate has not been amended, withdrawn or superseded by a later issue. Refer to the "Valid Certificates Index" in BUILD magazine published by BRANZ, the Certificate Listing on the BRANZ Internet Site, or contact BRANZ.

BRANZ, Private Bag 50908
Porirua City
New Zealand
Telephone: +64-4-235 7600
Fax: +64-4-235 6070
<http://www.branz.org.nz>



Product

- *This Certificate relates to Metrotile Pressed-Metal Tile Roofing Systems, which consist of pre-finished pressed-metal tiles and flashing accessories post-formed from coil-coated Zinalume®.*
- *The roofing is manufactured and marketed by Metrotile (N.Z.) Ltd, and installed only by installers approved and instructed by that company.*
- *The products are intended for use as pre-finished lightweight roofing for new and existing buildings with a minimum roof pitch of 12 degrees.*
- *The products must be used and installed in accordance with the manufacturer's technical information entitled "Metrobond and Metrotile Roofing Tiles - New Roofing and Reroof Specifications", dated September 1993. Unless otherwise stated, reference to the manufacturer's technical information shall be taken as this document.*



Metrotile #123 130

Building Regulations

1. New Zealand Building Code (NZBC)

In the opinion of BRANZ, Metrotile Pressed-Metal Tile Roofing Systems, if used, installed, and maintained in accordance with the statements and conditions of this Certificate, will meet the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2, and B1.3.4, for the relevant physical conditions of B1.3.3. See Section 7.

Clause B2 DURABILITY: Performance B2.3.1(b), not less than 15 years. See Section 8.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. See Section 10.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The products will not be harmful to people.

Clause G12 WATER SUPPLIES: Performance G12.3.1. See Section 11.

2. Description

2.1 Metrotile Pressed-Metal Tile Roofing Systems consist of Metrobond, Metrocolor, and MetroShake pressed-metal roofing tiles 1330 x 410 mm in size (effective cover 1257 x 370 mm), and matching flashings and trims.

2.2 The roofing tiles are printed on the underside with the brand name.

2.3 The following flashings are supplied in 2 metre lengths (effective linear cover 1.9 m): standard barge flashing; hip and ridge capping; and side flashing. Barge and apron flashings are also supplied with alloy edging. A 400 mm long Spanish style and angled ridge or hip flashing is also supplied (effective cover 370 mm).

2.4 Black lacquered, hot-dipped 50 x 2.5 mm galvanised flat-head nails are used for fixing the roofing. Where tiles have to be fixed on top of a rib, e.g., at the fascia, eaves, barges or on top of flashings, 50 x 2.5 mm annular-grooved nails fitted with neoprene washers are used.

3. Materials

3.1 Zinalume® consists of steel hot-dip coated with an aluminium/zinc alloy to coating Class AZ 150 of AS 1397. The steel is G300 (Structural Drawing) grade 0.4 mm thick.

Primer and Coatings Systems

Metrobond and MetroShake Roofing

3.2 Metrobond and MetroShake roofing, including flashings and trims, are manufactured from Zinalume®, which is chip-coated after forming.

3.3 Before coil coating, the Zinalume® is cleaned and chemically treated. An oven-cured priming system is applied to the treated steel. This consists of a clear tinted primer applied to both surfaces of the Zinalume®.

3.4 The topside of the roofing is finished with an acrylic base-coat (containing a lichen inhibitor), stone chips, and acrylic over glaze.

Metrocolor Roofing

3.5 Metrocolor Roofing is normally post-formed from Colorcote ZR8™ supplied by Pacific Coilcoaters Limited.

3.6 Metrocolor Roofing may also be manufactured from the following other coil-coated Zinalume® materials: Colorcote ZRX™ (supplied by Pacific Coilcoaters Limited); and Colorsteel® G2z (supplied by BHP New Zealand Steel Limited).

3.7 Specifications for the coil-coated materials, which may be used for Metrocolor, are available from the coil-coaters.

3.8 In general, the materials have the following in common. Before coil coating, the Zinalume® steel is cleaned and chemically treated.

3.9 The paint systems consist of corrosion inhibitive primers applied to both surfaces and polyester ceramic pigmented acrylic, or polyvinylidene fluoride (PVF₂) based topcoats. A polyester-based wash-coat is applied to the reverse surfaces over the top of the primer.

Colours

3.10 Metrobond and MetroShake roofing are supplied in the following colours: Autumn; Brown Bark; Charcoal; Cedar; Coffee; Greenstone; Olive; Silver Grey; Slate; and Terracotta.

3.11 MetroShakes are also supplied in the following additional colours: Ashwood; Beechwood; Forest; Mesquite; Walnut; Weathered Timber (multi-coloured).

3.12 Metrocolor roofing is normally supplied in the following standard colours: New Denim Blue; Grey Flannel; Greyfriars; Iron Sand; Karaka; Lignite; Mist Green; Scoria; and Terracotta.

3.13 Alternatively, Metrocolor roofing may be supplied in any one of the colours available from the coil-coaters.

4. Packing

4.1 The tiles are packed on wooden pallets protected with temporary waterproof covering for delivery to the site.

4.2 Flashings and trims are packed separately in plastic wrappings.

5. Handling and Storage

5.1 The product must be transported and handled with care to avoid damaging the surfaces.

5.2 Long-term storage of roofing must be under dry, ventilated cover.

5.3 For short-term storage on site, pallets should be placed separately on level ground.

5.4 Flashings and trims should be stored off the ground on dunnage.

5.5 Tiles, flashing, and trims should be left covered with the waterproof covering on, when stored short-term on site in order to avoid water stains.

Design Information

6. General

6.1 Metrotile Roofing Systems are pressed-metal roof cladding products suitable for use on new or existing roofs when fixed to timber battens.

6.2 New roofs must be designed and constructed in accordance with NZS 3604 or to a specific structural design.

6.3 Roof design must take into account any requirements for areas subject to regular snowfalls (as per the requirements of Acceptable Solution E2/AS1 Paragraph 1.2), the need to minimise roof cavity condensation, e.g., in skillion roofs, and specific flashing details.

6.4 Existing roofs must be inspected for soundness and the capability of resisting likely structural loads.

6.5 Minimum roof pitch is 12 degrees.

6.6 Note must also be taken of the requirements of Acceptable Solution E2/AS1 Paragraph 1.4(ii) for ponding boards when the roof pitch is less than 15 degrees.

6.7 The flashings supplied by Metrotile (N.Z.) Ltd are acceptable alternatives to those specified in Figure 1 of Acceptable Solution E2/AS1.

6.8 Alternatively, the designer may provide the details. These alternative details have not been assessed and are outside the scope of this Appraisal Certificate.

6.9 The designer must also provide weathersealing details for situations not covered by the manufacturer's information. The designer is responsible for ensuring that all his/her details are incorporated into the roof design, and that those details are followed by the installer.

6.10 Batten size and fixing must be in accordance with the requirements of NZS 3604 for the relevant rafter spacing (maximum 1200 mm).

6.11 Counter battens must be sized, spaced, and fixed in accordance with the requirements of NZS 4217 in *low*, *medium*, and *high* building wind zones. In *very high* building wind zones, counter battens must be spaced as directed by this Certificate (see under **Installation Information**).

7. Structure

Live Loads

7.1 During installation, and subsequent construction processes or maintenance, loads should be applied only to the front of the tiles where they are supported by the battens.

Cover and Mass

7.2 The tiles have an effective cover of 0.47 m², i.e., there are approximately 2.1 tiles per square meter of roof.

7.3 Metrobond roofing weighs approximately 6.3 kg/m² and Metrocolor roofing 4.2 kg/m² (excluding battens), and is classed as 'light' roofing in terms of NZS 3604.

Snow

7.4 Metrotile Roofing Systems are suitable for use in areas where buildings are designed for a 1 kPa snow loading when the roof is designed in accordance with NZS 3604 or to a specific design.

Wind

7.5 Metrotile Roofing Systems, when fixed to battens sized, spaced, and fixed in accordance with this Certificate, will be suitable for use on new roofs in *low, medium, high, and very high* building wind zones as defined in NZS 3604.

7.6 On existing roofs, when counter and tile battens are installed and fixed in accordance with this Certificate, the roofing will be suitable for use in *low, medium, high, and very high* building wind zones of NZS 3604.

8. Durability

8.1 Installation must be in accordance with the instructions of Metrotile (N.Z.) Ltd.

8.2 However, in all areas except central Otago and inland Canterbury, the roofing must not be installed with the underside exposed to the elements.

8.3 Where the roof space is not completely closed-off to the elements, the underside of the roof must be completely shielded with roofing underlay or sheathing such as fibre cement, hardboard or plywood.

8.4 This provision is necessary to prevent the build-up of corrosive dirt or salt deposits on the underside of the tiles, which will cause a more rapid corrosion than on the freely washed top surface.

Limitations on use

8.5 Metrotile Roofing Systems must not be used in highly alkaline environments, (such as on intensive animal shelters or other buildings with high ammonia or urea concentrations), and contact with fresh concrete or plaster must be avoided.

8.6 The roofing must not be used in contact with permanently damp materials, on industrial buildings in which corrosive processes occur, or over swimming pools.

8.7 Copper in any form must not be allowed to contact the roofing, and care must be taken to ensure that runoff from copper overflow or down pipes does not contact the tiles.

8.8 Lead or lead edged flashings must not be used with Metrotile Roofing Systems unless a suitable barrier paint system is applied to both surfaces to ensure there is no metal to metal contact, or contact through water runoff. The manufacturer supplies flashings that are suitable for use with the roofing products.

Weathering

8.9 With chip-coated products, some loss of chips and overglaze can be expected over time.

8.10 Acrylic-coated tiles may fade and chalk as time passes. This may be more noticeable with some colours than others, and is an expected part of the weathering process.

8.11 Corrosion may become apparent as the tiles weather. The time before it occurs, and the extent to which this occurs is significantly more dependent on local environments than either of the two weathering parameters above.

Maintenance

8.12 The durability statements will depend on the amount of maintenance and recoating carried out. They refer only to

weathertightness and roof appearance, which will deteriorate faster where no maintenance is carried out.

Cleaning

8.13 The most important maintenance procedure for all pressed-metal roofing products is washing down with fresh water in all areas not washed by rain. In areas near the sea (Sea Spray Corrosion Zone of NZS 3604), where salt deposition is noticeable on windows and similar surfaces, or near areas of industrial pollution, washing down should be carried out every 2-3 months. In other locations (NZS 3604 Corrosion Zones 1, 2, 3), washing down every six months should suffice.

8.14 Lichen and mould growth must be removed with chemical cleaners recommended by Metrotile (N.Z.) Ltd.

8.15 Before washing down or recoating, the fasteners must be checked for soundness and, where necessary, replaced or extra nailing undertaken.

Recoating

8.16 Maximum durability will only be achieved if recoating is carried out while the original coating is still sound and protecting the substrate, as this provides a better surface for recoating and is a more economical option than waiting until corrosion shows. Recoating to restore the appearance of fading or chalking roofs may also be desired.

8.17 Generally, recoating will be most economical if carried out 15-20 years after installation, depending on environmental exposure. In highly corrosive areas, e.g., NZS 3604 Sea Spray and Corrosion Zone 4, the substrate may begin to corrode before the coating shows signs of degradation. In these areas, recoating will be required immediately to reduce later maintenance costs.

8.18 When recoating, the recommendations of Metrotile (N.Z.) Ltd must be followed. Maintenance recoating systems have not been assessed and are outside the scope of this Certificate.

8.19 Before washing down or recoating, the fasteners must be checked for soundness and, where necessary, replaced or extra nailing undertaken.

Service Life

Corrosion Zones 1, 2, and 3

8.20 The statements in Table 2 (Page 5) apply only to Metrotile roofing systems based on Metrobond and Metrocolour. Insufficient information is available to fully assess the durability of MetroShakes and their service life may differ from that given below.

8.21 With diligent roof care (i.e., with proper cleaning and recoating) as recommended by this Appraisal Certificate, Metrotile roofing systems will be serviceable for periods as given in Table 2.

8.22 Table 2 is not comprehensive and can only be used as a guide only (refer to Section 4.2.6 and Comment 4.2 of NZS 3604 relating to local knowledge).

8.23 Table 1 (Page 5) gives details of first year corrosion rates of galvanised steel (g/m²) for a number of locations in New Zealand.

8.24 As a general guide, when using Tables 1 and 2, the following correlation may be used:

Galv. Steel First Year Corrosion Rate	NZS 3604 Corrosion Zone
<2.5	3
<5	2
<10	1
>10	Sea Spray
>10	Zone 4 (Rotorua etc)

8.25 However, it must be noted that in a number of areas this correlation is not very accurate, particularly in Zone 1 and Zone

4. As a result, actual expected durability could be less or greater than that expected from Table 2 and NZS 3604.

8.26 Table 1 must be consulted to identify these potential areas of lesser or greater corrosion than that identified by the NZS 3604 corrosion zones. In these areas, the durability should be taken as that for the corrosion level more correctly identified by Table 1, e.g.:

- From Table 1, the galvanised steel corrosion rates for areas around Patea, Thorndon, Castlepoint, and Paraparaumu Aero indicates these areas may be in a Sea Spray Zone, even though outside the distance limits of Section 4.2.3 of NZS 3604. So the durability assessment for some of these areas may need to be taken from the Sea Spray Zone column of Table 2 and not the Zone 1 column.
- From NZS 3604, Turangi is located in Corrosion Zone 4. Table 1 gives the galvanised steel corrosion rate as 2.5 g/m², which means one can more realistically expect a durability similar to that given in Table 2 for roofing in Corrosion Zone 3.

Corrosive Environments

8.27 Highly corrosive environments are usually to be found in sight of the sea where there is some surf and a prevailing onshore wind (Sea Spray Corrosion Zone), in close proximity to sources of industrial pollution, and at localised areas in the geothermal zone bounded by Te Puke, Kawerau, Ohakune, and Waiouru (Corrosion Zone 4).

8.28 Note must be taken of the comments in Sections 8.22 to 8.26 above with regard to identification of correct corrosion classification for the site in question.

8.29 Before installing in areas identified from Table 1 with high corrosivity, Metrotile (N.Z.) Ltd must be contacted to provide a written opinion on the likely durability of the roof.

8.30 It should be noted localized areas subject to corrosive industrial atmospheres are outside the scope of NZS 3604 (refer to Section 4.2.5).

8.31 Metrotile (N.Z.) Ltd must give written guarantee to replace roofing where the 15 yr NZBC durability provisions are not met.

9. Spread of Fire

9.1 The coatings of the roofing are combustible materials in close contact with and adhered to a non-combustible substrate.

9.2 The roofing complies with Acceptable Solution C3/AS1 Paragraph 4.9.1 and may be used on buildings for SC and SD Purpose Groups.

9.3 There is no exclusion for use on buildings for all other Purpose Groups.

9.4 Fire-rated roof construction systems based on Metrotile Roofing Systems have not been assessed and are outside this scope of this Appraisal Certificate.

10. External Moisture

The minimum roof pitch satisfies the requirements of Table 1 of Acceptable Solution E2/AS1.

11. Water Supplies

11.1 Piped water supplies based on rainwater collected from Metrotile Roofing Systems will meet the provisions of NZBC G12.3.1, provided the roofing is maintained by regular recoating.

11.2 When the roofing is used for the collection of potable water, finishes for lead-based or lead-edged must not allow

materials to be leached into the water in quantities that may be injurious to health.

11.3 If installed, a potable water collection system must be disconnected from the storage tank until the roofing has been adequately rain washed (three good rainfalls) or hosed down.

11.4 Before recoating the roof, or cleaning with chemical treatments, the potable water collection system must again be disconnected, and reconnected only after the roofing has been adequately rain washed or hosed down.

Installation Information

12. General

12.1 Metrotile Roofing Systems must be installed in accordance with the manufacturer's instructions.

12.2 Installation is covered by the manufacturer's information.

12.3 Care must be taken when handling, cutting, bending, and installing the roofing in order to avoid damage to the surface. In particular, the roofing surface must be kept clean of dirt and rubbish such as metal swarf.

12.4 Flat, rubber-soled shoes must be used when working on the roof, and protective padding used on tools. Loads must be applied only over battens and the installed roofing protected from other construction and finishing work being carried out on or above the roofing.

Framing

12.5 Information on typical framing and support set-out requirements at ridges, hips, valleys, and fascia etc. is supplied by the manufacturer in its undated information entitled "Metrotile Technical Data".

Battens

12.6 Battens must be treated, sized, and fixed according to NZS 3604. On new roofing, roofing underlay, e.g., as given in Acceptable Solution E2/AS1 Paragraph 1.3, must be fixed in place first in accordance with the instructions of the underlay manufacturer.

12.7 A row of battens is fixed directly behind the fascia board. The next row of battens is generally fixed 345 mm from the front of the fascia board, and subsequent rows are fixed at 370 mm centres.

12.8 When reroofing, counter battens must be sized, installed and fixed in accordance with the requirements of NZS 4217 in *low*, *medium* and *high* NZS 3604 building wind zones.

12.9 In *very high* NZS 3604 building wind zones, counter battens must be spaced at 600 mm maximum centres when the existing purline spacing is 750 mm, and 450 mm maximum centres when the existing purlin centres are 900 mm.

12.10 At the edges of the roof, counter battens are still fixed as per NZS 4217.

Fixing

12.11 The first row of tiles is fixed to the batten alongside the fascia by driving the nails through the top of a tile rib.

12.12 Successive rows are fixed by driving the nails through the nose of the tiles, flush with the face and away from the main water course.

12.13 Three nails are used per tile in *low* and *medium* building wind zones, and four nails in *high* and *very high* building wind zones.

12.14 When top fixing of tiles at valleys, and ridges, and eaves are required, nails fitted with neoprene washers must always be used.

Table 1				
First year galvanised steel corrosion rates (g/m ²) measured at BRANZ Test Sites				
NORTHLAND		NELSON		Christchurch Aero 2.8
AUCKLAND		MARLBOROUGH		Craigieburn Forest 2.5
WAIKATO		WESTLAND		Culverden 2.3
	Mohakatino 14.6			Dunedin Aero 1.7
Albert Park 3.8	Murupara 1.8	Appleby 3.4		Eyrewell Forest 1.6
Ardmore 3.5	Napier Aero 3.2	Brancott Valley 2.3		Fairlie 1.8
Auckland Aero 13	New Plymouth 7.8	Franz Josef 9.1		Finegand 2.3
Auckland City 7.6	Ngapuna 71.6	Greymouth 9.1		Geraldine 1.1
Auckland Harbour 19	Ohaaki DSIR 12.4	Harihari 4.0		Gore 2.3
Cambridge 2.5	Ohaaki Power Station 3.3	Hokitika Aero 8.7		Hanmer Springs 0.8
Dargaville 3.6	Ohakune 3.4	Lake Grassmere 8.7		Highbank 2.5
Ellerslie 3.2	Ohinemutu 5.4	Nelson Aero 3.4		Invercargill Aero 4.0
Glenbrook 3.5	Onepoto 2.8	Otira 6.4		Kaikoura 4.2
Hamilton Aero 3.5	Palmerston Aero 3.6	Rai Valley 3.0		Kelman Hut 2.7
Hunua 4.1	Patea 14.6	Reefton 5.3		Kurou 1.1
Kaitaia 5.1	Pureora Forest 3.2	Riwaka 2.3		Lake Tekapo 1.1
Kerikeri Aero 4.8	Rotoehu Forest 3.2	Springs Junction 3.8		Lincoln 2.4
Leigh 9.2	Rotorua Aero 5.7	St Arnaud		Musselburgh 4.9
Maioro Forest 3.8	Springfield 6.7	Tapawera 2.6		Omarama 1.4
Maramarua Forest 2.5	Stratford 3.8	Westport Aero 7.2		Palmerston 1.7
Marsden Point 16.2	Taihape 0.9			Ranfurly 0.7
Muriwai 22.8	Tairua Forest 3.5			Taiaroa Head 4.4
Owairaka 4.1	Taradale 1.6	CANTERBURY		Tapanui 1.7
Paeroa 3.2	Taumarunui 2.9	OTAGO, SOUTHLAND		The Hermitage 3.9
Parnell 2.5	Taupo 2.9	Alexandra 1.0		Timaru Aero 1.8
Penrose 6.0	Taupo Aero 4.1	Arthurs Pass 3.9		Tiwai Point 15.4
Pukekohe 4.1	Tauranga Aero 4.4	Ashburton 2.1		Twizel 1.1
Ruakura 1.6	Te Kuiti 3.8	Bromley 3.5		Waimate 1.8
Takapuna 3.2	Te Puke 2.8	Cheviot 3.8		Winton 2.7
Te Aroha 2.9	Tikitere 9.5	Christchurch 2.0		
Te Kauwhata 5.7	Turangī 2.5			
Thames 3.1	Waihi 4.4			
Waiotemarama 4.4	Waikeria 3.8			
Waipoua Forest 4.1	Waimihia Forest 3.2			
Warkworth 5.7	Waiouru 2.7			
Whangarei Aero 5.1	Waiotapu Forest			
Whenuapai 5.7	Waipukurau 1.9			
Woodhill Forest 3.5	Wairakei 4.8			
	Wairere Dam 2.2			
	Waitarere Forest 5.5			
	Wanganui Aero 33.6			
	Whakatane Aero 5.1			
	Whangapoua Forest 5.7			
	Wharerata Forest 3.2			
CENTRAL NORTH ISLAND				
Ahu Ahu 2.1	WAIARARAPA/ WELLINGTON			
Arapuni Dam 2.9				
Atiamuri 2.9	Avalon 5.1			
Chateau Ruapehu 3.5	Castlepoint 15.5			
Edgecumbe 2.2	Dannevirke 3.2			
Esk Dale 2.5	Gracefield 7.0			
Flockhouse 5.5	Judgeford 5.5			
Frasertown 3.2	Kaitoke 3.8			
Gisborne Aero 2.8	Kelburn 2.5			
Havelock North 5.4	Mt Bruce 3.5			
Kaingaroa 2.5	Paraparaumu Aero 9.1			
Kairanga 2.7	Somes Island 4.4			
Kapuni 4.8	Tauherenikau 2.9			
Katikati 3.8	Thorndon 13			
Kawerau 9.5	Thorndon (sheltered) 2.2			
Kinleith 5.4	Waingawa 3.5			
Koutu 4.4	Wainuiomata 4.1			
Levin 4.0	Waitapu			
Manutuke 2.2	Wallaceville 4.1			
Mohaka Forest 2.5	Wellington Aero 18.3			

3.2
Table 2 - Maintenance and Minimum Expected Serviceable Life (yrs), related to NZS 3604:1999 Corrosion Zones

Roof Care	Corrosion			Zone 4, Sea Spray, and Heavy Industrial
	Zone 1	Zone 2	Zone 3	
Cleaning and Recoating	30	50	>50	Consult Metrotile (N.Z.) Ltd and Table 1
Cleaning only	20	35	40	
No Cleaning or Recoating	15	5	30	

Weathersealing

12.15 Only custom-made flashing accessories supplied by Metrotile (N.Z.) Ltd must be used at ridges, hips, barges and upstands. Short courses may be used at the ridge to avoid cutting tiles to size.

12.16 Tiles finishing at ridges, hips, barges and upstands must be end-stopped.

12.17 Conventional materials are used for valleys.

12.18 Ridge and hip flashings are fixed at 600 mm centers on either side. The vertical faces of barge and apron flashings are fixed at 800 mm centers, and the horizontal

faces at each batten crossing.

12.19 Proprietary or custom-made rubber and metal flashings, and neutral-cure silicone sealants acceptable to Metrotile (N.Z.) Ltd, must be used for weather-sealing services penetrating the roofing. These are outside the scope of this Appraisal Certificate.

After Installation

12.20 The roof must be left clear of rubbish on completion of the installation.

12.21 The installed roofing must be protected from other construction and finishing work being carried out on or near the roof.

12.22 Minor damage may be repaired with touch-up kits provided by the manufacturer. Badly damaged roofing must be replaced.

Basis of Appraisal

13. Tests

13.1 Samples of Metrobond and Metrocolour roofing profiles have been salt spray tested by BRANZ, and the results used as part of the basis for a BRANZ durability opinion.

13.2 The following tests have been carried out in Australia on Metrobond tiles: dynamic weather resistance test to AS 2050 by CSIRO; and cyclic wind load testing by the Cyclone Testing Station.

13.3 Tests have also been carried out in New Zealand by the Institute of Environment Health and Forensic Sciences to determine levels of trace elements in the coating resins.

14. Other Investigations

14.1 The BRANZ experience with galvanised steel pressed-metal roof claddings in New Zealand and overseas has been noted from both overseas and New Zealand sources, including testing carried out in New Zealand by BHP New Zealand Steel Limited.

14.3 An assessment of installation methods has been made.

14.4 The manufacturer's undated technical information entitled "Metrotile Technical Data", and "Metrobond and Metrotile Roofing Tiles - New Roofing and Reroof Specifications", dated September 1993, have been examined, and are considered to be satisfactory.

15. Quality

15.1 The manufacture of Zinalume® by BHP New Zealand Steel Limited has been examined, including methods adopted for quality control. BHP New Zealand Steel Limited and Pacific Coil Coaters Limited are ISO 9000 quality assured suppliers.

15.2 Metrobond and Metrocolor roofing were previously covered by BRANZ Appraisal Certificate 331 (1996).

15.3 The manufacture of Metrotile roofing by Metrotile (N.Z.) Ltd, who are responsible for the quality assurance of manufacture, has also been inspected and is considered to be satisfactory. Details have been obtained of the methods adopted for quality control and the materials used. Metrotile (N.Z.) Ltd is a ISO 9001 quality assured supplier.

16. Sources of Information

- AS 1397:1993 Steel sheet and strip - hot-dipped zinc-coated or aluminium/zinc coated.
- BRANZ Bulletin No. 302 Preventing moisture problems in timber framed skillion roofs. November 1992.
- C. Kane, 1997. BRANZ Report 145 Atmospheric Corrosion Survey of New Zealand - Six Year Exposure Results.
- New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, 1992.
- NZS 3604:1999 Timber framed buildings.
- NZS 4217:1980 New Zealand Standard for pressed metal tile roofs.
- The Building Regulations 1992 including September 1997 Amendments.

In the opinion of BRANZ, Metrotile Pressed-Metal Tile Roofing Systems are fit for purpose and can be used to meet the relevant provisions of the NZBC provided it is used, installed and maintained as set out in this Certificate.

This Certificate is issued only to the Certificate Holder, Metrotile (N.Z.) Ltd. and is valid until further notice, subject to the Conditions of Certification.

Conditions of Certification

1. This Certificate relates only to the product as described herein.
2. The Certificate Holder continues to have the product reviewed by BRANZ and abides by the BRANZ Appraisals Services Terms and Conditions.
3. The product and the manufacture are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ.
4. This Certificate must be read, considered and used in full together with the manufacturer's/marketer's technical literature as appropriate.
5. BRANZ makes no representation as to the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship.
6. Where reference is made in this Certificate to any Regulation, Code, Standard, manufacturer's instruction or similar publication, it shall be construed as reference to such publication in the form in which it was in force at the date of this Certificate or as covered by Amendment to this Certificate.
7. This Certificate does not address any Legislation, Regulations, Codes or Standards, not specifically named herein.

For BRANZ



R J Wells



M E Reed

Date of issue: 30 May 2000

©COPYRIGHT No part of this publication may be reproduced without the prior written permission of BRANZ.