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BRANZ Appraisals

Technical Assessments of products for building and construction

BRANZ APPRAISAL CERTIFICATE No. 486 (2005)

WET-SEAL SYSTEM WATERPROOFING MEMBRANE

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Quality System
Quality Endorsed Company

WFTAO
WORLD FEDERATION OF TECHNICAL ASSESSMENT ORGANISATIONS

Product

1.1 Wet-seal Pyure Coat 400 System is a liquid applied polyurethane waterproofing system to be used under ceramic or stone tile finishes on external decks and balconies.

Scope

2.1 Wet-seal Pyure Coat 400 System has been appraised for use as a waterproofing membrane for buildings within the following scope:

- scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with timber supporting structures designed and constructed in accordance with the NZBC; and,
- with substrates of plywood and fibre cement compressed sheet; and,
- with decks that have a maximum size of 40m^2; and,
- situated in all Building Wind Zones of NZS 3604, up to, and including 'Very High'.

2.2 Wet-seal Pyure Coat 400 System has also been appraised for use as waterproofing membrane for external reinforced concrete pedestrian decks and balconies for buildings within the following scope:

- up to 3 storeys with a maximum height from ground to eaves of 10m and with a floor plan area limited only by seismic and structural control joints; and,
- with the reinforced concrete structure designed and constructed in accordance with the NZBC; and,
- situated in all Building Wind Zones of NZS 3604, up to, and including 'Very High'.

2.3 This Appraisal is limited to decks and balconies within the following scope:

- constructed to suitable falls (Refer Paragraph 12.1 – 12.9); and,
- with the membranes continually protected from exposure to UV (ultra violet) light and from physical damage by ceramic or stone tile finishes; and,
- with decks and balconies designed and constructed such that deflections do not exceed 1/360th of the span; and,
- with no steps within the deck level, no integral roof gardens and no down pipe discharging directly onto the deck.

2.4 Movement and control joints in the substrate must be carried through to the tile finish. The design and construction of the substrate and movement and control joints are specific to each building, and therefore the responsibility of the building designer and building contractor and are outside the scope of this Certificate.

2.5 Ceramic or stone tile finishes are outside the scope of this Certificate.
2.6 The membrane must be installed by Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd approved and trained applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Wet-seal Pyure Coat 400 System, if designed, used, installed and maintained in accordance with the statements and conditions of this Certificate, will meet the following provisions of the NZBC:
Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years. Wet-seal Pyure Coat 400 System meets this requirement. See Paragraph 9.1.
Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Decks and balconies incorporating Wet-seal Pyure Coat 400 System meet these requirements. See Paragraphs 12.1 – 12.3.
Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Wet-seal Pyure Coat 400 System meets this requirement and will not present a health hazard to people.

3.2 This Certificate appraises an Alternative Solution in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Wet-seal Pyure Coat 400 System is a one-component, highly elastic, moisture curing polyurethane coating. It comes as a pale green colour and is applied by a specially designed metal roller which ensures the film build range of 0.7mm – 1.2mm is achieved.
4.2 Materials supplied by Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd are as follows:

Wet-seal Pyure Coat 400

- Wet-seal Pyure Coat 400 is a one component, highly elastic, moisture cured polyurethane waterproofing coating supplied as an 18kg unit.

Wet-seal Top-coat 300

- Wet-seal Top-coat 300 is a two component water-based epoxy for sealing moist or dry concrete.

Sika Primer 3

- Sika Primer 3 is a one component epoxy-polyurethane based primer for sealing porous substrates such as concrete, timber and brickwork to improve adhesion.

Sika Primer 210T

- Sika Primer 210T is a one component solvent based epoxy resin based primer for use on aluminum, galvanized steel and some plastic to improve adhesion.

Sikaflex®Pro

- Sikaflex® Pro is a one component, high performance polyurethane based joint sealant for use as a flexible exterior joint sealant.

Foam Tape

- Foam tape is a self adhesive closed cell PE foam 1mm thick used for detailing upstands and around posts.

4.3 Materials supplied by Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd approved applicator are as follows:

Fibre Cross Tape

- Fibre Cross Tape is a fibre glass reinforcement mesh used to reinforce the external downturns, the junction at penetrations and the top edge of the foam tape in all situations.

Handling and Storage

5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and out of freezing conditions. The materials in the original unopened packaging have a shelf life of 6 months from date of manufacture. Once opened, the materials must be used immediately.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Wet-seal Pyure Coat 400 System. The Technical Literature must be read in conjunction with this Certificate. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Certificate must be followed.

Design Information

General

7.1 Wet-seal Pyure Coat 400 System is for use on decks and balconies where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas.
7.2 The membranes must be protected from exposure to UV light and from physical damage by ceramic or stone tile finishes.
7.3 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membrane. Refer to BRANZ publication “Good Practice Guide to Membrane Roofing”.
7.4 Movement and control joints may be required depending on the shape and size of the deck, and the finish specified. Design guidelines for control joints for tiles can be found in the BRANZ “Good Tiling Practice Guide”.
7.5 Timber framing systems must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of NZS 4203. In all cases framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and that all sheet edges are fully supported. Timber framing systems supporting the substrates must be constructed such that deflections do not exceed 1/360th of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 shall be reduced by 20%.

Substrates

Plywood

8.1 Plywood must be treated to H3 (CCA treated). **LOSP treated plywood must not be used**. Plywood must comply with NZBC Acceptable Solution E2/AS1 Third Edition June 2004 Paragraph 8.5.3 and 8.5.5.

Fibre Cement Compressed Sheet

8.2 Fibre cement compressed sheet must be manufactured to comply with the requirements of AS 2908.2 and must be

specified by the manufacturer as being suitable for use as an external decking substrate. The fibre cement sheet must be of a thickness to meet specific structural design requirements and must be secured to the structure to resist wind uplift and all other forces acting on the deck or balcony, such as deflection from gravity and live loads. Installation must be in accordance with instructions of the manufacturer.

Concrete

8.3 Concrete substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101.

Durability

Serviceable Life

9.1 Wet-seal Pyure Coat 400 System, when subjected to normal conditions of environment and use, is expected to have a serviceable life of at least 15 years and be compatible with ceramic or stone tiling finishes with a design service life of 15-25 years.

Maintenance

10.1 No maintenance of the membranes will be required provided significant substrate movement does not occur and the tile finish remains intact. Regular checks must be made of the tiling to ensure it is sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiling and any grout or sealant.

10.2 In the event of damage to the membranes, the tiling must be removed and the membrane repaired by removing the damaged portion and applying a patch as for new work.

10.3 Drainage outlets must be maintained to operate effectively, and tile finishes must be kept clean. Cleaning materials that may affect polymer based membranes must not be used.

Outbreak of Fire

11.1 The membranes must be protected from heat sources such as flues and chimneys in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9 for the protection of combustible materials.

External Moisture

12.1 Decks and balconies must be designed and constructed to shed precipitated moisture. They must also take account of snowfalls in snow prone areas. A means of meeting code compliance with NZBC Clause E2.3.1 is given by the Technical Literature which gives details aligned with NZBC Acceptable Solution E2/AS1.

12.2 When installed in accordance with this Certificate and the Technical Literature, Wet-seal Pyure Coat 400 System will prevent the penetration of water and will therefore meet code compliance with Clause E2.3.2. The membranes are impervious to water and will give a weathertight deck or balcony.

12.3 Wet-seal Pyure Coat 400 System is impermeable; therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with Clause E2.3.6.

12.4 The minimum fall to decks, balconies and gutters must be 1 in 60 and all falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane and tiling finish.

12.5 Deck and balcony falls must be built into the substrate and not created with mortar screeds applied over the membrane.

12.6 Allowance for deflection and settlement of the substrate must be made in the design of the deck or balcony to ensure falls are maintained and no ponding of water can occur.

12.7 Drainage flanges must be used for any outlet and must be fitted with a grate or cage to reduce potential sources of blockages. An overflow must be provided where the deck or balcony does not drain to an external gutter or spouting.

12.8 Penetrations and upstands of the membranes must be raised above the level of any possible flooding caused by blockage of deck and balcony drainage.

12.9 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this certificate.

Installation Information

Installation Skill Level Requirement

13.1 Installation of the membranes must be completed by Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd approved and trained applicators that have experience in the application of waterproofing membranes and understand waterproofing principles.

13.2 Installation of substrates must be completed by tradespersons with an understanding of deck and balcony construction, in accordance with instructions given within the Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd Technical Literature and this Certificate.

Preparation of Substrates

14.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be smooth and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents. All surface defects must be filled to achieve an even and uniform surface.

14.2 Concrete substrates can be checked for dryness by using a hygrometer, as set out in BRANZ Bulletin No. 424. The relative humidity of the concrete must be 75% or less before membrane application.

14.3 The moisture content of a timber substructure must be a maximum of 20% and fibre cement and plywood sheet must be dry at time of membrane application. This will generally require plywood and fibre cement sheets to be covered until just before the membrane is laid, to prevent rain wetting.

14.4 Substrates must be primed with a suitable primer as indicated in the Technical Literature and allowed to cure before the membrane is installed.

Membrane Installation

15.1 Installation must not be undertaken where the substrate surface temperature is below 10ºC or above 35ºC.

15.2 Wet-seal Pyure Coat 400 must be mixed before applying.

15.3 The membrane should be applied in a single coat at the rates set out in the Technical Literature. A subsequent coat may be required if there are any pinholes noticed in the membrane. The use of the specified special laminating roller will ensure correct film build is achieved.

15.4 Application can be made by roller (specified laminating roller only) and brush (long bristle).

15.5 Foam Tape is applied to the wall/floor junctions and the edges sealed using sealant, the Fibre Tape is laid into the

wet sealant and the whole area is then overcoated with the Wet-seal Pyure Coat 400 membrane. In all other situations use reinforcement provisions as set out in the Technical Literature.

15.6 It is strongly recommended that the membrane is protected with temporary covers until it is fully cured in case of mechanical damage or rain wetting.

15.7 Clean up may be undertaken with Sika Colma Cleaner.

Tiling

16.1 The membranes must be fully cured before tiling. The cured membranes must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.

16.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ "Good Tiling Practice Guide". The compatibility of tile adhesive must be confirmed with the adhesive manufacturer or Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd.

Inspections

17.1 The Technical Literature must be referred to during the inspection of membrane installations by Building Consent Authorities and Territorial Authorities.

17.2 Critical areas of inspection for waterproofing systems are:

- Construction of substrates, including crack control and installation of bond breakers and movement control joints.
- Moisture content of the substrate prior to the application of the membrane.
- Acceptance of the substrate by the membrane installer prior to application of the membrane.
- Installation of the membrane to the manufacturer's instructions, particularly installation to the correct thickness and use of reinforcement.
- Membrane curing and integrity prior to the installation of tiles, including protection from moisture, frost and mechanical damage during curing.

Health and Safety

18.1 Safe use and handling procedures for the membrane systems is provided in the Technical Literature. The products must be used in conjunction with the relevant Materials Safety Data Sheet for each membrane.

Basis of Appraisal

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

Tests

19.1 The following testing of Wet-seal Pyure Coat 400 System has been undertaken by CSIRO Australia for durability of waterproof membranes including:

- Elongation to break, Water immersion, Bleach Immersion, Detergent Immersion, Heat Ageing.
- Resistance of waterproof membranes to cyclic movement.
- Moisture Vapour Transmission.
- Water Absorption.
- Water Vapour Transmission (Static Head of Water/ Resistance).

19.2 Testing of Wet-seal Pyure Coat 400 System was undertaken by Sika Australia Pty Limited for elongation.

19.3 The following testing of Wet-seal Pyure Coat 400 System was undertaken by Sika Ltd for:

- Tensile strength and elongation at break
- Chemical resistance
- UV exposure to 5000hrs (QUV).

19.4 Testing was carried out by Ardex Technical Services Department for ceramic tile adhesives adhesion over Wet-seal Pyure Coat 400 system to AS4992.1.

19.5 Testing was carried out by BRANZ for Low Temperature Flexibility of Wet-seal Pyure Coat 400.

The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

20.1 An assessment was made of the durability of the Wet-seal Pyure Coat 400 membrane by BRANZ technical experts.

20.2 Site visits have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.

20.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

21.1 The manufacture of the membrane has 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 membrane manufacturer has been assessed by BRANZ and found to be satisfactory.

21.3 The quality of manufacture of the membrane materials is the responsibility of the manufacturer.

21.4 The quality of supply of the membrane system materials to the market is the responsibility of Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd.

21.5 Quality on site is the responsibility of Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd approved and trained applicators.

21.6 Designers are responsible for the substrate design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of the substrate manufacturer, Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd and this Certificate.

21.7 Building owners are responsible for the maintenance of the tiling systems in accordance with the instructions of Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd.

Sources of Information

- AS 2908.2: 2000 Cellulose-cement products – Flat sheet.
- AS 3958.1 1991 Guide to the installation of ceramic tiles.
- ASTM D2919-01 Standard test method for determining durability of adhesive joints stressed in shear by tension loading.
- AS/NZS 2269:1994 Plywood - Structural.
- NZS 3101: 1995 The design of concrete structures.
- NZS 3604: 1999 Timber framed buildings.
- New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, 1992.
- The Building Regulations 1992, up to, and including October 2004 Amendment.
- Tiling Good Practice Guide, BRANZ, March 2004.
- Membrane Roofing Good Practice Guide, BRANZ, November 1999.
- Compliance Document for the New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005.

BRANZ
BUILDING ON KNOWLEDGE

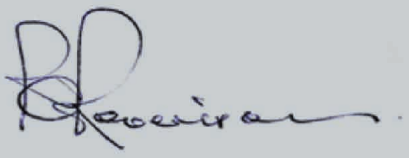
In the opinion of BRANZ, Wet-Seal System Waterproofing Membrane is fit for purpose and will comply with the Building Code to the extent specified in this Certificate provided it is used, designed, installed and maintained as set out in this Certificate.

The Appraisal Certificate is issued only to the Certificate Holder, Wet-seal New Zealand Ltd or Wet-seal Management Pty Ltd and is valid until further notice, subject to the Conditions of Certification.

Conditions of Certification

1. This Certificate:
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. The Certificate Holder:
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. The product and the manufacture are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ.
4. BRANZ makes no representation 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 the Certificate Holder.
5. Any reference in this Certificate to any other publication shall be read as a reference to the version of the publication specified in this Certificate.

For BRANZ



P Robertson
Chief Executive

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