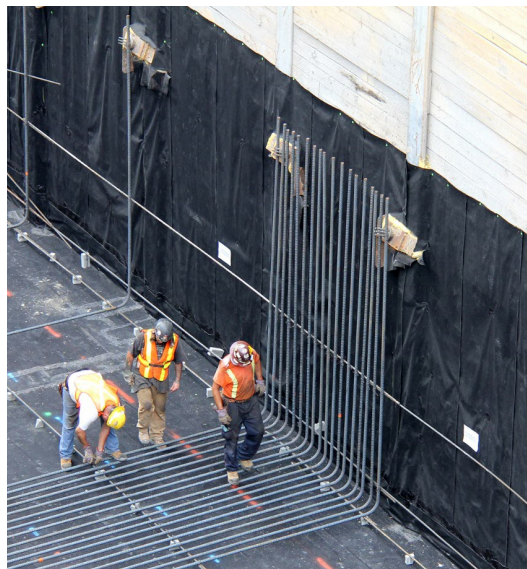




BRANZ Appraised
Appraisal No. 1076 [2020]

PRECON® AND MEL-ROL® MEMBRANES

Appraisal No. 1076 [2020]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Precon® is a pre-applied waterproofing membrane for use as a damp-proof membrane [DPM] or for use in below-ground tanking applications. Mel-Rol® is a post-applied waterproofing membrane for use as a DPM.

Scope

- 2.1 Precon® and Mel-Rol® Membranes have been appraised as DPMs for use:
- on buildings subject to non-specific design, under floor slabs complying with NZS 3604 and behind concrete masonry basement walls and under floor slabs complying with NZS 4229; and,
 - in buildings subject to specific design with substrates of in-situ or precast concrete complying with NZS 3101, or concrete masonry complying with NZS 4230 and 4210; and,
 - where subsoil drainage and free draining granular backfill have been placed behind basement walls.
- 2.2 Precon® Membrane has also been appraised as a pre-applied tanking membrane for use:
- on buildings subject to specific design with substrates of in-situ or precast concrete complying with NZS 3101; and,
 - where the membrane is subject to hydrostatic pressure with the pressure not to exceed 2 bar [20 metres head of water].
- 2.3 Mel-Rol® Membrane must be adequately protected against damage during backfilling and in service.
- 2.4 The products must be installed by Neuchatel Limited trained installers.

Building Regulations

New Zealand Building Code [NZBC]

- 3.1 In the opinion of BRANZ, Precon® and Mel-Rol® Membranes 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 B2 DURABILITY: Performance B2.3.1 [a] not less than 50 years, Precon® and Mel-Rol® Membranes meet this requirement. See Paragraph 11.1

Clause E2 EXTERNAL MOISTURE: Performance E2.3.3. Precon® and Mel-Rol® Membranes meet this requirement. See Paragraphs 13.1 to 13.3

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1 Precon® and Mel-Rol® Membranes meet this requirement and will not present a health hazard to people.

Technical Specification

- 4.1 Materials supplied by Neuchatel Limited are as follows;
- Precon® Membrane - a pre-applied composite sheet comprising a non-woven fabric, elastomeric membrane and plasmastic core. It is supplied in rolls 1.2 m wide x 15.2 m long and 1.85 mm thick.
 - Mel-Rol® Membrane - a post-applied, self adhesive, flexible sheet waterproofing membrane. It is supplied in rolls 978 mm wide, x 19.1 m long and 1.4 mm thick.

Handling and Storage

- 5.1 Handling and storage of all materials whether on or off site is under the control of the installer. Dry storage must be provided for all products and the membranes must be protected from sunlight and UV radiation. Rolls of membrane must be stored on end.

Technical Literature

- 6.1 Refer to the Appraisal Listing on the BRANZ website for details of the current Technical Literature for Precon® and Mel-Rol® Membranes. 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 Precon® Membrane is a pre-applied waterproofing membrane for use as a DPM or for below-ground tanking applications. Mel-Rol® Membrane is a post-applied waterproofing membrane for use as a DPM.

Substrate Design - Pre-Applied Tanking

- 8.1 Precon® Membrane is pre-applied to surfaces before fixing or reinforcing steel and before concreting. For floors, the membrane is applied to site concrete. For walls, the membrane is applied to either permanent formwork or removable double-faced formwork.

Substrate Design - Post-Applied DPM (Mel-Rol® Membrane)

Walls

- 9.1 Substrate design must be in accordance with the NZBC to a relevant standard, such as NZS 3101 for concrete, and NZS 4229 or NZS 4230 for concrete masonry.
- 9.2 The substrate must have a surface finish that is smooth, clean and free of defects or irregularities which may damage the membrane or allow water to become trapped behind the membrane.

Control Joints

- 9.3 Where control or construction joints are formed in the substrate, Neuchatel Limited must be consulted for the use of the membrane over these joints.

Concrete Slab-on-ground

- 9.4 The membrane must be laid on a minimum of 75 mm thickness of site concrete or well compacted sand. The structural concrete slab placed over the membranes must be a minimum of 100 mm thick.

Backfilling and Drainage [Mel-Rol® Membrane]

- 10.1 The membrane must be protected against damage by the placement of a protection material between the membrane and the granular fill.
- 10.2 The minimum requirement for backfilling is that a granular, free-draining material is used with the top of the backfill capped with an impervious clay fill that may be covered with topsoil if required. The impervious capping and topsoil must slope away from the wall.
- 10.3 A minimum 100 mm diameter subsoil perforated drainage pipe must be installed at the bottom of the wall. The pipe must be covered with a geotextile filter fabric, be laid at a minimum 1:200 fall and discharge to a drainage outlet. Provision for cleaning the pipe must also be provided.
- 10.4 Backfilling should begin as soon as possible.
- 10.5 As Precon® Membrane is also a pre-applied DPM/tanking membrane; on specifically designed substrates when the pre-applied option is used, there is no backfilling required.

Durability

Serviceable Life

- 11.1 Precon® and Mel-rol® Membranes are suitable DPM and tanking materials, therefore they are expected to have a serviceable life of at least 50 years provided they are installed and maintained in accordance with this Appraisal, and are continually protected from sunlight and ultra-violet [UV] radiation.

Maintenance

- 12.1 Annual inspections must be made of the membranes' top edge seal and protection, the backfill capping, and the drainage pipe to ensure all are functioning as originally designed.
- 12.2 If required, the drainage pipe must be cleared to remove any sediment or silt build-up. The slope of the backfill capping must be maintained at all times.

External Moisture

- 13.1 Precon® and Mel-rol® Membranes, when installed in accordance with this Appraisal and the Technical Literature, will prevent water vapour [DPM] and water [tanking] from penetrating to the interior face of basement retaining walls and floors in spaces where moisture may cause damage. The membranes have a vapour flow resistance of not less than 90 MN s/g.
- 13.2 The membranes can be used to form sealed joints and to seal penetrations. The top edge of the membranes must be sealed to the wall as set out in the Technical Literature, and protected.
- 13.3 Building designers must ensure junctions with other membranes, such as at the floor/wall junction, form a waterproof joint. These junctions have not been assessed and are outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirement

- 14.1 All design and building work must be carried out in accordance with the Precon® and Mel-rol® Membranes Technical Literature and this Appraisal. All building work must be undertaken by Neuchatel Limited trained installers.

System Installation – Post-Applied

Substrate Preparation

- 15.1 All vertical surfaces must be checked to ensure they are dry, clean, smooth and free from sharp edges, loose or foreign materials, oil, grease or other deleterious material that may affect adhesion or may damage the membranes.

Priming

- 15.2 All substrates must be primed before application of the membranes. The supplier of the membranes, Neuchatel Limited, should be contacted to confirm the most suitable primer. Application instructions for the primers are contained in the technical data sheets.

Membrane Installation – Walls

- 15.3 Starting at the lowest point, the membranes must be installed in accordance with the Technical Literature. Sheet edges must be overlapped a minimum of 100 mm. End laps must be a minimum of 200 mm, with upper sheets lapped over lower sheets. Internal and external corners must be reinforced with an extra layer of membrane 300 mm wide. Protection material must be installed before backfilling. Backfilling must commence immediately after the membranes are installed to ensure the membranes are not left exposed to sunlight or UV radiation.

Membrane Installation – Floors

- 15.4 The membranes must be installed in accordance with the Technical Literature. Sheet edges must be overlapped a minimum of 130 mm and end laps must be a minimum of 150 mm. The membrane must be inspected for damage and any damage must be repaired in accordance with the Technical Literature. The membranes must not be exposed to UV radiation for any longer than two months before the structural concrete slab is placed.

System Installation – Pre-Applied

Site Preparation

- 16.1 All surfaces are to be sound and solid to eliminate movement during concrete placement. The substrate must be regular and smooth with no gaps or voids greater than 12 mm. Grout must be used around all penetrations, such as utility conduits, for stability.

Membrane Installation

- 16.2 Precon® Membrane must be installed to all areas required to achieve a waterproof finish in accordance with Neuchatel Limited Technical Data. Temperatures must be greater than -4°C during installation.
- 16.3 The fabric face must face the new concrete. The end laps must be staggered to avoid build-up of layers.
- 16.4 The end laps must be accurately positioned to avoid build-up of layers. Sheets must overlap the previous sheet by a minimum of 130 mm for side laps and a minimum of 150 mm for end laps. The underside of the sheet must be clean, dry and free from contamination before making the overlaps. All laps are torched together.
- 16.5 Concrete must be placed within 60 days.

Inspections

- 16.6 The Technical Literature and the installation company's Quality Control sheets must be referred to during the inspection of the membrane installation.

Health and Safety

- 17.1 Safe use and handling procedures for the membranes is provided in the Technical Literature.

Basis of Appraisal

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

Tests

- 18.1 The following testing on Precon® and Mel-Rol® has been undertaken:
- Elongation, tensile strength, low temperature flexibility, low temperature crack bridging, puncture resistance, adhesion to substrate, lap adhesion, resistance to decay, resistance to fungi, hydrostatic resistance to aging and resistance to chemicals.
- 18.2 All test results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

- 19.1 A durability opinion has been given by BRANZ technical experts.
- 19.2 Practicability of installation has been assessed by BRANZ and found to be satisfactory.
- 19.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 20.1 The manufacture of the membranes and primers 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 of materials supplied to the market is the responsibility of W R Meadows.
- 20.3 The quality of supply to the market is the responsibility of Neuchatel Limited.
- 20.4 Quality of installation on site is the responsibility of the Neuchatel Limited trained installer.
- 20.5 Designers are responsible for the building design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of Neuchatel Limited.
- 20.6 Acceptance of the substrate is the responsibility of the Neuchatel Limited trained installer.
- 20.7 Building owners are responsible for the maintenance of the membrane system in accordance with the instructions of Neuchatel Limited.

Sources of Information

- NZS 3101: 2006 Concrete structures standard.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4229: 2013 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230: 2004 Design of reinforced concrete masonry structures.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



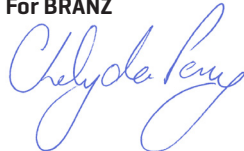
In the opinion of BRANZ, **Precon® and Mel-Rol® Membranes** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Neuchatel Limited**, 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. **Neuchatel Limited:**
 - 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 **Neuchatel Limited**.
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 **Neuchatel Limited** or any third party.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

23 June 2020