



BRANZ Appraised
Appraisal No. 1175 [2022]

TEMA INTERNAL MEMBRANES

Appraisal No. 1175 [2022]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



TeMa Technologies and Materials S.r.l.

Via dell'Industria 21
31029 Vittorio Veneto (TV)
Italy
Tel: +39 0438 503440
Email: giovanni.viel@
temacorporation.com
Web: www.temacorporation.com



BRANZ

1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz



Product

- 1.1 TeMa No-Crack and TH2 Stop are synthetic membranes for use under ceramic or stone tile finishes in internal wet areas. Water Panel is a composite comprising a synthetic membrane adhered to XPS for use under ceramic or stone tile finishes in internal wet areas.

Scope

- 2.1 TeMa No-Crack, TH2 Stop and Water Panel have been appraised for use as waterproofing membranes for the internal wet areas of buildings, within the following scope:
 - on floor substrates of concrete, plywood, compressed fibre cement sheet and fibre cement sheet tile underlay, and on wall substrates of concrete, concrete masonry, wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
 - when protected from physical damage by ceramic or stone tile finishes; and,
 - where floors are designed and constructed such that deflections do not exceed 1/360th of the span.
- 2.2 The use of TeMa No-Crack, TH2 Stop and Water Panel on concrete slabs where hydrostatic or vapour pressure is present from below is outside the scope of this Appraisal.
- 2.3 Movement and control joints in the substrate must be carried through the membrane and tile finish. The design and construction of the substrate and movement and control joints is specific to each building and is therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.4 The ceramic or stone tile finishes are outside the scope of this Appraisal.
- 2.5 The membrane must be installed by trained installers, approved by TeMa Technologies and Materials S.r.l.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, TeMa Internal 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 (b) 15 years. TeMa Internal Membranes meet this requirement. See Paragraph 9.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.6. Interior wet area floors and walls incorporating TeMa Internal Membranes will meet this requirement. See Paragraphs 11.1-11.6.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. TeMa Internal Membranes meet this requirement.

Technical Specification

4.1 Materials supplied by TeMa Technologies and Materials S.r.l are as follows:

- **TeMa No-Crack** – a disconnecting membrane comprising an HDPE honeycomb membrane layer, with a roughed surface and a spun bonded polypropylene fabric.
- **TH2 Stop**- a three-ply waterproof sealing membrane for application under tiles to protect walls and floors from humidity and vapour transmission.
- **Water Panel** – an XPS panel coated on both sides to be water and vapour proof.
- **Preformed Triangle Seat** - 457 x 457 x 559 mm.
- **Preformed Convex Triangle Seat** - 457 x 457 x 559 mm.
- **Preformed Narrow Rectangular Niche ID** - 203 x 508 mm.
- **Preformed Wide Rectangular Niche ID** - 305 x 508 mm.
- **Preformed Narrow Combo Rectangular Niche ID** - 203 x 305 x 152 mm.
- **Preformed Wide Combo Rectangular Niche ID** - 305 x 305 x 152 mm.
- **Preformed Rectangular Bench** - 864 x 457 x 559 mm.
- **Preformed Square Niche ID** - 203 x 203 mm or 305 x 305 mm.
- **Pre-sloped Ramp** - 1,537 x 318 x 38 mm.
- **T-Bandel** - a three-layer waterproof band with internal polyethylene core, coupled on both sides with felted polypropylene fabric. It is used to seal joints between TH2 Stop sheets and in all perimeter areas (wall to wall and wall to floor connections).
- **T-Corner I/E** – three-layer waterproofing accessories with polyethylene internal core bonded on both sides with a textile. They are used to seal T-H2 Stop side junctions and critical points such as corners and pipe penetrations.
- **T-Wall Collar** - three-layer waterproofing accessories with polyethylene internal core bonded on both sides with a textile. They are used to seal T-H2 Stop side junctions and critical points such as corners and pipe penetrations.
- **T-Niche** - a prefabricated element for the construction of niches and suitable to be covered directly with tiles. Constructed from an XPS panel coated on both sides to be water and vapour proof.
- **T-Niche-S** - a prefabricated element for the construction of niches and suitable to be covered directly with tiles. Constructed from an XPS panel coated on both sides to be water and vapour proof and equipped with a separating board that allows to create two sub-niches.
- **T-Coll** - cementitious bi-component adhesive with high polymer content, fast hydration and no vertical sliding, ideal to be used as sealant between two rolls of TeMa No-Crack.
- **T-Fix**- a single-component, moisture curing, ST polymer-based adhesive.
- **T-Shower pan** – a prefabricated element to create a shower flush with the floor, or to create a recess for the shower pan in the existing or new screed.



- **T-Silence mm 38** - a resilient material for impact sound insulation made by an alveolar membrane coupled with a waterproof and breathable membrane.
- **T-Silence mm 9.5** - a resilient material for impact sound insulation. It is a three-dimensional mat in mono filament coupled with a waterproof and breathable membrane and provided with butyl cord for overlapping.
- **T-Silence dB 17** - a roll consisting of a smooth polymer sheet coupled on one side with a non-woven polypropylene fabric and on the other side with a spun bond fabric. The product is designed to be installed on a screed or floor and then be directly covered with ceramic or stone tile finishes.
- **T-Silence dB 21** - impact sound insulation panel composed by a polymeric inner core, bonded on both sides with special fabrics. The product is designed to be installed on a screed or floor and then be directly covered with ceramic or stone tile finishes.
- **T-Fix** - a single-component hygro-hardening ST polymer adhesive.
- **T-K Net** - a drainage geo-composite made by an internal studded core combined with one plastic mesh.
- **T-K NW** - a drainage geo-composite made by an internal studded core combined with one filter fabric.
- **T-Curb** - to build a physical barrier between the shower box and the rest of the bathroom.
- **T-Curb overlay** - to be used over the T-Curb.

Handling and Storage

- 5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and freezing conditions.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for TeMa Internal 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 TeMa Internal Membranes are for use in buildings where an impervious waterproof membrane is required to floors and walls to prevent damage to building elements and adjoining areas.
- 7.2 The membrane must be protected from physical damage by the application of ceramic or stone tile finishes.
- 7.3 Movement and control joints may be required depending on the shape and size of the building or room, and the tile finish specified. Design guidelines can be found in the BRANZ Good Practice Guide: Tiling.
- 7.4 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 AS/NZS 1170. In all cases, framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and all sheet edges are fully supported. Timber framing systems supporting the substrates must be constructed such that deflections do not exceed $1/360^{\text{th}}$ 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 a minimum of 17 mm thick complying with AS/NZS 2269, CD Grade Structural with sanded C face upwards and treated to H3 [CCA treated]. LOSP treated plywood must not be used. The plywood must be supported with dwangs or framing with a maximum span of 400 mm in each direction, fixed with 10 g x 50 mm stainless steel countersunk head screws at 150 mm centres on the edges and 200 mm through the body of the sheets.

Fibre Cement Compressed Sheet/ Fibre Cement Sheet Tile Underlay

- 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 a wet area substrate. Installation must be in accordance with the instructions of the manufacturer.

Concrete and Concrete Masonry

- 8.3 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101, and NZS 3604 concrete slab-on-ground floors and concrete masonry to NZS 4229 and NZS 4230.

Wet Area Wall Linings

- 8.4 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588, and be covered by a valid BRANZ Appraisal for use in internal wet areas.
- 8.5 Fibre cement 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 a wet area lining. Installation must be in accordance with the instructions of the manufacturer.

Durability

Serviceable Life

- 9.1 TeMa Internal Membranes, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years and be compatible with ceramic or stone tile finishes with a design service life of 15-25 years.

Maintenance

- 10.1 No maintenance of the membrane will be required provided significant substrate movement does not occur and the tile finish remains intact. Regular checks must be made of the tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiles, grouts and sealants.
- 10.2 In the event of damage to the membrane, 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 ceramic or stone tile finishes must be kept clean.

Internal Moisture

- 11.1 TeMa Internal Membranes are impervious to water and when appropriately designed and installed will avoid the likelihood of water penetrating behind linings or entering concealed spaces.
- 11.2 TeMa Internal Membranes are suitable for use to contain accidental overflow to meet NZBC Clause E3.3.2. A means of code compliance for overflow is given in NZBC Acceptable Solution E3/AS1, Paragraph 2.
- 11.3 Surfaces must be finished with ceramic or stone tile finishes. A means of code compliance to NZBC Clause E3.3.3 and E3.3.4 is given in NZBC Acceptable Solution E3/AS1, Paragraphs 3.1.1 b), 3.1.2 b) and 3.3.1 b).
- 11.4 Falls in showers and shower areas must be a minimum of 1 in 50. In unenclosed showers, falls must extend a minimum of 1,500 mm out from the shower rose. Floor wastes must be provided and the floor must fall to the outlet.

- 11.5 The waterproofing membrane must completely cover shower bases, and for unenclosed showers it must extend a minimum of 1,500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing walls and junctions can be obtained from AS 3740, the BRANZ Good Practice Guide: Tiling, and flooring and wallboard manufacturers.
- 11.6 Where water resistant wall finishes such as pre-finished sheet materials are used, they must flash over the membrane a minimum of 30 mm.

Installation Information

Installation Skill Level Requirement

- 12.1 Installation of the membrane must be completed by TeMa Technologies and Materials S.r.l trained and approved installers.
- 12.2 Installation of substrates must be completed by tradespersons with an understanding of internal wet area construction, in accordance with instructions given within the TeMa Technologies and Materials S.r.l Technical Literature and this Appraisal.

Preparation of Substrates

- 13.1 Concrete slabs and plywood must be dry and sound before installation proceeds. Concrete slabs can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin Number 585. The relative humidity of the concrete surface must be 75% or less, and the moisture content for plywood must be a maximum of 20% before laying the membrane.
- 13.2 The ambient and substrate temperatures must be between 5°C and 30°C before laying the membrane.
- 13.3 Surfaces must be smooth and free from sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents. All surface defects must be filled to achieve a smooth and uniform surface.
- 13.4 Sheet materials must be installed in accordance with the relevant manufacturers instructions. All sheet edges must be supported by framing.
- 13.5 Primed surfaces must be covered with the membrane on the same day that the primer is applied, or they must be re-primed.

Membrane Installation

- 14.1 All corners (floor to wall) and areas around pipes, conduits and any other penetrations through the substrate must be taped with T-Bandel sealing tape. The tape must be formed to fit tightly to the penetrations and the substrate.
- 14.2 Drain openings must be taped with T-Bandel sealing tape. The tape must extend at least 150 mm beyond the perimeter of the drain.
- 14.3 The membrane is cut to the length necessary for it to extend 150 mm in all directions beyond the area to be covered. The membrane is then aligned and pressed into the mortar.
- 14.4 Adjoining TeMa Internal Membrane sheets are aligned and the T-Bandel is used with T-Fix to complete the joint.
- 14.5 After application, the membrane must be inspected, and any defects repaired. If the membrane is damaged or requires repair, the area must be cleaned to 150 mm beyond the damaged area. A patch of TeMa Internal Membrane is cut and rolled on firmly into the adhesive. A troweled bead of T-Fix sealant must be applied to the edges of the patch.

Tiling

- 15.1 Tiling directly to the TeMa Internal Membrane may be carried out after the mortar curing time recommended by the mortar manufacturer.
- 15.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ Good Practice Guide: Tiling. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or TeMa Technologies and Materials S.r.l.

Inspections

- 16.1 Critical areas of inspection 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 integrity prior to the installation of tiles including protection from damage.

Health and Safety

- 17.1 Safe use and handling procedures for the membranes are provided in the Technical Literature. The materials must be used in conjunction with the relevant Material Safety Data Sheet.

Basis of Appraisal

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

Tests

- 18.1 Tests have been carried out by BRANZ in accordance with AS/NZS 4858. This covered tensile strength/elongation, water resistance, detergent, bleach, heat ageing, thickness, cyclic movement water vapour transmission; and water absorption.
- 18.2 The above test methods and results have been reviewed and found to be satisfactory.

Other Investigations

- 19.1 An assessment was made of the durability of the TeMa Internal Membranes by BRANZ technical experts.
- 19.2 Site inspections have been carried out by BRANZ to assess the practicability of installation and to examine completed installations.
- 19.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 20.1 The manufacture of TeMa Internal Membranes has not been examined by BRANZ, but details of the quality and composition of the materials used were obtained and found to be satisfactory. USA evaluation reports have been taken into consideration.
- 20.2 The quality of manufacture of TeMa Internal Membranes is the responsibility of TeMa Technologies and Materials S.r.l.
- 20.3 The quality of supply of TeMa Internal Membranes materials to the market is the responsibility of TeMa Technologies and Materials S.r.l.
- 20.4 Quality on-site is the responsibility of the TeMa Technologies and Materials S.r.l trained and approved installer.
- 20.5 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, TeMa Technologies and Materials S.r.l and this Appraisal.
- 20.6 Building owners are responsible for the maintenance of the tiling or stone finishing systems in accordance with the instructions of TeMa Technologies and Materials S.r.l.



Sources of Information

- AC 115 Criteria for Waterproof Membranes for Flooring and Shower Liners.
- ANSI 118.10:1999 Load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installations.
- AS 2908.2:2000 Cellulose-cement products - flat sheet.
- AS 3740:2010 Waterproofing of wet areas within residential buildings.
- AS 3958.1:1991 Guide to the installation of ceramic tiles.
- AS/NZS 1170:2002 Structural design actions.
- AS/NZS 2269:2012 Plywood - Structural.
- AS/NZS 4858:2004 Wet area membranes.
- BRANZ Good Practice Guide: Tiling, April 2015.
- BRANZ Good Practice Guide: Membrane Roofing, October 2015.
- NZS 3101:2006 Concrete Structures Standard.
- NZS 3602:2003 Timber and wood-based products for use in buildings.
- 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.



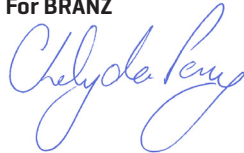
In the opinion of BRANZ, **TeMa Internal Membranes** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **TeMa Technologies and Materials S.r.l** 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. **TeMa Technologies and Materials S.r.l:**
 - 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 **TeMa Technologies and Materials S.r.l**.
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 **TeMa Technologies and Materials S.r.l** or any third party.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

01 June 2022