



BRANZ Appraised
Appraisal No. 1113 [2020]

DEMTECH SHOWER BASE SYSTEM

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BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 The Demtech Shower Base System is a pre-formed shower base to be used as a substrate for a waterproofing membrane prior to the adhesion of ceramic or stone tiles in internal wet area showers.

Scope

- 2.1 The Demtech Shower Base System is appraised for use as a pre-formed shower base system for wet areas of buildings within the following scope:
 - on floor substrates of concrete, plywood and compressed fibre cement sheet; and
 - on timber or steel wall framing with wet area wall lining; and
 - when protected from physical damage by ceramic or stone tiles; and
 - where floors are designed and constructed such that deflections do not exceed 1/360th of the span; and,
 - there being no control or movement joints in the shower areas.
- 2.2 The waterproofing membrane, tile adhesive and ceramic or stone tile finish are outside the scope of this Appraisal.
- 2.3 The Demtech Shower Base System must be installed by Demtech Australia Pty Ltd trained installers.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, the Demtech Shower Base System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years and B2.3.2. The Demtech Shower Base System meets these requirements. See Paragraph 11.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.3. The Demtech Shower Base System contributes to meeting this requirement. See Paragraphs 14.1-14.4.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Demtech Shower Base System meets this requirement.

Technical Specification

- 4.1 The Demtech Shower Base System consists of the following components:
- **Shower base** - made from a high-density polyurethane foam with a factory-applied protective coating. It is supplied in various dimensions. It is factory-sealed with the BRANZ Appraised Cureflex waterproofing membrane, Appraisal No. 1001 [2018].

Accessories

- **Aluminium trim** - used as a perimeter around the shower base.
 - **Connectors** - ABS connectors that merge the aluminium trim together.
 - **Waste system** - specified by Demtech Australia Pty Ltd and covered by a WaterMark certification.
 - **Construction adhesive** - specified by Demtech Australia Pty Ltd, used to adhere the shower base to the floor.
 - **Sealant** - specified by Demtech Australia Pty Ltd, used to seal the aluminium trim against the wall and the base, and also used for the PVC unexposed flashings and waste system components.
- 4.2 Accessories used with the Demtech Shower Base System which are supplied by the building contractor, such as the BRANZ Appraised waterproofing membrane, tile adhesive and tiles, are outside the scope of this Appraisal:

Handling and Storage

- 5.1 The Demtech Shower Base System is supplied in cardboard boxes. It must be stored inside, in dry conditions, out of direct sunlight and extremes of temperature. Care must be taken to avoid damage to the edges, ends and surfaces of the components. The shower base must always be carried on edge.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Demtech Shower Base System. 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 The Demtech Shower Base System is designed as a tile substrate for interior showers fixed over new or existing floors. It provides a screed replacement panelling system, allowing for a waterproofing membrane to be applied and then the direct adhesion of ceramic or stone tiles.
- 7.2 Waterproofing of the walls is outside of the scope of this Appraisal but must be completed after the installation of the Demtech Shower Base System.
- 7.3 Once the installation of the Demtech Shower Base System is completed, a suitable BRANZ appraised waterproofing membrane for use in wet areas shall be installed. Tiles shall then be adhered to the waterproofed system and grouted to provide an impervious and easily cleaned surface.

Substrates

Floor linings

- 8.1 Fibre cement compressed sheet must be manufactured to comply with the requirements of AS/NZS 2908.2 and must be specified by the manufacturer as being suitable for use as an internal substrate. The fibre cement sheet must be of a thickness to meet specific structural design requirements, such as deflection from gravity and live loads. Installation must be in accordance with the instructions of the manufacturer.
- 8.2 Concrete substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101.



- 8.3 Plywood must be a minimum of 17 mm thick complying with AS/NZS 2269, CD Grade Structural with the sanded C face upwards and treated to H3 [CCA treated]. LOSP treated plywood must not be used.
- 8.4 The plywood must be laid with the face grain at right angles to the floor joists. Joists must be at 400 mm centres maximum and the edges of the sheets must be supported with blocking or framing. The plywood must be fixed with 10 g x 50 mm stainless steel countersunk head screws at 150 mm centres along the sheet edges and 200 mm centres to all framing through the body of the sheets.

Structure

- 9.1 Timber framing 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 that all sheet edges are fully supported. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 must be reduced by 20%.
- 9.2 All floors, new and existing, will be structurally suitable for tiling when the maximum deflection of the floor joists is $1/360^{\text{th}}$ of the span.
- 9.3 Steel framing systems must comply with NASH requirements.
- 9.4 Existing floors must be inspected and be of good condition and have equivalent performance to a new floor. If present, mould or fungal growth on the wall or floor substrate should be treated prior to fixing the Demtech Shower Base System. Demtech Australia Pty Ltd may need to be consulted for suitable anti-fungal products.
- 9.5 The Demtech Shower Base System is capable of resisting a uniformly distributed load of 1.5 kN/m² with minimal deflection.
- 9.6 The level of resistance to concentrated loads will depend upon the size and strength of the tiles used to cover the Demtech Shower Base System components.

Wet Area Wall Linings

- 10.1 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588 and be suitable for use in internal wet areas.
- 10.2 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 in wet areas.

Durability

Serviceable Life

- 11.1 The Demtech Shower Base System will be durable for at least 15 years, provided the tiling system is maintained to ensure the components remain dry in service. Tiles, tile adhesive, and grout have not been assessed and are outside the scope of this Appraisal.

Maintenance

- 12.1 No maintenance of the Demtech Shower Base System 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, grout and sealant.
- 12.2 Drainage outlets must be maintained to operate effectively, and the tile finishes must be kept clean.



Prevention of Fire Occurring

- 13.1 Separation or protection must be provided to the Demtech Shower Base System from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 and C/AS2 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

Internal Moisture

- 14.1 Surfaces must be finished with ceramic or stone tile finishes. A means of code compliance to NZBC Clause E3.3.3 is given in NZBC Acceptable Solution E3/AS1, Paragraph 3.1.1 b).
- 14.2 Further design guidance on waterproofing wet areas, including waterproofing junctions, can be obtained from AS 3740 and the BRANZ Good Practice Guide – Tiling.
- 14.3 The Demtech shower bases are supplied with appropriate falls which must be maintained during the tiling process.
- 14.4 To minimise internal condensation, adequate levels of ventilation and thermal resistance must be provided to all spaces where moisture may be generated.

Installation Information

Installation Skill Level Requirement

- 15.1 Installation of the floor substrates for the Demtech Shower Base System must be completed by or under the supervision of Licensed Building Practitioners with the relevant Licence Class.
- 15.2 The Demtech Shower Base System must be installed by Demtech Australia Pty Ltd trained installers.
- 15.3 Installation of the system must always be carried out in accordance with the Demtech Shower Base System Technical Literature and this Appraisal before the waterproofing of the walls is completed.

Preparation

- 16.1 The substrate of the existing floor must be clean, level and structural sound.
- 16.2 The relative humidity of concrete substrates must be 75% or less before installation of the Demtech Shower Base System components. The concrete can be checked for dryness using a hygrometer as set out in BRANZ Bulletin No. 585.
- 16.3 The floor must be free of dirt, dust, grease and must be level within 3 mm tolerance of dead level before installing the prefabricated shower base.

System Installation

- 17.1 It is recommended that the installer dry fit the components of the Demtech Shower Base System before final fixing to ensure a good fit.
- 17.2 The installation of the Demtech Shower Base System must be in accordance with the instructions given within the Demtech Australia Pty Ltd Technical Literature and this Appraisal.
- 17.3 After the Demtech Shower Base System is installed, a suitable BRANZ Appraised wet area membrane shall be installed.

Tiling

- 18.1 Tiling must be carried out using a flexible polymer-modified cementitious based tile adhesive in accordance with the tile adhesive manufacturer's instructions.
- 18.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ Good Practice Guide – Tiling.



Inspections

- 19.1 Critical areas of inspection for shower base 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 shower base system.
 - Acceptance of the substrate by the shower base system installer prior to application of the shower base system.
 - Installation of the shower base system to the manufacturer's instructions, particularly use of the correct reinforcement.

Health and Safety

- 20.1 Safe use and handling procedures for the Demtech Shower Base System is 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

- 21.1 The following testing of the Demtech Shower Base System has been undertaken by the following organisations:
- Amdel Limited, Australia – water absorption; tensile strength and elongation; shore A hardness; water vapour transmission; accelerated weathering and low temperature flexibility.
 - CSIRO, Australia – mass per unit area and gravimetric thickness; tensile strength and elongation at break; tensile strength and elongation at break after UV exposure, including immersion in water, bleach and detergent; loss on heating; moving joint test and cyclic strain.
 - The following testing of the Demtech Shower Base System has been undertaken by Amdel Limited, Australia – wet area durability testing in accordance with AS/NZS 4858 covering immersion in water, bleach, detergent, and heat ageing; UV ageing; water absorption; low temperature flexibility and water vapour transmission.
 - Although not required by the standard AS/NZS 4858 as water vapour transmission testing had already shown compliance, additional testing of the Demtech Shower Base System was also undertaken by Amdel Limited for suitability over particleboard in accordance with AS/NZS 4858, Appendix C, and found to be satisfactory.
- 21.2 Test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

- 22.1 An assessment was made of the durability of the Demtech Shower Base System by BRANZ technical experts.
- 22.2 Site inspections were carried out by BRANZ to assess the practicability of installation.
- 22.3 The Technical Literature for the Demtech Shower Base System has been examined by BRANZ and found to be satisfactory.



Quality

- 23.1 The manufacture of the prefabricated shower base of the Demtech Shower Base System has been examined by BRANZ, including methods adopted for the quality control. Details of the manufacturing processes, and quality and composition of the raw materials used were obtained and found to be satisfactory.
- 23.2 The quality of supply to the market is the responsibility of Demtech Australia Pty Ltd.
- 23.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems and substrates.
- 23.4 The quality on-site is the responsibility of the Licensed Building Practitioner and the Demtech Australia Pty Ltd trained installers.
- 23.5 Building owners are responsible for the maintenance of the tile finish in accordance with the instructions of Demtech Australia Pty Ltd.

Sources of Information

- AS 3740 – 2010 Waterproofing of wet areas within residential buildings.
- AS 3958.1: 2007 Guide to the installation of ceramic tiles.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2908.2: 2000 Cellulose-cement products – flat sheet.
- AS/NZS 2269: 2012 Plywood – Structural.
- BRANZ Bulletin No. 585. Measuring Moisture in Timber and Concrete.
- BRANZ Good Practice Guide - Tiling (3rd Edition), 2015.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3602: 2003 Timber and wood-based products for use in building.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4229: 2013 Concrete masonry buildings not requiring specific engineering design.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



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19 October 2020

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In the opinion of BRANZ, the **Demtech Shower Base System** 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 **Demtech Australia Pty 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. **Demtech Australia Pty 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 **Demtech Australia Pty 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 **Demtech Australia Pty Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

19 October 2020