



BRANZ Appraised
Appraisal No.558 [2007]

BRANZ Appraisals

**Technical Assessments of products
for building and construction**

**BRANZ
APPRaisal
No. 558 (2007)**

Amended 31 January 2012

bituBOND®
Self-Adhesive Damp-Proof Membrane

Waterproofing Systems Ltd
P O Box 35190
Christchurch 8640
Tel: 03 366 9495
Fax: 03 366 9596
www.waterproofing.co.nz
Email: info@waterproofing.co.nz



BRANZ
BRANZ Limited
Private Bag 50 908
Porirua City
New Zealand
Tel: +64 4 237 1170
Fax: +64 4 237 1171
www.branz.co.nz



Product

1.1 bituBOND® is a self adhesive damp-proof membrane (DPM) for basement retaining walls and floors. It is applied under floor slabs and foundations and to the exterior face of basement retaining walls to prevent water vapour penetrating to the interior face in spaces where moisture may cause damage.

1.2 The product is supplied as self-adhering, cold-applied, polymer-rubber modified bitumen sheets in roll form.



Scope

2.1 bituBOND® has been appraised as a damp-proof membrane for use under floor slabs complying with NZS 3604 and as a damp-proof membrane behind concrete masonry basement walls and under floor slabs complying with NZS 4229.

2.2 bituBOND® has also been appraised for use as a damp-proof membrane on buildings subject to specific design within the following scope:

- where the design of the building will be the responsibility of the building designer; and,
- with clean, sound, continuous substrates of insitu or precast concrete complying with NZS 3101 and AS/NZS 1170 or concrete masonry complying with NZS 4230 and 4210; and,
- where the membrane is adequately protected against damage during backfilling and in service; and,
- where subsoil drainage and free draining granular backfill has been placed behind basement walls.

2.3 The product must be installed by Waterproofing Systems Ltd approved and trained installers.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, bituBOND® 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 (a) not less than 50 years. bituBOND® meets this requirement. See Paragraph 11.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.3. bituBOND® meets this requirement. See Paragraphs 13.1 – 13.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. bituBOND® meets this requirement and will not present a health hazard to people.

This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Materials supplied by Waterproofing Systems Ltd are as follows:

bituBOND® Membrane

- Is a self-adhesive sheet waterproofing membrane made from SBS modified rubberized bitumen. The self-adhesive inner face is protected by a release paper with the outer surface protected by a layer of cross-laminated high-density polyethylene film.
- The membrane is 1.6 mm thick, and supplied in rolls 1 m wide and 20 m long.

bituPRIME

- bituPRIME is a cold applied, solvent based primer for substrates. It is supplied in 20 litre pails.

bituBOND® Primer

- A waterbased, pressure sensitive, bitumen adhesive primer for use when installing onto concrete or block substrates in cold conditions. Supplied in 20 litre plastic pails.

rawSEAL waterstops

- A high quality sodium bentonite waterstop used for added protection in critical construction joints. Supplied in 10 mm x 15 mm or 20 mm x 25 mm strips.

Tixoplast Sealant

- A single component sealant based on bitumen and rubber. Is used to seal all termination, around all penetrations in the membrane and over all mechanical fastenings. Supplied in 310 ml tubes.

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.

Concrete Slab-on-ground

9.1 Membrane must be laid on a minimum of 75 mm of site concrete. The structural concrete slab placed over the membrane must be a minimum of 100 mm.

Backfilling and Drainage

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 at a minimum of 1:30 fall 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.

Durability

Serviceable Life

11.1 bituBOND® is a suitable DPM material (Modified bitumen sheet), therefore it is expected to have a serviceable life of at least 50 years provided it is installed and maintained in accordance with this Appraisal and is continually protected from sunlight and UV radiation.

Maintenance

12.1 Annual inspections must be made of the membrane 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 bituBOND® membrane, when installed in accordance with this Appraisal and the Technical Literature, will prevent water vapour from penetrating to the interior face of basement retaining walls and floors in spaces where moisture may cause damage. The membrane has a vapour flow resistance of not less than 90 MN s/g.

13.2 The membrane self-adheres, and can be used to form sealed joints and to seal penetrations. The top edge of the membrane 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. Junctions have not been assessed and are outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirement

14.1 Installation of the membranes must be completed by Waterproofing Systems Ltd approved and trained installers.

Design Information

Substrate Design

7.1 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.

7.2 The substrate must have a surface finish that is smooth, clean and free from defects or irregularities which may damage the membrane or allow water to trap behind the membrane.

Control Joints

8.1 Where control or construction joints are formed in the substrate, Waterproofing Systems Ltd must be consulted for use of the membranes over these joints.

System Installation

Substrate Preparation

15.1 All 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 membrane.

Priming

15.2 Prior to application of the membrane all prepared surfaces must be primed with bituPRIME primer at a rate of 5 m² per litre or bituBOND® Adhesive at 3 m² per litre, and must be touch dry before proceeding.

Membrane Installation - Walls

15.3 Starting at the top of the wall, the membrane must be installed in accordance with the Technical Literature. Sheet edges must be overlapped a minimum of 100 mm as marked on the sheets. End laps must be a minimum of 150 mm. Internal and external corners must be detailed using details as contained within the Technical Literature. Protection material must be installed before backfilling. Backfilling must commence within two months of the membrane being installed to ensure the membrane is not left exposed to sunlight or UV radiation.

Membrane Installation - Floors

15.4 Membrane must be installed in accordance with the Technical Literature, sheet edges must be overlapped a minimum of 100 mm as marked on the sheets 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 membrane must not be exposed to Ultra-Violet (UV) for any longer than two months before structural concrete slab is placed.

Inspections

15.5 The Technical Literature and the installation company's QC sheets must be referred to during the inspection of membrane installations by building consent authorities and territorial authorities.

Health and Safety

16.1 Safe use and handling procedures for the membrane systems are provided in the Technical Literature.

Test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

18.1 A durability opinion has been given by BRANZ technical experts.

18.2 Practicability of installation has been assessed by BRANZ and found to be satisfactory.

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

Quality

19.1 The manufacture of the membrane and primer 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.

19.2 The quality management system of the membrane and primer manufacturer has been assessed by BSI Management Systems to BS EN ISO 9001: 2000 (Certificate No. FM 45618).

19.3 The quality of materials supplied to the market is the responsibility of Waterproofing Systems Ltd.

19.4 Quality of installation on site is the responsibility of the installer.

19.5 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 Waterproofing Systems Ltd.

19.6 Building owners are responsible for the maintenance of the membrane systems in accordance with the instructions of Waterproofing Systems Ltd.

Sources of Information

- NZS 3101: 2006 The design of concrete structures.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4229: 1999 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230: 2004 Design of reinforced concrete masonry structures.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 5, 1 August 2011).
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition (Amendment 12, 10 October 2011).
- The Building Regulations 1992.

Basis of Appraisal

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

Tests

17.1 The following testing of bituBOND® has been undertaken by the following organisations:

- Al Futtaim Bodycote Materials Testing Services LCC for tensile/elongation, tear resistance, puncture resistance, adhesion to concrete-itself-steel-PVC, crack bridging, cold flexibility, softening point and tensile shear of joints.
- Al Hooty-Stanger Laboratories, UAE for tensile/elongation, water vapour transmission, puncture resistance and low temperature flexibility.
- Testing has been carried out to support the granting of a British Board of Agrément Certificate – No. 94/3048 which included softening point, water vapour transmission, tensile/elongation, low temperature unrolling, resistance to water pressure, low temperature flexibility, peel strength, tensile shear of joints, tensile shear of joints after heating and tensile strength of joints after water soaking.



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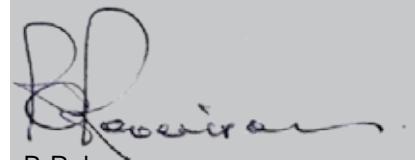
In the opinion of BRANZ, [bituBOND®](#) is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to [Waterproofing Systems 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. [Waterproofing Systems 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 [Waterproofing Systems 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 [Waterproofing Systems Ltd](#) or any third party.

For BRANZ



P Robertson
Chief Executive

Amendment No. 1, dated 11 January 2011

This Appraisal has been amended to change Product Name.

Amendment No. 2, dated 31 January 2012.

This Appraisal has been amended to update clause changes as required by the introduction of NZS 3604: 2011 and NZBC Acceptable Solution E2/AS1 Third Edition, Amendment 5.

Date of issue: 29 August 2007