



## BRANZ Appraised

Appraisal No. 804 [2012]

## ADESO ADESO GUARD AND REOXTHENE TECHNOLOGY® DAMP PROOF [DPM] MEMBRANES

Appraisal No. 804 [2012]

Amended 18 January 2016



### BRANZ Appraisals

Technical Assessments of products for building and construction.



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### Product

- 1.1 ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof [DPM] Membranes are self adhesive and torch applied bitumen based damp-proof membranes for basement retaining walls and floors. They are 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 products are supplied as torch – applied modified bitumen sheets or self-adhering, cold-applied, polymer-rubber modified bitumen sheets in roll form and are applied as single or double layer systems.

### Scope

- 2.1 ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof [DPM] Membranes have been appraised as DPM's 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 insitu 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 has been placed behind basement walls.
- 2.2 ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof [DPM] Membranes must be adequately protected against damage during backfilling and in service.
- 2.3 The products must be installed by Mapei New Zealand Ltd approved applicators.

## Building Regulations

### New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof (DPM) 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. ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof (DPM) Membranes meet this requirement. See Paragraph 11.1.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.3. ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof (DPM) Membranes meet this requirement. See Paragraphs 13.1 – 13.3.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof (DPM) Membranes meet this requirement and will not present a health hazard to people.

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

## Technical Specification

4.1 Materials supplied by Mapei New Zealand Ltd are as follows:

- **Adeso® – Adesoguard Membrane** is a self adhesive, SBS modified bituminous membrane reinforced with glass fibre and an outer face of cross laminated high density polyethylene for use as a below ground DPM or tanking membrane. It is supplied in a roll 1.8 mm thick x 1.0 m wide x 15 m long.
- **REOXTHENE TECHNOLOGY® Easy Lift Membrane** is a modified bitumen, torch applied membrane reinforced with a polyester spunbond stabilised glass thread and an upper surface of polyethylene film. It is supplied in a roll 3 or 4 mm thick x 1.0 m wide x 7.5 m long.
- **REOXTHENE TECHNOLOGY® Bitulight Membrane** is an elastomeric, plastomeric modified bitumen, torch applied membrane reinforced with a polyester spunbond stabilised glass fibre thread and upper surface of polypropylene film. It is supplied in a roll 3 or 4 mm thick x 1.0 m wide x 10 m long.
- **REOXTHENE TECHNOLOGY® Polyflex Membrane** is an elastomeric, plastomeric modified bitumen, torch applied membrane reinforced with a polyester spunbond stabilised glass thread and an upper surface of talc, sand or polyethylene non woven fabric. It is supplied in a roll 4 mm thick x 1.0 m wide x 10 m long.
- **Polyprimer HD 45 Professional** is a solvent based, bituminous primer designed to penetrate concrete and masonry substrates to provide a bondable surface.
- **Idroprimer** is a water-based bituminous primer designed to penetrate concrete and masonry surfaces to provide a bondable surface.

## 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 Appraisals listing on the BRANZ website for details of the current Technical Literature for ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof (DPM) 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

### 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 be trapped behind the membrane.

### Control Joints

- 8.1 Where control or construction joints are formed in the substrate, Mapei New Zealand Ltd must be consulted for use of the membranes over these joints.

### Concrete Slab-on-ground

- 9.1 The membranes must be laid on a minimum of 75 mm thickness of site concrete. The structural concrete slab placed over the membranes must be a minimum of 100 mm thick.

### Backfilling and Drainage

- 10.1 The membranes must be protected against damage by the placement of a protection material between the membranes 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 with a minimum of 1:30 fall away from the wall.
- 10.3 When used as a DPM, the drainage will include a subsoil drainage system of at least a 100 mm diameter pipe with openings to collect water, a geotextile filter fabric or other filter material to prevent silting of the pipe, have access for cleaning the subsoil pipe and a minimum 200mm below the floor level and a sloped minimum 1:200 fall to a drainage outlet.
- 10.4 After backfilling, the installation is completed with a flashing in accordance with the details contained within the Technical Literature to protect the upper edge of the membrane.

## Durability

### Serviceable Life

- 11.1 ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof (DPM) Membranes are suitable DPM materials (Modified bituminous sheet), 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 membrane's 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 ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof [DPM] Membranes, 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 membranes have a vapour flow resistance of not less than 90 MN s/g.
- 13.2 The membranes are self-adhesive or torch bonded and 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 Installation of the membranes must be completed by Mapei New Zealand Ltd approved applicators.

### 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 membranes.

#### Priming

- 15.2 All substrates must be primed before application of the membranes. The supplier of the membranes, Mapei New Zealand Ltd, 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 and ends must be overlapped as per the Technical Literature. 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 Membranes must be installed in accordance with the Technical Literature. Sheet edges and ends must be overlapped as per the Technical Literature. The membranes 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 30 days before the structural concrete slab is placed.

#### Inspections

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

## Health and Safety

- 16.1 Safe use and handling procedures for the membranes are provided in the Technical Literature.

## Basis of Appraisal

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

### Tests

17.1 The following testing of ADESO® – Adesoguard, REOXTHENE TECHNOLOGY® Easy Lift, REOXTHENE TECHNOLOGY® Bitulight and REOXTHENE TECHNOLOGY® Polyflex Light Damp Proof (DPM) Membranes has been undertaken for dimensions, mass per unit area, watertightness, durability of watertightness against artificial ageing, durability of watertightness against chemicals, reaction to fire, peel adhesion on concrete, shear resistance, water vapour properties, cold flexibility top face, cold flexibility underside, tensile properties, dimensions stability, resistance to impact, resistance to static loading and resistance to tearing.

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 membranes and primers have 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 manufacturer has been assessed and found to be satisfactory.
- 19.3 The quality of materials supplied to the market is the responsibility of Mapei New Zealand Ltd.
- 19.4 Quality of installation on site is the responsibility of the Mapei New Zealand Ltd approved applicator.
- 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 Mapei New Zealand Ltd.
- 19.6 Building owners are responsible for the maintenance of the membrane system in accordance with the instructions of Mapei New Zealand Ltd.

### 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.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (including Amendment 6, 14 February 2014).
- Ministry of Business, Innovation and Employment record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.

## Amendments

### Amendment No. 1, dated 18 January 2016.

This Appraisal has been amended to simplify the Appraisal name, update the Appraisal Holder and update the product details of REOXTHENE TECHNOLOGY® Bitulight Membrane and REOXTHENE TECHNOLOGY® Polyflex Membrane.



In the opinion of BRANZ, **Adeso Adesoguard and Reoxthene Technology® Damp Proof [DPM] 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 **Mapei New Zealand 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. **Mapei New Zealand 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 **Mapei New Zealand 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 **Mapei New Zealand Ltd** or any third party.

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**For BRANZ**



**Pieter Burghout**

Chief Executive

Date of Issue:

20 December 2012