



## BRANZ Appraised

Appraisal No. 966 [2017]

## HITCHINS DPM WATERPROOFING MEMBRANES

Appraisal No. 966 [2017]

Amended 21 December 2017



### BRANZ Appraisals

Technical Assessments of products for building and construction.



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## Product

- 1.1 Hitchins DPM Waterproofing Membranes are a range of self-adhesive and torch-on modified bitumen membranes for use as damp-proof membranes (DPM's) on basement retaining walls and under floors.
- 1.2 Hitchins DPM Waterproofing Membranes are applied under floor slabs and foundations, or to the exterior face of basement retaining walls to prevent water and water vapour penetrating to the interior face in spaces where moisture may cause damage.

## Scope

- 2.1 Hitchins DPM Waterproofing Membranes have been appraised for use as DPMs within the following scope:
  - under floor slabs complying with NZS 3604 and behind concrete masonry basement walls and under floor slabs complying with NZS 4229; and,
  - on 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,
  - where subsoil drainage and free draining granular backfill has been placed behind basement walls.
- 2.2 Hitchins DPM Waterproofing Membranes must be adequately protected against damage during backfilling and in service.
- 2.3 The products must be installed by Hitchins Licensed and Trained Installers.

## Building Regulations

### New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Hitchins DPM Waterproofing 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. Hitchins DPM Waterproofing Membranes meet this requirement. See Paragraph 10.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.3. Hitchins DPM Waterproofing Membranes meet this requirement. See Paragraphs 12.1 - 12.3.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Hitchins DPM Waterproofing Membranes meet this requirement and will not present a health hazard to people.

## Technical Specification

4.1 The following materials, covered by this Appraisal, are manufactured by Index S.p.A and marketed and supplied by Hitchins New Zealand Limited:

- **Hitchins Testudo Spunbonded Polyester 16** – is a 160 g/m<sup>2</sup> spunbonded polyester reinforced, elastoplastomeric distilled polymer-bitumen waterproofing membrane with an upper face finished with a fine talc. The membrane is 3.0 mm or 4.0 mm thick and is supplied in a roll 1.0 m wide x 10.0 m long.
- **Hitchins Testudo Spunbonded Polyester 20** – is a 200 g/m<sup>2</sup> spunbonded polyester reinforced, elastoplastomeric distilled polymer-bitumen waterproofing membrane with an upper face finished with a fine talc. The membrane is 4.0 mm or 5.0 mm thick and is supplied in a roll 1.0 m wide x 10.0 m long.
- **Hitchins Testudo Spunbonded Polyester 25** – is a 250 g/m<sup>2</sup> spunbonded polyester reinforced, elastoplastomeric distilled polymer-bitumen waterproofing membrane with an upper face finished with a fine talc. The membrane is 4.0 mm or 5.0 mm thick and is supplied in a roll 1.0 m wide x 10.0 m long.
- **Hitchins Testudo Spunbonded Polyester 30** – is a 300 g/m<sup>2</sup> spunbonded polyester reinforced, elastoplastomeric distilled polymer-bitumen waterproofing membrane with an upper face finished with a fine talc. The membrane is 4.0 mm or 5.0 mm thick and is supplied in a roll 1.0 m wide x 10.0 m long.
- **Hitchins Seltene Base EP TEX Polyester** – is a self-adhesive, elastoplastomeric [SBS] distilled polymer-bitumen waterproofing membrane, reinforced with non-woven composite polyester fabric stabilised with fibreglass. The upper face is surfaced with Texflamina [impregnated] polyester fabric and the lower face is coated with a special self-adhesive elastomeric mass protected by a silicone-coated split release film. The top face is provided with a longitudinal overlap strip [selvage edge] of self-adhesive elastomeric mass which is protected by a silicone-coated split release strip. The membrane is 2.0 or 3.0 mm thick and is supplied in a roll 1.0 m wide x 15 m long.
- **Hitchins Seltene Base HE Polyester** – is a self-adhesive, elastoplastomeric [SBS] distilled polymer-bitumen waterproofing membrane reinforced with non-woven composite polyester fabric stabilised with fibreglass. The upper face is surfaced with flamina film and the lower face coated with a special self-adhesive elastomeric mass protected by a silicone-coated split release film. The top face is provided with a longitudinal overlap strip [selvage edge] of self-adhesive elastomeric mass protected by a silicone-coated split release strip. The membrane is 2.0 or 3.0 mm thick and is supplied in a roll 1.0 m wide x 15 m long.
- **Hitchins Indextene HDPE Super** – is a self-adhesive, elastoplastomeric [SBS] distilled polymer-bitumen waterproofing membrane, reinforced with fibreglass felt. The upper face is surfaced with high density cross-laminated polyethylene [HDPE] protection foil and the lower face is coated with special self-adhesive elastomeric mass protected by silicone-coated split release film. The top face is provided with a longitudinal overlap strip [selvage edge] of self-adhesive elastomeric mass, which is protected by a strip of silicone-coated split release strip. The membrane is 2.0 mm thick and is supplied in a roll 1.05 m wide x 15 m long.
- **Hitchins Ecotene HDPE Antiroot** – is a self-adhesive, elastoplastomeric distilled polymer-bitumen waterproofing membrane, reinforced with a glass fibre mat incorporating anti-root agents. The upper face is finished with HPDE film and the lower face is coated with a special self-adhesive elastomeric-mass, which is protected by a silicone-coated split release film. The top face is provided with a longitudinal overlap strip [selvage edge] of self-adhesive elastomeric mass, which is protected by a strip of silicone-coated split release strip. Ecotene HDPE is installed on to wall surfaces where planting will be placed close to the building. The membrane is 2.0 mm thick and is supplied in a roll 1.05 m wide x 15 m long.



- **Hitchins Defend H Antiroot** - is a torch-on, elastoplastomeric polymer-bitumen waterproofing membrane, reinforced with a single strand spunbond non-woven polyester isotropic rot proof fabric. It incorporates anti root agents with both faces of the membrane coated with Flamina. Defend H Antiroot is installed on to wall surfaces where planting will be placed close to the building. The membrane is 4 mm thick and is supplied in a roll 1 m wide x 10 m long.  
*Note: The root resistance of the Ecotene HDPE Antiroot and Defend H Antiroot membranes has not been assessed by BRANZ and is outside the scope of this Appraisal.*

#### Accessories

- **Hitchins Unolastic** - is a one component, waterbased, elastomeric bitumen waterproofing product which dries to a high elastic film. In winter, an accelerator additive provides improved setting in colder temperatures. It is applied in multiple coats with excellent filling properties to provide a durable waterproof film. When reinforced with Rintotex PLUS or EXTRA, a strong membrane is formed which acts as a bandage at the below to ground transition with torch-on or self-adhesive bitumen membranes for waterproofing seals. It can be finished with plaster, coating or textured finished. It is supplied as a brown, grey or black paste in 5 or 20 kg pails.
- **Hitchins Tefond** - is a high density extruded polyethylene membrane with interlocking mechanical joints. It is used for protection of the waterproofing membranes and is also available as Tefond Drain, incorporating a geo-textile fabric for improved drainage. The membrane is 8.0 mm thick and is supplied in a roll 2.4 m or 4.8 m wide x 20.0 m long.
- **Hitchins Shield** - is an APP modified, polyester fabric, sand-filled, bitumen impregnated sheet used for protection of the waterproofing membranes. It is supplied in 3.0, 4.0, 5.0 and 6.0 mm thick sheets, 1.0 m wide x 6.0 m long.
- **Hitchins Indevert** - is a bitumen, solvent based primer applied to substrates prior to the installation of torch-on membranes. It is black in colour and is supplied in 20 litre pails and 4 litre cans.
- **Hitchins Self-stik** - is a waterborne, acrylic co-polymer pressure sensitive contact adhesive primer. It is used for self-adhesive [peel & stick] waterproof membranes for concrete foundations and walls, plus concrete lime-block walls to provide improved adhesion in cold conditions. It is dark green in colour and supplied in 10 and 20 litre pails and 1 and 4 litre cans.
- **Hitchins Sigilstik** - is a bituminous, emulsion based elastomeric adhesive/sealant used for all general sealant detailing proper to membrane application. It is coloured black and supplied in 310 ml cartridges.
- **Hitchins Tixophalte** - is a bituminous, solvent based elastomeric adhesive/sealant used for general sealant detailing. It is coloured black and supplied in 310 ml cartridges.
- **Hitchins Elotene Kontabit** - is a double-sided adhesive tape for detailing in various situations. It is available in different widths with a roll length of 10 m.
- **Hitchins Triafilli** - is a reinforced bitumen fillet, torch installed into internal corners.
- **Hitchins Purlastic** - is a solvent based, bituminous polyurethane [rubber-like] coating compound for sealing around pipes, flanges, etc. It is supplied in 15 kg pails, 1 and 4 kg cans.

## 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. Loose rolls must contain a foam support core when being freighted.

## Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Hitchins DPM Waterproofing 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

#### Retaining Wall

- 7.1 Retaining walls must be designed 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 membranes or allow water to be trapped behind the membranes.

#### Concrete Slab-on-ground

- 7.3 The membranes must be laid on a minimum of 75 mm thick site concrete, or on a well compacted hard-fill and sand-blinded base for slab-on-ground applications. The structural concrete slab placed over the membranes must be a minimum of 100 mm thick.

### Control Joints

- 8.1 Where control or construction joints are formed in the substrate, Hitchins New Zealand Limited must be consulted for use of the membranes over these joints. Generally this will be sealant sealed with a slip membrane installed over the joint, then the specified membrane.

### Backfilling and Drainage

- 9.1 The membranes must be protected against damage by the placement of a protection material between the membrane and the granular back fill. Hitchins New Zealand Limited recommend Tefond protection of membranes and for improved drainage, Tefond Drain which is to be installed in accordance with the Technical Literature.
- 9.2 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.
- 9.3 A subsoil drainage system must be used which includes a minimum 100 mm diameter pipe with openings to collect water; a geotextile filter fabric or other filter material to prevent silting of the pipe, and access for cleaning the subsoil pipe. The pipe must be positioned a minimum of 200 mm below the floor level and have a minimum 1:200 fall to a drainage outlet.
- 9.4 After backfilling, the installation is completed with a flashing in accordance with the installation details contained within the Technical Literature to protect the top edge of the membrane.

### Durability

#### Serviceable Life

- 10.1 Hitchins DPM Waterproofing Membranes are suitable DPM material (Modified bituminous sheet), and 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

- 11.1 An annual inspection must be made of the membrane's top edge seal and protection, the backfill capping, and the drainage pipe to ensure they are functioning as originally designed.
- 11.2 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

- 12.1 Hitchins DPM Waterproofing 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.
- 12.2 The membranes are torch-on and/or self-adhesive and when used with Tixophalte and Purlastic can form sealed joints and penetrations. The top edge of the membrane must be sealed with a Rinfotex bandage embedded in Unolastic and finished to the wall as set out in the Technical Literature. The top edge and bandage must be protected with a flashing.
- 12.3 Building designers in association with Hitchins New Zealand Limited, must ensure junctions with Hitchins DPM Waterproofing Membranes, such as at the floor/wall junction, form a waterproof joint. Membranes at these junctions not supplied by Hitchins New Zealand Limited have not been assessed, and are outside the scope of this Appraisal.

## Installation Information

### Installation Skill Level Requirement

- 13.1 Installation of the membranes must be completed by Hitchins Licensed and Trained Installers.
- 13.2 Installation of membranes must be in accordance with the Hitchins Training Manual covering Torch-on and Self-adhesive membranes plus protection, which can be obtained from Hitchins New Zealand Limited.

### System Installation

#### Substrate Preparation

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

#### Priming

- 14.2 All retaining wall and site concrete substrates must be primed before application of the membranes. The supplier of the membranes, Hitchins New Zealand Limited, should be contacted to confirm the most suitable primer. Generally, Hitchins Self-Stik is the most suitable primer for self-adhesive membranes and Indever is the most suitable primer for torch-on membranes. Application instructions for the primers are contained in the relevant technical data sheets.

#### Membrane Installation - Walls

- 14.3 The membranes must be installed in accordance with the Technical Literature. Sheet edges and ends must be overlapped. Internal and external corners can be reinforced with an extra layer of membrane 200 mm wide if required. The top edge of the membrane must be held with a profile bar and/or an above ground bandage with Rinfotex embedded in Unolastic. Protection material must be installed against the membrane before backfilling. Backfilling must commence immediately after the membrane is installed to ensure it is not left exposed to sunlight or UV radiation for any longer than 14 days.

#### Membrane Installation - Floors

- 14.4 The membranes must be installed in accordance with the Technical Literature. Sheet edges and ends must be overlapped. The membranes must be inspected for damage and any damage must be repaired, then protected. The membranes must not be exposed to UV radiation for any longer than 14 days before the structural concrete slab is placed.

#### Temperature

- 14.5 The membranes must only be applied when the air and substrate temperature is a minimum of 10°C.



### Inspections

- 14.6 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

- 15.1 Safe use and handling procedures for the primers, membranes and accessories are provided in the Technical Literature.

## Basis of Appraisal

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

### Tests

- 16.1 The Hitchins DPM Waterproofing Membranes have been tested to the European Norms. These include EN13707, EN13969 and in some cases EN 13970 and EN 14695. Testing included within these European Norms is Tensile Strength, Elongation, Tear Resistance, Watertightness, Resistance to Impact, Resistance to Static Load and Pliability at low temperature [-20°C].
- 16.2 Test methods and results have been reviewed by BRANZ and found to be satisfactory.

### Other Investigations

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

### Quality

- 18.1 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. BRANZ has taken note of the product certification covering quality aspects associated with the product.
- 18.2 The quality of materials supplied to the market is the responsibility of Hitchins New Zealand Limited.
- 18.3 Quality of installation on site is the responsibility of the Hitchins Licensed and Trained Installer.
- 18.4 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 Hitchins New Zealand Limited.
- 18.5 Building owners are responsible for the maintenance of the membrane systems in accordance with the instructions of Hitchins New Zealand 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.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 (Amendment 7, 01 January 2017).
- Code of Practice for Torch-On Bitumen Membrane Systems.
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.

## Amendments

### Amendment No. 1, dated 21 December 2017.

This Appraisal has been amended to update the Appraisal name.



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04 July 2017

HITCHINS DPM WATERPROOFING  
MEMBRANES



In the opinion of BRANZ, **Hitchins DPM Waterproofing 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 **Hitchins New Zealand Limited**, and only covers products sold by **Hitchins New Zealand Limited**. The Appraisal 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. **Hitchins New Zealand 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 **Hitchins New Zealand 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 **Hitchins New Zealand Limited** or any third party.

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**For BRANZ**

**Chelydra Percy**

Chief Executive

Date of Issue:

04 July 2017