



BRANZ Appraised

Appraisal No. 966 [2024]

HITCHINS GUNDEC DPM TANKING WATERPROOFING MEMBRANES

Appraisal No. 966 [2024]

This Appraisal replaces BRANZ
Appraisal No. 966 [2017]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Hitchins Gundec DPM Tanking Waterproofing Membranes are a range of polyester and fiberglass reinforced self-adhesive and torch-on modified reinforced bitumen membranes. The membranes are for use as damp-proof membranes (DPMs) and tanking membranes on basement retaining walls and under floors.
- 1.2 Hitchins Gundec DPM Tanking 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 Gundec DPM Tanking 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 Gundec DPM Tanking Waterproofing Membranes must be adequately protected against damage during backfilling and in-service.
- 2.3 Hitchins Gundec DPM Tanking Waterproofing Membranes must only be installed by Hitchins New Zealand Limited licensed and trained installers.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Hitchins Gundec DPM Tanking 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 Gundec DPM Tanking Waterproofing Membranes meet this requirement. See Paragraph 11.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.3. Hitchins Gundec DPM Tanking Waterproofing Membranes meet this requirement. See Paragraphs 13.1-13.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Hitchins Gundec DPM Tanking Waterproofing Membranes meet this requirement.

Technical Specification

4.1 The following materials, covered by this Appraisal, are marketed and supplied by Hitchins New Zealand Limited:

- **Gundec Super-NZ 3 mm All-purpose base sheet** - a SBS modified polyester 130 g reinforced standard torch-on DPM tanking membrane single layer system for use on concrete substrates. It is installed vertically to walls and foundations.
- **Gundec Super-NZ 4 mm All-purpose cap sheet** - an APP modified polyester 180 g reinforced standard torch-on DPM tanking membrane single layer system for use on concrete substrates. It is installed horizontally on the ground or an on-site concrete slab.
- **Gundec Super-NZ 2.6 mm** - an APP modified polyester 110 g reinforced standard self-adhesive DPM tanking membrane single layer system for use on concrete substrates. It is installed to foundations and flashed onto horizontal membranes with the film in place.
- **Gundec Super-NZ 2 mm** - an APP modified polyester 110 g reinforced standard self-adhesive DPM tanking membrane single layer system for use on concrete substrates. It is installed vertically to walls and sealed to foundations.
- **Gundec Super-NZ 2 mm Anti-root** - an APP modified polyester 110 g reinforced anti-root self-adhesive plain tanking membrane. It is a standard two-layer membrane system for high water table areas on concrete substrates. It is installed vertically to walls and sealed to foundations.
- **Gundec Super-NZ 3 mm Multi-purpose base sheet** - an APP modified polyester 130 g reinforced standard two-layer membrane system for high water table areas on concrete substrates. It is installed vertically or horizontally with Tefond protection.
- **Gundec Super-NZ 3 mm Base sheet 180 g with Gundec Super-NZ 4 mm Anti-root garden** - torch-on cap sheet standard two-layer membrane system for concrete substrates.

Accessories

- **Gundec Pro Anti-root** - a one-component, water-based elastomeric, fibre-reinforced bituminous waterproofing compound with anti-root additive for bedding-in Gundec Polyester Fabric. It is used for waterproofing the membranes and for incorporating a holding bandage to the top of the vertical wall tanking membrane to the substrate to create a complete seal of the top surface. It is supplied in 20 L pails or 4 L cans. It can be plastered or painted over.
- **Gundec Primer** - a one-component, solvent-based, black bituminous primer applied to the substrate for the installation of torch-on bitumen membranes. It is supplied in 20 L pails or 4 L cans.
- **Gundec Self-stik** - a waterborne acrylic co-polymer pressure sensitive contact adhesive green primer that dries to provide a sticky surface for the improved adhesion of self-adhesive [peel & stick] membranes. It provides adhesion for cement blocks and concrete in cold conditions. It is supplied in 4, 10 and 20 L pails.
- **Gundec Polyester Fabric** - is used for full waterproof lamination with Gundec Pro Anti-root compound or 200 mm bandages bedded in Gundec Pro Anti-root liquid compound to seal the top edge of Gundec wall tanking membranes. It is supplied in 1 m wide rolls.
- **Formrok 28 P Sealant** - a one-component, grey, very flexible polyurethane sealant for general purpose sealing. It is supplied in a 720 g sausage.
- **Tixophalte Sealant** - a solvent-based, elastomeric black bituminous adhesive/sealant used for general sealing detail work with bitumen membranes. It is supplied in 310 ml cartridges.
- **Gundec Fast-bond** - a water-based bituminous emulsion adhesive compound [glue] for the installation of Gundec Protecto Board.
- **Elotene Kontabit** - a double-sided adhesive tape for sealing details in various situations including a slip membrane in stress areas and capping parapets. It is supplied in a range of widths from 100 to 250 mm in 10 m long rolls.
- **Gundec Triafillet Fillet** - a reinforced flexible torch-on bitumen fillet installed into internal corners prior to the installation of the torch-on membrane.



- **Gundec Screed** - a resin-rich bitumen matrix-filled plaster screed compound for surface repairs and for building in improved falls.
- **Gundec PolyLastic** - a solvent-based, moisture-cured, flexible grey polyurethane (rubber-like) coating compound for sealing around pipes and flanges. It is supplied in 4 and 10 L cans.
- **Gundec Silver** - a solvent-based decorative bituminous aluminium coating.
- **Gundec Protecto Board** - a profiled durable foam board adhered to the surface with Gundec Fast-bond.
- **Tefond** - a high-density, extruded polyethylene protection sheet with 9 mm interlocking jointing profiles, to provide a continuous waterproof sheet with good drainage. It is supplied in 20 x 2 m rolls with Tefond fasteners.
- **Tefond Drain** - a high-density extruded polyethylene protection sheet with 9 mm interlocking jointing profiles to provide a continuous waterproof sheet incorporating geotextile over-surfaced cloth for drainage. It is supplied in 20 x 2 m rolls with Tefond fasteners.
- **Maxistud perforated drain** - a high-density, extruded polyethylene horizontal protection and drainage sheet with 20 mm interlocking profiles that holds water to feed the plants in hot weather.
- **Tegotherm Polyiso Super 50 mm Foam** - a high-density extruded PIR insulation foam sheet.
- **Hitchins Epo-Flush 604** - a two-component epoxy compound that can be sanded smooth when dry.
- **Hitchins Moss-Killer** - a concentrated moss, mould and lichen solution treatment.
- **Hitchins Chemwash** - a concentrated chemical surface cleaning solution treatment.
- **Gundec Cover-bond** - two-components (flexible resin & powder matrix) which are mixed to provide an emulsion rich compound with waterproofing and bonding properties. It can incorporate a reinforcement sheet and bandage. Both components are supplied together in a 20 kg pail.
- **Perlastic 2100 DP/Black** - a single component, waterborne, chemically-resistant asphalt-based formula available in three grades which can be brush/roll, trowel or spray-applied. It has a catalyst additive for winter application to accelerate drying.

Handling and Storage

- 5.1 Handling and storage of all materials, whether on-site 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 ultraviolet (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 This Appraisal must be read in conjunction with:
- Hitchins Gundec Super DPM and Tanking Training Manual, November 2023, excluding pages 36, 40, 52-61 and 68-77.
- 6.2 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 effective control of internal moisture must be considered at the design stage due to the impermeability of the membranes. Refer to the BRANZ Good Practice Guide: Membrane Roofing the Waterproofing Membrane Association: Code of Practice for Reinforced Modified Bitumen Membranes (RMBM) Systems for Roofs and Decks.
- 7.2 Refer to Table 1 for the composition of the systems within the Hitchins Gundec DPM Tanking Waterproofing Membranes.

Table 1: System Combinations

Standard torch-on DPM tanking membrane single layer systems on concrete substrate		
Product name details	Membrane use	Membrane protection
Gundec Super-NZ 3 mm All-purpose base sheet	Torch-on, installed vertically to walls and foundations.	Tefond or Tefond Drain or Gundec Protecto Board
Gundec Super-NZ 4 mm All-purpose cap sheet	Installed horizontally on ground or on-site concrete slab.	Tefond or Gundec Protecto Board
Standard self-adhesive DPM tanking membrane single layer systems on concrete substrate		
Product name details	Membrane use	Membrane protection
Gundec Super-NZ 2.6 mm self-adhesive external finish	Installed to foundations, flashed onto horizontal membrane with film in place.	Tefond or Gundec Protecto Board
Gundec Super-NZ 2 mm Anti-root self-adhesive plain tanking membrane		Tefond or Tefond Drain or Gundec Protecto Board
Standard two-layer (high water table) DPM tanking waterproofing membrane system on concrete substrate		
Product name details	Top layer membrane use	Membrane use and protection
Gundec Super-NZ 2 mm Anti-root self-adhesive plain tanking membrane	Gundec Super-NZ 4 mm All-purpose torch-on cap sheet	Installed vertically to walls and sealed to foundations.
Gundec Super-NZ 3 mm All-purpose base sheet	Gundec Super-NZ 4 mm All-purpose torch-on cap sheet	Installed vertically and horizontally with Tefond protection.
Standard two-layer and root resistant membrane system on concrete substrates		
Product name details	Top layer membrane use	Membrane use and protection
Gundec Super-NZ 3 mm All-purpose base sheet	Gundec Super-NZ 4 mm Anti-root Garden torch-on cap sheet	Maxistud perforated drainage Tefond drain walls

Substrate Design

Retaining Walls

- 8.1 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.
- 8.2 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

- 8.3 The membranes must be laid on a minimum of 75 mm thick site concrete, or Gundec Super-NZ 4 mm All-purpose cap sheet, 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

- 9.1 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 bituminous Tixophalte Sealant, sealed with a slip membrane installed over the joint, then the specified membrane.

Backfilling and Drainage

- 10.1 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.

- 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 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.
- 10.4 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

- 11.1 Hitchins Gundec DPM Tanking Waterproofing Membranes are suitable DPM materials (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 UV radiation.

Maintenance

- 12.1 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.
- 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 Hitchins Gundec DPM Tanking 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.
- 13.2 The membranes are torch-on and/or self-adhesive, and when used with Tixophalte Sealant, Gundec PolyLastic compound and Perlatic 2100 DP/Black, can form sealed joints and penetrations. The top edge of the membrane must be sealed with Gundec Pro Anti-root liquid compound incorporating Gundec Polyester Fabric 200 mm bandage for a total seal. Hitchins New Zealand Limited recommends the complete wall surface above the tanking membrane at ground level be sealed with 2-3 coats of Gundec Pro Anti-root liquid compound to ensure no moisture can penetrate through the wall. This coating can be plastered or painted over as set out in the Technical Literature. Gundec Cover-bond must be applied and finished to the wall as set out in the Technical Literature. The top edge and bandage must be protected with a flashing.
- 13.3 Building designers, in association with Hitchins New Zealand Limited, must ensure junctions with Hitchins Gundec DPM Tanking Waterproofing Membranes, such as at the floor/wall junctions incorporate a double membrane layer to form a waterproof joint. Only the membranes and accessories listed in Paragraph 4.1 of this Appraisal are covered within the scope of this Appraisal. 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

- 14.1 All design and building work must be carried out in accordance with the Hitchins Gundec DPM Tanking Waterproofing Membranes Technical Literature and this Appraisal. All building work must be undertaken by Hitchins New Zealand Limited licensed and trained installers. Where the work involves Restricted Building Work, this must also be completed by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant License Class.

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 including release agents, oil, grease or other deleterious material that may affect adhesion or may damage the membranes.

Priming

- 15.2 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, Gundec Self-stik is the most suitable primer for self-adhesive membranes and Gundec Primer 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

- 15.3 The membranes must be installed in accordance with Hitchins New Zealand Limited Technical Literature. Sheet edges must overlap by 75 mm and end of sheet edges must have 150 mm overlap. 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 mechanically fastened or Gundec Polyester Fabric bandage laminated with Gundec Pro Anti-root liquid compound at ground level. 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

- 15.4 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 with Tefond or Gundec Protecto Board. The membranes must not be exposed to UV radiation for any longer than 14 days before the structural concrete slab is placed.

Temperature

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

Inspections

- 15.6 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

- 16.1 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

- 17.1 The Hitchins Gundec DPM Tanking Waterproofing Membranes have been tested to the European Norms. These include EN13707, EN13969 and in some cases EN13970 and EN14695. 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].
- 17.2 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 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.
- 19.2 The quality of materials supplied to the market is the responsibility of Hitchins New Zealand Limited.
- 19.3 Quality of installation on-site is the responsibility of the Hitchins New Zealand Limited licensed and trained installer.
- 19.4 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.
- 19.5 Building owners are responsible for the maintenance of the membrane systems in accordance with the instructions of Hitchins New Zealand Limited.

Sources of Information

- BRANZ Good Practice Guide: Membrane roofing [Second Edition], October 2015.
- Code of Practice for below-grade tanking membranes, Waterproof Membrane Association Incorporated, January 2023.
- Code of Practice for reinforced modified bitumen membrane (RMBM) systems for roofs and decks [*for selection, design and installation*], Waterproof Membrane Association Incorporated, March 2021.
- 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.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



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12 March 2024

HITCHINS GUNDEC DPM TANKING
WATERPROOFING MEMBRANES



In the opinion of BRANZ, **Hitchins Gundec DPM Tanking 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 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.

For BRANZ

Claire Falck
Chief Executive
Date of Issue:
12 March 2024