

PEPRUFE® 300R PLUS & 160R PLUS

Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites

Product Description

Preprufe® 300R Plus & 160R Plus membranes are unique composite sheets comprised of a thick HDPE film, pressure sensitive adhesive and weather resistant protective coating. Designed with Advanced Bond Technology™ and a dual adhesive ZipLap™, Preprufe Plus membranes form a unique, integral bond to poured concrete, preventing both the ingress and lateral migration of water while providing a robust barrier to water, moisture and gas.

Release liner free and designed for efficient, reliable installation, the Preprufe Plus ZipLap allows for an adhesive to adhesive bond at seam overlaps and delivers superior performance in harsh conditions without the need for specialized equipment, heat or power.

The Preprufe R Plus System includes:

- **Preprufe 300R Plus** — heavy-duty grade designed for use below slabs greater than 300mm thick and on rafts (i.e. mud slabs). Designed to accept the placing of heavy reinforcement using conventional concrete spacers
- **Preprufe 160R Plus** — thinner heavy-duty grade designed for slabs less than 300mm thick and for blindside, zero property line applications against soil retention systems. Can also be used in vertical applications.
- **Preprufe Tape LT** — for covering cut edges, roll ends, penetrations and detailing (temperatures between -4°C and 30°C)
- **Preprufe CJ Tape LT** — for construction joints, and detailing (temperatures between -4°C and 30°C)
- **Bituthene® LM3000 Liquid Membrane** — for sealing around penetrations, etc.
- **Adcor®** — waterstop for joints in concrete walls and floors
- **Preprufe Tieback Covers** — preformed cover for soil retention wall tieback heads

Producer Statement

Preprufe 160 Plus and 300 Plus complies with the requirements of the NZ building code and any relating acts. Preprufe complies with E2/AS1 2005 and durability under B2. The conditions under B2 (50years durability for elements that are inaccessible) are accepted and complied with providing all preparation and installation is carried out by Allnex licenced contractors and all product installation details are followed.

Features

- **BRANZ appraised Current**
- **Compliant product with E2/AS1** July 2005; section 12.0, 12.2.2.b
- Used in New Zealand for over 20 years
- Compliant with **BRANZ bulletin #397**, Waterproofing basements; section 5.2.2
- **B2 50 Year durability** compliant; “Life of the building” (refer BBA approval).
- BBA approval (British Board of Agreement). Grades 2, 3 & 4. BS8102:1990
- All joints sealed by permanent self-adhesive.
- Elongation: 500% min, ASTM D412
- Moisture Vapour Transmission: Zero, 0 gram/day. BS3177:1995
- Permeability: $K < 1.4 \times 10^{-11} \text{ cm.s}^{-1}$. ASTM D5084-90
- Fully bonds to concrete: will not fall away if ground collapses, settles or dries out. Forms an integral seal with the concrete.
- Not reliant on confinement.

Preprufe 300R Plus & 160R Plus membranes are applied either horizontally to smooth prepared concrete, carton forms or well rolled and compacted earth or crushed stone substrate; or vertically to permanent formwork or adjoining structures. Concrete is then cast directly against the adhesive side of the membranes. The specially developed Preprufe adhesive layers work together to form a continuous and integral seal to the structure.

Preprufe can be returned up the inside face of slab formwork but is not recommended for conventional twin-sided formwork on walls, etc. Use Bituthene self-adhesive membrane to walls after removal of formwork for a fully bonded system to all structural surfaces.

Note the following:

Must be installed by Licensed Allnex Contractors who are members of The Allnex Contractors Federation Inc.

Top of the Bituthene Preprufe is to extend a minimum 150mm above ground level.

Check Bituthene Preprufe Membrane for faults or damage prior to placement of the concrete

Ensure finished ground surface falls away from the membrane a minimum 1:30 to divert ground water.

Drainage

Install minimum 100 mm dia drain with openings to collect water at the base of the wall.

Drain is to be placed 200mm below the interior basement floor level.

Drain must have minimum 1:200 fall to the outlet.

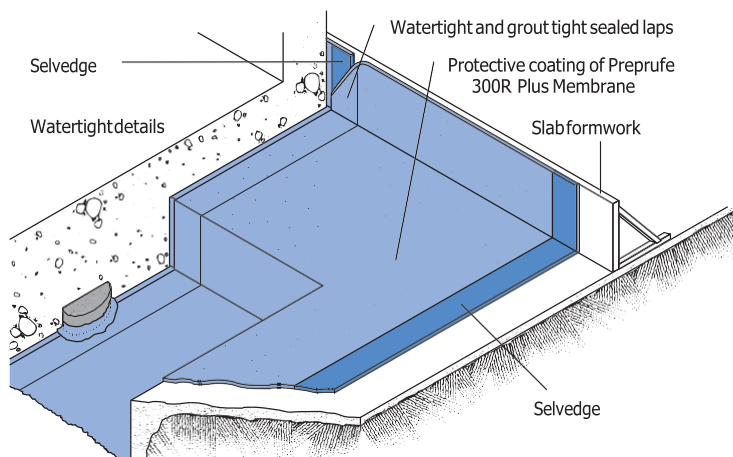
General

Bituthene Preprufe can be used in conjunction with other Bituthene waterproofing/ tanking materials.

Bituthene Preprufe when used in conjunction with other Bituthene Products must positively seal with floor DPM and have adequate drainage installed.

Advantages

- **Forms a unique continuous adhesive bond to concrete poured against it** - prevents water migration and makes it unaffected by ground settlement beneath slabs
- **Fully-adhered adhesive to adhesive watertight ZipLaps** and easy to execute detailing
- **Provides a barrier to water, moisture and gas** - physically isolates the structure from the surrounding ground
- **Easy roll/kick out installation** - reduces installation time and cost
- **Release liner free** - expedites installation and reduces construction site waste
- **Solar reflective** - reduced temperature gain
- **Simple and quick to install** - requiring no priming or fillets
- **Can be applied to permanent formwork** - allows maximum use of confined sites
- **Self protecting** - can be trafficked immediately after application and ready for immediate placing of reinforcement
- **Unaffected by wet conditions** - cannot activate prematurely
- **Inherently waterproof, non-reactive system:**
 1. Not reliant on confining pressures or hydration
 2. Unaffected by freeze/thaw, wet/dry cycling
- **Chemical resistant** - effective in most types of soils and waters, protects structure from salt or sulphate attack



Drawings are for illustration purposes only.
Please refer to gcpat.com for specific application details.

Installation

The most current application instructions, detail drawings and technical letters can be viewed at www.allnexconstruction.com. For other technical information contact your local Allnex representative.

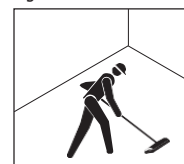
Preprufe Plus membranes have colored zip strips at the top and bottom of the seam area on the edge of the roll. Both zip strips cover an aggressive adhesive. Once the yellow zip strip on the top of the membrane and the blue zip strip on the bottom of the membrane

are removed, a strong adhesive to adhesive bond is achieved in the overlap area. This Preprufe ZipLap™ provides an enhanced sealing of the overlaps in harsh conditions combined with a fast and easy way of execution without specialized equipment, heat or power.

Substrate Preparation

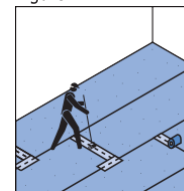
All surfaces - It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 12 mm. Grout around all penetrations such as utility conduits, etc. for stability (see Figure 1).

Figure 1



Horizontal - The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.

Figure 2



Vertical - Use concrete, plywood, insulation or other approved facing to sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 12 mm out of alignment.

Membrane Installation

Preprufe Plus membranes can be applied at temperatures of -4° C or above. When installing Preprufe Plus product in cold or marginal weather conditions <4°C the use of Preprufe Tape LT is recommended at all laps and detailing. Preprufe Tape LT should be applied to clean, dry surfaces and the release liner must be removed immediately after application. Alternatively, Preprufe Plus Low Temperature (LT) membrane is available for low temperature applications. Refer to Preprufe Plus LT data sheet.

Horizontal substrates - Kick out or roll out the membrane HDPE film side to the substrate with the yellow zip strip facing towards the concrete pour. End laps should be staggered to avoid a build up of layers. Leave yellow and blue zip strips on the membrane until overlap procedure is completed.

Accurately position succeeding sheets to overlap the previous sheet 75 mm along the marked selvage with the blue zip strip on top of the yellow zip strip. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back and remove both the yellow and blue zip strips in the overlap area to achieve an adhesive to adhesive bond at the overlap. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller.

Refer to GCP Tech Letter 15 for information on suitable rebar chairs for Preprufe products.

Vertical substrates - Mechanically fasten the membrane vertically using fasteners appropriate for the substrate with the yellow zip strip facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvage using a small and low profile head fastener so that the membrane lays

flat and allows firmly rolled overlaps. Accurately position succeeding sheets to overlap the previous sheet 75 mm along the marked selvedge with the blue zip strip on top of the yellow zip strip.

Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back and remove both the yellow and blue zip strips in the overlap area to achieve an adhesive to adhesive bond at the overlap. Roll firmly to ensure a watertight seal.

Roll ends and cut edges - Overlap all roll ends and cut edges by a minimum 75 mm and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap edges and roll firmly (see Figure 2). Immediately remove tinted plastic release liner from the tape.

Details

Detail drawings are available at www.allnexconstruction.com , alternatively contact your Allnex representative.

Membrane Repair

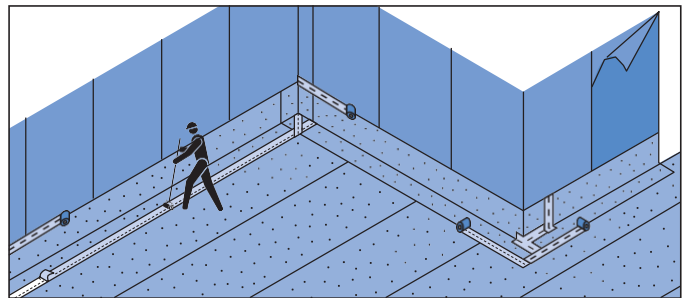
Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by power washing if required. Repair damage by wiping the area with a damp cloth to ensure the area is clean and free from dust, and allow to dry. Repair small punctures (12 mm or less) and slices by applying Preprufe Tape centered over the damaged area. Repair holes and large punctures by applying a patch of Preprufe® Plus membrane, which extends 150 mm beyond the damaged area. Seal all edges of the patch with

Preprufe Tape. Any areas of damaged adhesive should be covered with Preprufe Tape. Where exposed selvedge has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh Preprufe Tape. All Preprufe Tape must be rolled firmly and the tinted release liner removed. Alternatively, use a hot air gun or similar to activate the adhesive using caution not to damage the membranes and firmly roll lap to achieve continuity.

Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe Tape.

It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane. Following proper ACI guidelines, concrete must be placed carefully and consolidated properly to avoid damage to the membrane. Never use a sharp object to consolidate the concrete. Provide temporary protection from concrete over splash for areas of the Preprufe membrane that are adjacent to a concrete pour.



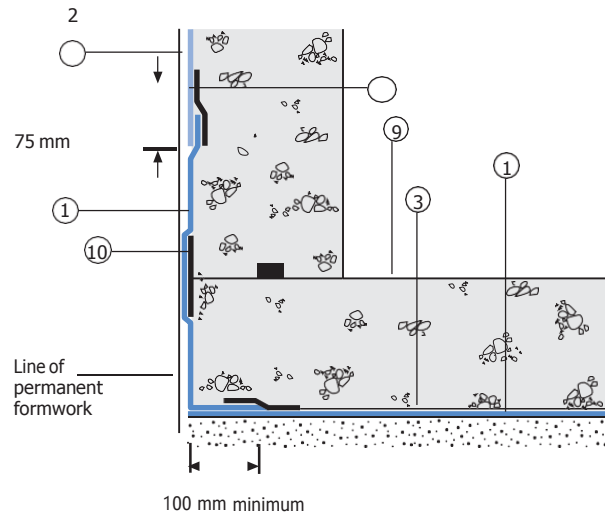
Detail Drawings

Details shown are typical illustrations and not working details.

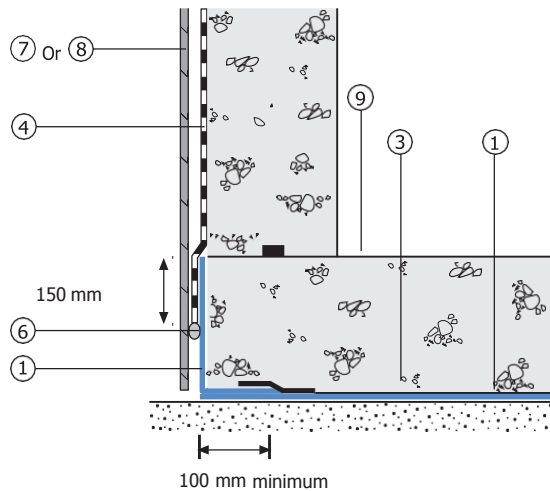
For a list of the most current details, visit us at

www.allnexconstruction.com

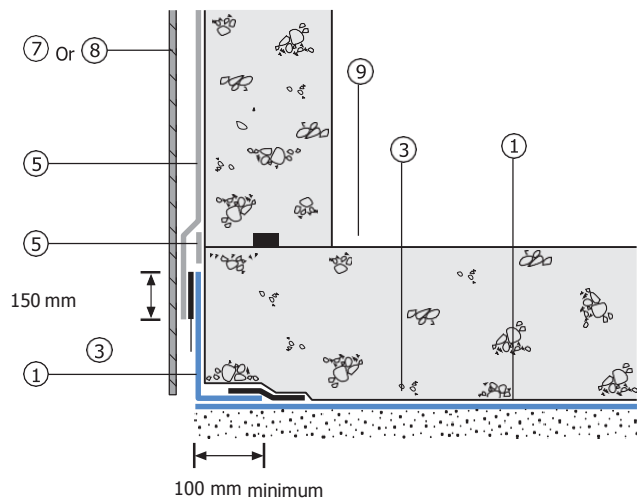
Wall base detail against permanent shutter



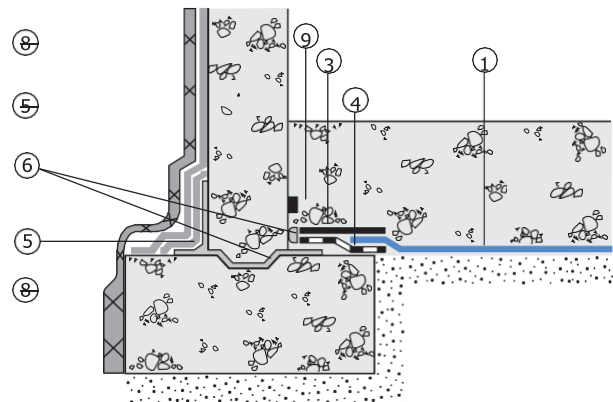
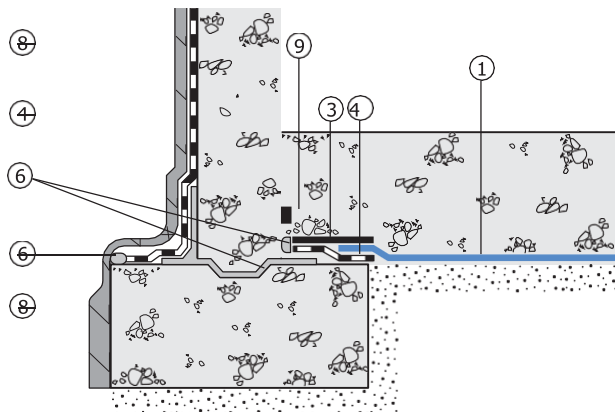
Bituthene wall base detail (Option 1)



Procort wall base detail (Option 1)



Bituthene® wall base detail (Option 2)



1 Preprufe 300R Plus

2 Preprufe 160R Plus

3 Preprufe Tape

4 Bituthene

5 Procort

6 Bituthene Liquid Membrane

7 Approved Protection Course

8 NPX

9 Adcor

10 Preprufe CJ Tape

Supply

Dimensions (Nominal)	Preprufe 300R Plus Membrane	Preprufe 160R Plus Membrane	Preprufe Tape (LT or HC*)
Thickness	1.2 mm	0.8 mm	
Roll size	1.17m x 31.15m	1.17m x 36.6m	100 mm x 15 m
Roll area	36 m ²	42 m ²	
Roll weight	50 kg	42 kg	2 kg
Minimum side/end laps	75 mm	75 mm	75 mm

Physical Properties

Property	Typical Value 300R Plus	Typical Value 160R Plus	Test Method
Color	white	white	
Thickness	1.2 mm	0.8 mm	ASTM D3767
Lateral Water Migration Resistance	Pass at 71 m of hydrostatic head pressure	Pass at 71 m of hydrostatic head pressure	ASTM D5385, modified ¹
Low temperature flexibility	Unaffected at -29°C	Unaffected at -29°C	ASTM D1970
Resistance to hydrostatic head	71 m	71 m	ASTM D5385, modified ²
Elongation	500%	500%	ASTM D412, modified ³
Tensile strength, film	27.6 MPa	27.6 MPa	ASTM D412
Crack cycling at -23°C, 100 cycles	Unaffected, Pass	Unaffected, Pass	ASTM C8364
Puncture resistance	990 N	445 N	ASTM E154
Peel adhesion to concrete	880 N/m	880 N/m	ASTM D903, modified ⁵
Lap peel adhesion at 22°C	1408 N/m	1408 N/m	ASTM D1876, modified ⁶
Lap peel adhesion at 4°C	1408 N/m	1408 N/m	ASTM D1876, modified ⁶
Permeance to water vapor transmission	0.01 perms (0.6 ng/(Pa x s x m ²))	0.01 perms (0.6 ng/(Pa x s x m ²))	ASTM E96, method B

Footnotes:

1. Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the membrane.
2. Hydrostatic head tests of Preprufe Membranes are performed by casting concrete against the membrane with a lap. Before the concrete cures, a 3 mm spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to the head indicated.
3. Elongation of membrane is run at a rate of 50 mm per minute.
4. Concrete is cast against the Preprufe membrane and allowed to cure (7 days minimum).
5. Concrete is cast against the protective coating surface of the membrane and allowed to properly dry (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 50 mm per minute at room temperature.
6. The test is conducted 15 minutes after the lap is formed (per GCP published recommendations) and run at a rate of 50 mm per minute at 22°C.

Removal of Formwork

Preprufe membranes can be applied to removable formwork, such as slab perimeters, elevator and lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond. Preprufe membranes are not recommended for conventional twin-sided wall forming systems, see GCP Tech Letter 13 for information on forming systems used with Preprufe products.

A minimum concrete compressive strength of 20 N/mm² is recommended prior to stripping formwork supporting Preprufe membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete.

Refer to GCP Tech Letter 17 for information on removal of formwork for Preprufe products.

Specification Clauses

Preprufe 300R Plus or 160R Plus membranes shall be applied with its protective coating presented to receive fresh concrete to which it will integrally bond. Only GCP Applied Technologies approved membranes shall be bonded to Preprufe® products. All Preprufe system materials shall be supplied by GCP Applied Technologies, and applied strictly in accordance with their instructions. Specimen performance and formatted clauses are also available.

NOTE: Use Preprufe Tape to tie-in Procor® fluid-applied membrane with Preprufe product.

Health and Safety

Refer to relevant SDS (Safety Data Sheet). Complete rolls should be lifted and carried by a minimum of two persons.

Health and Safety

Refer to relevant Material Safety Data Sheet.

Quality Assurance

Quality Assurance is carried out by the manufacturer GCP Applied Technologies who are certified to ISO 9001: 2008 by TUV SUD PSB Pty Ltd.

Technical Service

For assistance with working drawings for projects and additional technical advice, please contact Allnex Construction Products.

Appraisal

BRANZ Appraisal No: (805) 2018



Date: May 2018
Replaces: March 2016



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