Method Statement / Specification

Preprufe 300R Plus – Pre-Applied Below Grade Waterproofing

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| **PREPARED FOR:** |  |
| **CONTRACT:** | Installation of allnex construction products;**Preprufe 300R Plus**Project:  |
| **DATE:** | April 2023 |
| **SCOPE:** | Product DescriptionRelated WorkDocumentsManufacturer / Supplier DocumentsManufacturer / Supplier Contact DetailsSystem ComponentsArea of UseLimitations of UseWarrantiesQualification of ApplicatorsPre-Install MeetingSafety & HandlingStorageInstallation of MembraneSubstrate PreparationMembrane ApplicationInspectionReinforcing InstallationConcrete placementRemoval of FormworkMembrane ProtectionBackfilling OperationsApplication RecordsSpecification ClausesInformation Required for Code ComplianceMembrane Physical PropertiesMembrane Supply Details |
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| **NOTES:** |  |

**Product Description**

GCP PREPRUFE 300R Plus pre applied waterproofing 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 dual adhesive ZipLap™ seams, PREPRUFE 300R Plus forms a unique, integral bond to poured concrete.

This integral bond is specifically designed to provide a robust barrier to water, moisture and gas and prevents both the ingress and lateral migration of water.

PREPRUFE 300R Plus are release liner free and designed for efficient, reliable installation.

PREPRUFE Plus ZipLap™ seams allow for an adhesive to adhesive bond at membrane sheet overlaps and deliver superior performance in harsh conditions without the need for specialized equipment, heat or power.

**RELATED WORK**

* *Refer to 3102 CONCRETE WORK -STANDARD  or 3121 CONCRETE PLACEMENT or relevant concrete section for concrete placement over tanking membrane.*
* *Refer to 7430 DRAINAGE or 7441 GROUNDWATER DRAINAGE for subsoil drainage and backfill to basement walls.*

**DOCUMENTS**

The following documents can be referred to for this method statement:

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| [NZBC E2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1 | External moisture |
| [*NZBC H1*](http://www.masterspec.co.nz/redirect.aspx?pl=258)*/AS1-AS2* | *Energy efficiency* |
| [*NZBC H1*](http://www.masterspec.co.nz/redirect.aspx?pl=258)*/VM1-VM2* | *Energy efficiency* |
| *BRANZ* | *Good practice guide - Concrete floors and basements* |
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**MANUFACTURER/SUPPLIER DOCUMENTS**

 Manufacturer and supplier documents relating to this system:
Bituthene®/ Preprufe® Detail Drawings
Bituthene®/ Preprufe® Install Method Statement (including checklists)
Bituthene®/ Preprufe® Products - Technical Data Sheets
Bituthene® BBA Certification - BBA 97/3325 21/9/2018
Preprufe® BBA Certification - BBA 97/3325 11/7/2018

 [BRANZ Appraisal 1158](http://www.masterspec.co.nz/redirect.aspx?pl=2433) - allnex construction products Damp Proof and Tanking Membranes

**MANUFACTURER/SUPPLIER CONTACT DETAILS**

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| --- | --- |
| Company: | **allnex construction products** |
| Web: | www.allnexconstruction.com |
| Email: | csconstructionnz@allnex.com |
| Telephone: | 0508 882288 |
| Contact | Colin Nolan021 956 160colin.nolan@allnex.com |

*It is important to ensure that all personnel on site have access to accurate, up to date technical information on the many products, materials and equipment used on a project.  In most cases individual products are not used in isolation, but form part of a building process.  Also a particular manufacturer and/or supplier requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm.  Access to technical information can help overcome this potential problem.*

**System Components:**

**Products include but may not be limited to:**

**PREPRUFE 300R Plus**— heavy-duty 46mil grade membrane designed for horizontal and vertical use.

 Designed for use below slabs and on rafts (i.e. mud slabs) and for vertical blind side applications.

 Designed to accept the placing of heavy reinforcement using conventional concrete spacers.

**PREPRUFE Detail Tape** 50mm x 15m wide tape for covering cut edges, roll ends, penetrations and detailing

**PREPRUFE CJ Tape** 200mm x 15m wide tape for detailing, and may be used at construction joints for optional additional protection

**PREPRUFE** 100mm x 15m wide tape for covering cut edges, roll ends, end laps, penetrations and various tie-ins.

**Standard Tape** It is also used to patch damaged areas in the Preprufe membranes.

**BITUTHENE** Two part polyurethane for detail sealing around penetrations and piles.

**Liquid Membrane 3000**

**ADCOR 500 T** Preformed 20mm x 10mm hydrophilic waterstop for secondary waterproofing to construction joints, piles, pile caps, and around cast-in penetrations etc.. In concrete walls and floors.

**PREPRUFE** preformed cover for soil retention wall tieback heads

**Tieback Covers**

**BITUSTICK 4000 TAPE** Double sided, self-adhesive bituminous tape for specialized membrane detailing.

**SWELLSEAL MASTIC WA** Hydrophilic mastic waterstop used as secondary waterproofing to construction joints, piles, pile caps, and around cast-in penetrations also used for detailing starter bars and forming hydrophilic water stops to rough concrete surfaces.

**ALUMINIUM TOP EDGE** Allnex 9.2mm rebated aluminium strip to provide a straight top termination edge.

**TERMINATION STRIP**

**ALLNEX NPX** Membrane drainage and protection boards.

**Area of Use**

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

PREPRUFE 300R Plus membranes are applied either horizontally to smooth prepared concrete, carton forms or well rolled and compacted earth or crushed stone substrates; or vertically to permanent formwork or adjoining structures.

Concrete is then cast directly against the adhesive side of the membrane, the specially developed PREPRUFE adhesive layers work together to form a continuous and integral seal to the structure.

**Limitations of Use**

Approved uses only include those uses specifically detailed in current Technical Data Sheets.

PREPRUFE 300R Plus Membranes are not intended for any other use.

Contact allnex/ GCP technical services where any other use is anticipated or intended.

PREPRUFE 300R Plus Membranes are designed for in-service temperatures below 49°C

PREPRUFE 160R Plus membrane should not be used in horizontal applications.

PREPRUFE 300R Plus Membranes should not be used with conventional two-sided formwork.

(See PREPRUFE Technical Letter # 13 Forming Systems For Use with PREPRUFE Membranes)

PREPRUFE should not be applied when temperature is below -4º without consultation with the allnex / GCP construction products technical representatives.

**Warranty – Manufacturer / Supplier**

Provide a material manufacturer/supplier warranty:

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| 20 years | For Preprufe® 300R Tanking Materials |

* Provide this warranty on the Allnex / GCP construction products waterproofing materials warranty form.
* Commence the warranty from the date of completion of installation of tanking

**Warranty – Installer / Applicator**

Provide an installer/applicator warranty:

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| 5 years | For installation of Preprufe® 300R Tanking Materials |

* Provide this warranty on the installer/applicator standard form
* Commence the warranty from the date of practical completion of the contract works.

 Note – Modifications to all warranties must be in writing prior to the tanking installation.

**Qualification of Applicators**

Workers to be approved by allnex construction products.

*Contact allnex construction products for a list of approved applicators as required.*

**Pre-Installation Meeting**

Convene a meeting between the applicator, contractor, all associated consultants and allnex construction products to ensure all parties know what is required for effective performance of the system, prior to the tanking installation.

**Safety and Handling**

Users must read and understand the product label and Safety Data Sheets (SDS’s) for each system component before use.

All users should acquaint themselves with this information prior to working with the material.

The most current SDS’s can be obtained from the GCP web site at gcpat.com.

Preprufe Rolls - Minimum 2 person lift.

**Storage**

Observe 1 year shelf life and use on a first in first out basis

Store in dry conditions between 4.5°C - 32°C

Store off ground under tarps or otherwise protected from rain and ground moisture

Do Not Stack Pallets

See PREPRUFE ® Technical Letter #30 Shelf Life/Storage and Handling of GCP Waterproofing

**Installation**

Technical Support, Details and Technical Letters

The most up to date detail drawings and technical letters are available at gcpat.com.

For other technical advice, site visits, contact allnex construction products, details above

All detailing to be in accordance with allnex construction products / GCP Construction Solution standard details.

Where required, specific details must be requested and provided prior to proceeding with installation.

For complete application instructions, please refer to the current literature on (www.gcpat.com).

Documents in hardcopy as well as information found on websites other than www.gcpat.com may be out of date or in error. Before using this product it is important that information be confirmed by accessing www.gcpat.com and reviewing the most recent product information, including without limitation Product Data Sheets, Technical Bulletins, Detail Drawings and detailing recommendations.

Please review all materials prior to installation of PREPRUFE 300R Plus.

**SUBSTRATE PREPARATION- ALL**

**Pressure Rating**

Provide a written assurance to allnex construction products that the waterproofing system, comprising membrane and jointing methods, is capable of sustaining the designated water pressure head.  Refer to SELECTIONS below for the designated water pressure head.

 *Where applicable confirm the designated water pressure head with the design engineer.
For applications where hydrostatic pressure is present, all details and specification to be reviewed by allnex construction products & GCP Construction Solutions*

**Acceptance of the Substrate** –

Inspect substrate in its entirety, verify all details, penetrations and conditions comply with GCP/Allnex requirements prior to membrane installation.  Installation of membrane indicates acceptance of substrate by installer.

**All surfaces –**

Effective site dewatering is recommended, to provide dry conditions for membrane installation.

All substrates are to be sound, smooth and engineered to prevent deflection or movement of substrate and membrane during concrete placement, and until concrete attains a minimum 20 MPa strength (typically 3 to 5 days; up to 14 days in cold weather).

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.

**Horizontal** –

A 50 to 75mm thick, monolithic lean concrete blinding layer is preferred.

Blinding must be free of loose aggregate, protrusions or ridges.

An angular profile blinding to trenches and slab thickenings is recommended, rather than a sloping or rounded surface.

Cardboard, fibreboard or similar void formers are not recommended.

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.

**Vertical** –

Vertical substrates may be constructed of smooth struck shotcrete, or engineered lost formwork, such as structural plywood or timber lagging.

All shotcrete must be smooth struck, free from all protruding steel reinforcing fibres (if present), free from all protrusions and sharp edges.

Any formwork employed must resist movement and deflection during concrete and after placement. Joins between sheets / forms shall be flush and without gaps or voids greater than 12mm.

The main contractor must be satisfied that this lost formwork is designed suitably for the purpose, based on the concrete mass and their structural design.

If formwork will be subjected to water contact, the formwork must be constructed from a water-resistant material that will not lose strength or rigidity when damp.

**Penetrations -**

All pipe or other penetrations must be stabilised to prevent movement during membrane installation, steel reinforcing installation and concrete placement.

**FINAL PREPARATION FOR MEMBRANE APPLICATION**

Inspect substrate to verify suitability and readiness.

Remove standing water.

Remove dirt, dust, debris, construction waste, stones or other sharp objects from the substrate surface

**MEMBRANE APPLICATION**

**Evaluate Local Conditions**

Before proceeding with membrane application, determine if weather conditions will be conducive to achieving quality application. This must be determined by the applicator on site.

Guidelines follow:

 a) Ambient temperature - between -4°C and 40°C.

 b) Substrate temperature - between -4°C and 60°C.

 c) Do not apply materials during conditions of rain, mist, fog or snow.

If these conditions cannot be met, application should be suspended until conditions are more favourable.

**Preprufe® 300R Plus Application**

**General**

During cold or damp conditions, the membrane selvedge’s and tape adhesive may be gently warmed using a hair drier or low temperature hot air gun or similar to remove moisture or condensation and improve initial adhesion.

Preprufe® 300R Plus membrane must be installed with HDPE side to the blinding layer, and coated adhesive side facing the concrete pour. To identify sides correctly, the Preprufe® adhesive surface has a soft feel, while the non-adhesive side has a firm plastic like feel.

The adhesive surface must face the concrete pour.

Lay membrane sheets over substrates, ensuring sheets closely follow the contours of the substrate.

Sharply crease and fold membrane to follow directional changes in the substrate, such as internal and external corners.

Membrane may be cut using a sharp safety knife to allow conformance to required shape.

Protect the horizontal tanking from damage during laying by ensuring applicators wear soft soled shoes.  Except for inspection and reinforcement placement purposes do not allow traffic on the tanking after installation.

**Membrane Overlaps**

The long edge of the Preprufe® sheet is self-adhesive and known as the “Selvedge’s”. The selvedge’s’s are self-adhesive and covered by blue and green release films. Green release film should be facing the concrete pour; blue release film should be facing the blinding layer / soil retention system.

Ensure the underside of the succeeding sheet is clean, dry and free of contamination.

Accurately position successive sheets to overlap the selvedge’s of the proceeding sheet by 75mm. The required 75mm overlap is indicated on the Preprufe® by a printed line.

Line up the green release film of one sheet with the blue release film of the succeeding sheet.

When correctly aligned, grab the end of the lapping green and blue release films and draw away from the lap. The adhesive on both surfaces will be exposed, grab and permanently bond the lap together, without forming creases, gaps or fish-mouths.

Pressure roll the lap with a heavy (15kg to 30kg) vinyl flooring roller to fully secure and seal the lap.

End laps at roll ends should be staggered to avoid alignment of end laps across the membrane installation. Overlap all roll end laps and cut edges by a minimum 75mm.

**Horizontal Substrates**

Kick out or roll out the Preprufe 300R membrane, with the green zip strip facing towards the concrete pour.

Leave the green and blue zip strips on the membrane until overlap procedure is completed.

End laps should be staggered to avoid a build-up of layers.

Install Preprufe® 300R Plus membrane over the blinding layer, as detailed above, ensuring membrane conforms to the blinding layer surface.

All membrane must lay flat.

Ensure the underside of the succeeding sheet is clean, dry and free of contamination.

Accurately position successive sheets to overlap the selvedge’s of the proceeding sheet by 75mm.

The required 75mm overlap is indicated on the Preprufe® by a printed line.

Line up the green release film of one sheet with the blue release film of the succeeding sheet.

When correctly aligned, grab the end of the lapping green and blue release films and draw away from the lap. The adhesive on both surfaces will be exposed, grab and permanently bond the lap together, without forming creases, gaps or fish-mouths.

Pressure roll the lap with a heavy (15kg to 30kg) vinyl flooring roller to fully secure and seal the lap.

Ensure roll ends and cut edges are clean, dry and free of contamination, and overlapped a minimum 75mm.

Apply Preprufe Tape centred over the lap without forming creases or bubbles in the tape.

Roll tape to ensure a full seal.

Use a Vee roller to ensure full tape contact at lap edge.

Immediately remove plastic release liner from the tape.

PREPRUFE 300R Plus membrane can be returned up the inside face of slab formwork. To attain a

fully bonded system and to allow a tie in with BITUTHENE self-adhered membrane to all vertical structural surfaces after removal of formwork.

Ensure to cut the length of the membrane (terminate) to height of formwork less 2 inches.

**Vertical Substrates**

Membrane may be installed at any convenient length.

Mechanically fasten the membrane to vertical substrates along the top edge using small headed nails positioned 50mm below the top edge. Secure membrane through the selvedge’s using small headed nails, so that successive sheets will overlap and seal nail penetrations.

All fixings must ensure membrane lays flat.

Do not use large headed fixings.

Ensure the underside of the succeeding sheet is clean, dry and free of contamination.

Accurately position successive sheets to overlap the selvedge’s of the proceeding sheet by 75mm.

The required 75mm overlap is indicated on the Preprufe® by a printed line

Line up the green release film of one sheet with the blue release film of the succeeding sheet.

When correctly aligned, grab the end of the lapping green and blue release films and draw away from the lap. The adhesive on both surfaces will be exposed, grab and permanently bond the lap together, without forming creases, gaps or fish-mouths.

Pressure roll the lap with a heavy (15kg to 30kg) vinyl flooring roller to fully secure and seal the lap.

Ensure roll ends and cut edges are clean, dry and free of contamination, and overlapped a minimum 75mm.

Apply Preprufe Tape centred over the lap without forming creases or bubbles in the tape.

Roll tape to ensure a full seal.

Use a Vee roller to ensure full tape contact at lap edge.

Immediately remove plastic release liner from the tape.

Seal all remaining fixings not covered by selvedge’s with a 100x100mm patch of Preprufe Tape, without forming creases or bubbles in the tape.

Roll tape to ensure a full seal.

Immediately remove plastic release liner from the tape.

Note that PREPRUFE 300R Plus membranes should not be used with conventional two-sided formwork. (See

PREPRUFE Technical Letter # 13 Forming Systems For Use with PREPRUFE Membranes)

**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 surface to dry and apply PREPRUFE Tape centered over the lap edges and roll firmly.

Immediately remove tinted plastic release liner from the tape.

Plan the installation so that joints are minimised and occur in suitable locations.

**Slab Edges**

Preprufe® 300R Plus membrane should continue up all perimeter slab edges to ground level or to the top of ground slab surface.

Where removable formwork is used, fix with small head nails, 50mm below the membrane top edge to facilitate formwork removal without damaging membrane.

Seal all fixings with a 100x100mm patch of Preprufe Tape, without forming creases or bubbles in the tape.

Pressure roll tape to ensure a full seal. Immediately remove plastic release liner from the tape.

**Penetrations – Piles, Pipes etc**

Where present, cut a hole in the Preprufe membrane and slip Preprufe over the penetration.

Preprufe should be within 12mm of the penetration.

Cut a square of Preprufe membrane a minimum 300mm larger than the penetration in all directions.

At the centre of the square, mark the penetration diameter with a marker pen.

Pie-cut the marked penetration, as shown in the relevant detail drawing.

Slip the pie-cut membrane square over the penetration / pile and adjust pie-cuts for a snug fit.

To the existing membrane-penetration junction, apply a minimum 20mm x 20mm fillet of SBituthene LM 3000.

Slip the pie-cut membrane square down the penetration and seat into the wet SBituthene LM 3000.

Excess SBituthene LM 3000 must flow from all pie-cuts, indicating a full seal will be achieved.

Wrap the pie-cuts with Preprufe Tape to seal and cover all SBituthene LM 3000, while removing plastic release layer from the tape.

Continue Preprufe Tape application up the penetration a minimum 100mm.

Roll the tape to ensure full sealing.

**Non-Moving Construction Joints**

Ensure membrane is fully and correctly installed before proceeding.

The main contractor must provide and confirm the location of all construction joints, cold joints/day joints.

Mark the position of construction joints onto the clean, dry, contaminant free membrane surface.

Install Preprufe CJ Tape LT centred over the CJ location, without forming creases or bubbles in the tape.

Pressure roll the tape to ensure a full seal.

Immediately remove plastic release liner from the tape.

After concrete placement, and prior to the next concrete pour, a continuous hydrophilic waterstop must be installed at all construction joints, per the project specification / architect design drawings.

Install GCP waterstop such as Adcor 500T and SwellSeal Mastic WA per the GCP standard detail drawings and their PDSs.

Ensure the correct grade of Adcor 500T is installed, appropriate for the local ground water conditions:

- Adcor 500T – for fresh ground waters & salt or brackish ground waters

Install waterstop to ensure a minimum 75mm concrete cover for Adcor 500T, and minimum 100mm for SWELLSEAL Mastic WA.

Waterstop must be installed continuously along a joint, in such a way to prevent water by-passing the waterstop and entering the structure.

Where concrete surfaces are smooth, install Adcor 500T waterstop with mechanical pin fixing at regular intervals to ensure waterstop cannot be displaced by other trades or during concrete placement.

Where concrete surfaces are rough or scabbled, install Adcor 500T waterstop into a 5-10mm bead of SWELLSEAL Mastic WA applied to the concrete. Then mechanically pin fix the Adcor 500T to the concrete at regular intervals to ensure waterstop cannot be displaced by other trades or during concrete placement.

SWELLSEAL Mastic WA does not remove the requirement for mechanical pinning of Adcor500T waterstop.

**Expansion Joints**

Where present, consult GCP/allnex for specific expansion joint requirements.

**Corners**

Internal and external corners should be formed as shown in the diagrams, returning the membrane a minimum of 100mm and sealing with Preprufe Tape.

Ensure that the apex of the corner is covered and sealed with tape and roll firmly.

Crease and fold the membrane to ensure a close fit to the substrate profile and avoid hollows.

Examples of the folding processes follow.

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**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 other contaminants and allow the membrane to dry.

Repair small punctures and slices 12 mm or less by applying PREPRUFE Tape centered over the damaged area.

Repair punctures and holes larger than 12mm by applying a patch of PREPRUFE Membrane. Extend the patch 150 mm beyond the damaged area.

Seal all edges of the patch with PREPRUFE Tape.

Where exposed selvedge’s has lost adhesion or laps have not been sealed, ensure the area is clean and dry and cover with fresh PREPRUFE Tape.

Any areas of damaged adhesive should be covered with PREPRUFE Tape.

All PREPRUFE Tape must be rolled firmly and the tinted release liner removed.

Slices or relief cuts can be butted or overlapped and repaired by applying PREPRUFE Tape centered over the edge of

the overlap or centre of the butt joint. Where it is not possible to create a butt joint or overlap, repair with fresh

membrane and PREPRUFE Tape as detailed above.

**Rebar Chairs**: See PREPRUFE Technical Letter #15 Rebar Chairs on PREPRUFE Membranes.

PREPRUFE 160R Plus membrane should not be used in horizontal applications.

**INSPECTION**

Prior to release of membraned area to other trades, carryout the following examinations to confirm correct membrane installation. Record examination results, proving correct membrane installation, by ITP entry and full photographic documentation.

 1) All membrane has been applied to correctly engineered blinding or formwork.

 2) All membrane has been installed with plain surface to blinding/formwork and adhesive surface facing the concrete pour.

 3) All selvedge’s have been overlapped by the correct amount and aligned with the selvedge’s guide marks printed on the Preprufe® 300R Plus.

 4) All selvedge’s overlaps are fully sealed, without wrinkles or fish-mouths and have been pressure rolled.

 5) Using hook ended engineer’s scribe or similar, gently run the hook end along all selvedge’s laps to ensure laps are gap free. Where gaps are identified, pressure roll the gap and retest.

 Where gaps remain after additional pressure rolling, fully seal by application of Preprufe® Tape to the lap, extending a minimum 150mm either side of the gap. Pressure roll the Preprufe® Tape to the lap and retest for gaps.

 6) All end laps and cut edge laps have been sealed using Preprufe® Tape and have been pressure rolled.

 Using hook ended engineer’s scribe, flat blade screw driver or similar, gently run the hook end along all taped end laps and cut edges ensure laps are gap free. Where gaps are identified, pressure roll the gap and retest.

 Where gaps remain after additional pressure rolling, fully seal by application of Preprufe® Tape to the lap, extending a minimum 150mm either side of the gap. Pressure roll the Preprufe® Tape to the lap and retest for gaps.

 7) All corners are formed correctly and cut edges sealed using Preprufe® Tape and have been pressure rolled. Corner folds have been well creased and cleanly folded.

 8) All fastener penetrations have been sealed using 100 x 100mm patches of Preprufe® Tape and the patches have been pressure rolled and are gap free.

 9) All penetrations (piles, pipes etc) are detailed and sealed using Preprufe® Tape and Bituthene® LM.

 10) All Bituthene® LM applications are cured, non-tacky and of required dimensions detailed in this document and GCP detail drawings.

 11) Construction joint locations have been confirmed by the main contractor and have been detailed with Preprufe® CJ Tape and correct hydrophilic waterstop.

 12) All hydrophilic waterstop have been mechanically fixed to smooth concrete joint surfaces at regular intervals to ensure waterstop cannot be displaced by other trades or during concrete placement; or where installed to scabbled concrete surfaces, the waterstop has been bedded into a bead of SwellSeal Mastic WA and mechanically fixed at regular intervals to ensure waterstop cannot be displaced by other trades or during concrete placement. The SwellSeal Mastic WA must fill the rough surface under the hydrophilic waterstop.

 13) All release film has been removed from all membrane selvedge’s, Preprufe® Tape and Preprufe® CJ Tape.

 14) Surface of Preprufe® is largely clean, free of all ponded water, concrete splashes dirt or other contaminants.

 If all examination parameters above are met, the area may be released for reinforcing installation etc.

**REINFORCING INSTALLATION**

Prior to commencement of steel fixing, a toolbox meeting between main contractor, steel fixer and waterproofing applicator should occur. During this meeting, the steel fixer is to understand and acknowledge:

 1) Care to be taken during steel fixing to prevent membrane damage

 2) Correct placement of reinforcing to ensure correct concrete cover over membrane is achieved

 3) Removal of reinforcement off-cuts, tie wire waste etc. during reinforcing installation

 4) Use of correct reinforcing chairs to prevent membrane damage. Concrete cube reinforcing supports are recommended rather than bar chairs, to prevent membrane damage. Wire type chairs must not be used.

After reinforcing installation is complete, make a final examination to identify membrane damage or contamination that may have been sustained by other trades. Any damage or contamination identified must be rectified prior to concrete placement.

In addition, immediately prior to concrete placement, ensure the membrane surface is free from standing water.

**CONCRETE PLACEMENT**

Concrete placement shall occur within 56 days of membrane installation (42 days in hot climates).

Prior to commencement of concrete placement, a toolbox meeting between main contractor, concreter and waterproofing applicator should occur. During this meeting, the concreter is to understand and acknowledge:

 1) Concrete placement may occur over a damp Preprufe surface. However, standing water must be removed fully.

 2) Concrete mix water is not to be added to assist concrete placement. Addition of mix water changes the concrete mix design and may lead to excessive concrete cracking, excessive concrete shrinkage, excessive construction joint movement or affect concrete adhesion to Preprufe. The concreter/main contractor will be responsible for rectifications resulting from unauthorised mix water or other concrete additions that lead to water ingress.

 3) Concrete must be placed and compacted carefully, ensuring negligible voids or honeycombs. Excessive vibratory compaction resulting in segregation within the concrete must be prevented.

 4) Sharp ended vibrators or other objects must not be used to consolidate concrete, as these may damage the membrane.

 5) After concrete placement, removable formwork must remain in place until the concrete has gained sufficient compressive strength to develop the bond to Preprufe. Concrete must develop a minimum 20MPa compressive strength prior to stripping formwork. This typically requires 3 days cure time at ambient temperatures above 21°C, 7 days in cold weather conditions, or 14 days below 4°C. Premature stripping may result in displacement or debonding of the membrane and/or spalling of the concrete.

 6) Formwork must be removed with care. Small head nails retaining the Preprufe to the formwork should pull through the membrane and remain in the formwork, without tearing the membrane.

**REMOVAL OF FORMWORK**

A minimum concrete compressive strength of 3000 psi (20 N/mm ) is required prior to stripping formwork supportingPREPRUFE 300R Plus Membranes.

Premature stripping may result in displacement of the membrane and/orspalling of the concrete.

see PREPRUFE Technical Letter #17 Removal of Formwork Placed against PREPRUFE300R Plus Membranes

**MEMBRANE PROTECTION**

Membrane that will remain exposed to the elements or receive backfill (i.e. slab perimeter edges) must receive protection.

Install allnex NPX sheet against the membrane and fix to the clean membrane surface using Bitustik Tape Super.

Terminate the top membrane edge using Bituthene LM 3000 as a 100mm x 2.5mm application centred over the termination edge.

Retain and seal the termination edge.

Following protection installation and all inspections, membrane may be backfilled against.

**BACKFILLING OPERATIONS**

Backfilling must be carried out with care. Backfill shall be free of sharp materials that could puncture membrane and membrane protection during filling or compaction operations.

The back filling process shall be monitored to prevent membrane damage or displacement of membrane protection. Any damage or displacement that occurs must be reported and corrected by the waterproofing contractor prior to continuing with fill operations.

**APPLICATION RECORDS**

The waterproofing applicator shall maintain records for future reference, including a photographic record of each stage of application.

The application manager should produce a standard form indicating the records required, which can be used and completed by the applicators.

**SPECIFCATION CLAUSES**

PREPRUFE 300R 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 allnex construction products and applied strictly in accordance with their instructions.

Specimen performance and formatted clauses are also available.

**NOTE:** Use PREPRUFE Tape to tie-in GCP’s Bituthene LM 3000 with PREPRUFE product.

**INFORMATION REQUIRED FOR CODE COMPLIANCE**

Provide the following compliance documentation: -

* Applicators approval certificate from allnex construction products
* Manufacturer's, importer's or distributors warranty
* Installer's / applicator's warranty
* Producer Statement - PS3 Construction from the applicator / installer
* Other information required by the BCA in the Building Consent Approval documents.

*Construction (PS3) required from installers that are required as a condition of carrying out this work.*

*Construction Review (PS4) required from consultants to be engaged by the Contractor.*

*Design (PS1), may be required where certain design work is undertaken by the Contractor.*

**Physical Properties**

|  |  |  |  |
| --- | --- | --- | --- |
| Property | PREPRUFE 300R Plus | PREPRUFE 160R Plus | Test Method |
| Colour | white | white  |  |
| Thickness | 1.2 mm |  0.8 mm | ASTM D3767 |
| Lateral Water Migration Resistance | Pass at 71 m of hydrostatic headpressure | Pass at 71 m of hydrostatic headpressure | ASTM D53851 |
| Low temperature flexibility | Unaffected at -29°C | Unaffected at -29°C | ASTM D1970 |
| Resistance to hydrostatic head | 71 m | 71 m | ASTM D53852 |
| Tensile strength  | 27.6 Mpa | 27.6 Mpa | ASTM D4123 |
| Elongation Film | 400% | 400% | ASTM D412 |
| Crack cycling at -9.4°F (-23°C), 100 cycles | Unaffected, Pass | Unaffected, Pass | ASTM C8364 |
| Puncture resistance | 890 N | 445 N | ASTM E154 |
| Peel adhesion to concrete | 880 N/m | 880 N/m | ASTM D9035 |
| Lap peel adhesion | 1408 N/m | 1408 N/m | ASTM D18766 |
| Permeance to water vapor transmission | <0.01 perms (0.6 ng/(Pa x s x m2 )) | <0.01 perms (0.6 ng/(Pa x s x m2 )) | ASTM E96, method B |
| VOC permeance | Not DetectableMembrane, Seam | Not DetectableMembrane, Seam | ASTM F 739Open loop |
| Methane permeance | <40 ml/day.m .atm |  | ASTM D 1434 |
| Radon diffusion coefficient, m2/s | 3.7 X 10-12Membrane, Seam | 5.3 X 10-12Membrane, Seam | Method C of ISO/TS11665-1 |
|  |  |  |  |

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 0.125 in. (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 2 in. (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 2 in. (50 mm) per minute at room temperature.

6. The test is conducted 15 minutes after the lap is formed and run at a rate of 2 in. (50 mm) per minute at 72°F (22°C).

**SUPPLY**

|  |  |  |
| --- | --- | --- |
| Dimensions (Nominal) | PREPRUFE 300R Plus | PREPRUFE 160R Plus |
| Roll size Note#1 | 1.17m x 31.15m (36.4 m ) | 1.17m x 36.6m (42.8 m ) |
| Roll weight |  49 kg | 42 kg |
| Minimum side/end laps | 75 mm | 75 mm |
| Note: when calculating coverage account for the Minimum side/end lapsNote#1 Individual roll length may vary +/-1% |

 The following documents can be specifically referred to

|  |  |
| --- | --- |
| [NZBCE2](http://www.masterspec.co.nz/redirect.aspx?pl=347)/AS1 | External moisture |
| [*NZBC B2*](http://www.masterspec.co.nz/redirect.aspx?pl=223)*/AS1* | Durability |
| [BRANZ Appraisal](http://www.masterspec.co.nz/redirect.aspx?pl=2141)  | 805 |
| BRANZ Good Practice Guide: | Concrete Floors and Basements |
| Allnex Construction Products | Preprufe Installation Manual |
| Allnex Construction Products Technical Data Sheets | [www.allnexconstruction.com](http://www.allnexconstruction.com/) |
| GCP Technical Data sheets | www.gcp.com |

This advice is given in good faith, for further advice or information do not hesitate to contact the allnex technical team.

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