

PREPRUFE[®] 300R Plus & 160R Plus

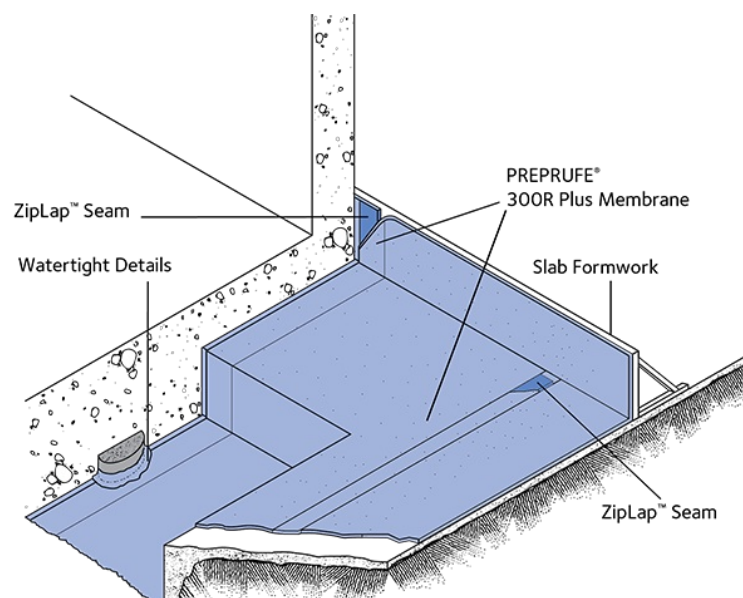
Pre-applied waterproofing membranes that bond integrally to poured concrete for use below slabs or behind basement walls on confined sites



Product Description

GCP Applied Technologies ("GCP") 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 dual adhesive ZipLap[™] seams, PREPRUFE[®] Plus membranes form 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 & 160R Plus membranes 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 specialised equipment, heat or power.



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

Advantages

- The unique continuous adhesive bond to concrete poured against it is specifically designed to prevent water migration and prevent the membrane from being affected by ground settlement beneath slabs
- Designed with fully adhered adhesive to adhesive watertight ZipLap[™] seams for easy executing and detailing
- Provides a barrier to water, moisture and gas physically isolating the structure from the surrounding substrate
- Easy roll/kick out installation reduces installation time and cost

- Release liner free, expedites installation and reduces construction site waste
- White solar reflective surface results in 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
- Can be trafficked on immediately after application and ready for immediate placing of steel reinforcement
- Installed membrane is unaffected by wet jobsite conditions – Does not activate prematurely
- Inherently waterproof as supplied. Passive non-reactive waterproofing system does not require water activation
- Waterproofing is not reliant on confining pressures or hydration. Membrane unaffected by freeze/thaw, wet/dry cycling
- Chemical resistance – protects structure from salt or sulphate attack and is effective in most types of soils and waters
- Resistant to methane and radon gasses. Specific independent laboratory test data available on request

System Components

Membrane

- PREPRUFE® 300R Plus membrane — heavy-duty 46mil (1.2mm) grade membrane designed for horizontal and vertical use. Designed for use below slabs and on rafts (i.e. mud slabs) and for vertical blindside¹ applications. Designed to accept the placing of heavy reinforcement using conventional concrete spacers
- PREPRUFE® 160R Plus membrane — standard 32mil (0.8mm) grade membrane designed for vertical use in blindside¹, zero property line applications against soil retention systems. PREPRUFE® 160R Plus membrane is for vertical use only

Note 1: System where membrane is placed directly against soil retention system from where the hydrostatic head pressure will originate. Single sided concrete form is then placed and concrete is then poured against membrane (between the single sided form and the membrane.)

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Ancillary Components (refer to the most current Data Sheets for all system components available on gcpat.com)

- PREPRUFE® Tape LT – low temperature tape for covering cut edges, roll ends, penetrations and detailing in cold weather
- PREPRUFE® Tape HC – high temperature tape for covering cut edges, roll ends, penetrations and detailing at elevated temperatures
- PREPRUFE® CJ Tape LT — low temperature joint tape for construction joints, and detailing in cold weather
- PREPRUFE® CJ Tape HC — high temperature joint tape for construction joints, and detailing in hot weather
- BITUTHENE® Liquid Membrane (LM) — for sealing around penetrations, etc.
- SWELLSEAL®/ ADCOR®/ SERWISEAL®/ SERVITITE® waterstops for joints in concrete walls and floors

- PREPRUFE® Tieback Covers — preformed cover for soil retention wall tieback heads
- PREPRUFE® 300R Plus LT Plus and 160R Plus LT – membranes are equal alternate membranes with reduced taping requirements for use at low temperatures; see gcpat.com
- RE-INJECTO™ LB – Re-injectable injection hose for non-moving concrete construction joints and penetrations

Limitations of Use

- Approved uses only include those uses specifically detailed in this Product Data Sheet and other current Product Data Sheets that can be found at gcpat.com
- PREPRUFE® 300R Plus & 160R Plus membranes are not intended for any other use. Contact GCP Technical Services where any other use is anticipated or intended. Alternate approved uses must be made in writing
- PREPRUFE® 300R Plus & 160R Plus membranes are designed for in-service temperatures below 49°C
- PREPRUFE® 160R Plus membrane is not for use in horizontal applications
- PREPRUFE® 300R Plus & 160R Plus membranes are not designed to be used with conventional two-sided formwork (See PREPRUFE® Technical Letter TL-0013 (AP) Forming Systems For Use with PREPRUFE® Membranes)
- PREPRUFE® 160R Plus membrane is not for use in the Middle East

Safety and Handling

Users must read and understand the product label and Safety Data Sheet (SDS) for each system component. All users should acquaint themselves with this information prior to working with the products and follow the precautionary statements. SDSs can be obtained by contacting your local GCP representative or office and in some cases from our web site at gcpat.com.

Storage

- Use on a first in first out basis
- Store in dry conditions off ground under tarps or otherwise protected from rain and ground moisture
- All product must be stored in accordance with PREPRUFE® Technical Letter TL-0030 (AP) 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 or from your local GCP Representative. For complete application instructions, please refer to the current GCP Applied Technologies Contractor Handbook and Literature on (www.gcpat.com) or as supplied by your local GCP representative. 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, Contractor Manuals, Technical Bulletins, Detail Drawings and detailing recommendations. Please review all materials prior to installation of PREPRUFE® 300R Plus & 160R Plus membranes. Where documents are not available on the GCP website contact your local GCP representative for support.

Support is also available on all matters by full-time technically trained GCP Applied Technologies field sales representatives and technical service personnel, backed by a central research and development technical services staff. For technical assistance with detailing and problem solving please contact your local in country GCP representative.

Temperature Requirements

- PREPRUFE® 160R plus and 300R Plus membranes can be applied at temperatures of -4°C or above. When installing PREPRUFE® Plus membranes in cold or marginal weather conditions $<13^{\circ}\text{C}$ the use of PREPRUFE® Tape LT is required at all laps and detailing. All surfaces to receive PREPRUFE® Tape LT must be clean and dry before application. LT Tape release liner must be removed immediately after application
- As an alternate, where temperatures are between -4°C and 15.5°C PREPRUFE® 160R Plus (LT) and 300R Plus (LT) Low Temperature Membranes can be used without taping of laps. Refer to the PREPRUFE® LT Membrane data sheet for more information on cold weather application contact your local GCP representative
- PREPRUFE® 300R Plus & 160R Plus membranes are designed for in-service temperatures below 49°C

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 0.5 in. (12 mm). Grout around all penetrations such as utility conduits, etc. for stability.

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.

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. HYDRODUCT® 200 or 220 or Rapid-Drain™ drainage sheet can be used to bridge voids, gaps and out of alignment up to 50mm prior to PREPRUFE® membrane installation.

Membrane Application

PREPRUFE® 300R Plus and 160R Plus membranes have green and blue coloured ZipStrips™ at the top and bottom of the seam area on the edge of the roll. Both ZipStrips™ cover the aggressive ZipLap™ adhesive. Once the green and blue ZipStrips™, a strong adhesive to adhesive ZipStrips™ 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.

Horizontal substrates – (PREPRUFE®300R Plus membrane only)

(PREPRUFE®160R Plus Membrane is for vertical use only)

PREPRUFE® 300R Plus membrane can be applied in horizontal applications to smooth prepared concrete, carton forms or well rolled and compacted earth or crushed stone substrate. Kick out or roll out the membrane HDPE film side to the substrate with the green ZipStrip™, facing towards the concrete pour. End laps must be staggered to avoid a buildup of layers. Leave green and blue ZipStrips™, on the membrane until overlap procedure is completed. When completed remove green and blue ZipStrips™ to form the ZipLap™ to bond the two sheets of membrane together. When installing over carton forms, contact your local GCP representative.

Accurately position succeeding sheets to overlap the previous sheet 75 mm along the marked selvedge with the blue ZipStrip™, on top of the green ZipStrip™. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Peel back and remove both the green and blue ZipStrips™, 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.

- 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 PROCOR® or SILCOR® fluid-applied membrane, or INTEGRITANK® membrane to all vertical structural surfaces after removal of formwork
- PREPRUFE® 160R Plus membrane may not be used in horizontal applications

Vertical substrates –

PREPRUFE® 300R Plus & 160R Plus membranes can be applied vertically to permanent formwork or adjoining structures. Mechanically fasten the membrane vertically using fasteners appropriate for the substrate with the green ZipStrip™, facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening should be made through the selvedge within 12mm of the leading edge of the membrane 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 ZipStrip™, on top of the green ZipStrip™.

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

Note that PREPRUFE® 300R & 160R membranes must not be used with conventional two-sided formwork. (See PREPRUFE® Technical Letter TL-0013 (AP) 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 LT* (or HC** in hot climates) centered over the lap edges and roll firmly. Immediately remove tinted plastic release liner from the tape.

*LT denotes Low Temperature (between -4 °C and +30 °C)

**HC denotes Hot Climates (> +10 °C)

Membrane Repair

Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by low pressure 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 centred over the damaged area. Repair punctures and holes larger than 12mm by applying a patch of the appropriate PREPRUFE® membrane. Extend the patch 150 mm beyond the damaged area. Seal all edges of the patch with PREPRUFE® Tape. Where exposed selvage 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 membrane must 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 centred 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.

Pouring of Concrete

Prior to placing concrete ensure the plastic release liner is removed from all PREPRUFE® tape (note that PREPRUFE® 300R Plus and 160R Plus membranes are release liner free.) The PREPRUFE® membrane surface must be free of contaminants, dirt and debris and all standing water prior to placement of the concrete.

It is required that concrete be poured within 56 days (42 days in hot climates) of placement of the membrane. Where ambient temperatures will exceed 38°C for more than a total of 7 days, concrete should be placed within 42 days of installation of the membrane. Following proper American Concrete Institute guidelines or respective national concrete standards for placement of concrete, 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 splash over for areas of the PREPRUFE® membrane that are adjacent to the concrete pour.

It is also important that concrete mix is designed, placed and compacted properly to ensure no segregation or excessive bleeding. This is critical for achieving desired bonding between concrete and PREPRUFE® R Plus membranes, especially for membranes installed on vertical surfaces. Extra precautions are needed for concrete with slump values higher than 130mm as it is prone to have segregation and bleeding issues especially at lower ambient temperatures.

Removal of Formwork

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

After removal of the formwork and prior to backfilling, all exposed PREPRUFE® membrane must be protected from damage with an approved protective course.

Supply

DIMENSIONS (NOMINAL)	PREPRUFE® 300R PLUS MEMBRANE	PREPRUFE® 160R PLUS MEMBRANE
Roll size Note #1	1.17m x 31.15m	1.17m x 36.6m
Roll weight	49 kg	42 kg
Overlap Allowance: when calculating coverage account for the Minimum side/end laps)	75 mm	75 mm

Note#1 Individual roll length may vary +/-1%

Ancillary Products

The most current supply information for ancillary products can be found at the local sites within gcpat.com.

Physical Properties (ASTM Test Data-Typical values and EN 13967 Declared values)

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 head pressure	Pass at 71 m of hydrostatic head pressure	ASTM D5385 ¹
Long Term Lateral Water Migration Resistance, After 3 Years Water Immersion	Pass at 71 m of hydrostatic head pressure	Pass at 71 m of hydrostatic head pressure	ASTM D5385 ¹
Low temperature flexibility	Unaffected at -29°C	Unaffected at -29°C	ASTM D1970
Resistance to hydrostatic head	71 m	71 m	ASTM D5385 ²
Elongation	500%	500%	ASTM D412 ³
Tensile strength, film	27.6 MPa	27.6 MPa	ASTM D412
Crack cycling at -9.4°F (-23°C), 100 cycles	Unaffected, Pass	Unaffected, Pass	ASTM C836 ⁴
Puncture resistance	1000 N	445 N	ASTM E154
Peel adhesion to concrete	1750 N/m	1750 N/m	ASTM D903 ⁵
Peel adhesion to concrete, After 3 years of water immersion	1750N/m	1750N/m	ASTM D 903 ⁵ (After 3 years of water immersion)
Lap peel adhesion	1750 N/m	1750 N/m	ASTM D1876 ⁶
Permeance to water vapour 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
Resistance to impact (Al board(mm)-MLV)	≥400	≥250	EN 12691

Durability of water tightness against ageing/degradation	Pass	Pass	EN 1296 EN 1928 Method B
Durability of water tightness against chemicals at 60kPa	Pass	Pass	EN 1847 Method B EN 1928 Method B
Compatibility with bitumen	Pass	Pass	EN 1548
Resistance to static loading	≥20 Pass	≥20 Pass	EN 12730

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. Test is performed by casting concrete against the membrane with detail prepared per GCP standard details.
3. Elongation of membrane is run at a rate of 50 mm per minute.
4. Concrete is poured against the active surface of the membrane and allowed to properly cure.
5. Concrete is cast against the PREPRUFE® membrane and allowed to cure (7 days minimum).
6. Concrete is cast against the protective coating surface of the membrane and allowed to properly cure (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 50 mm per minute at 22 °C. The test is conducted 15 minutes after the lap is formed and run at a rate of 50 mm per minute at 22 °C.

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