

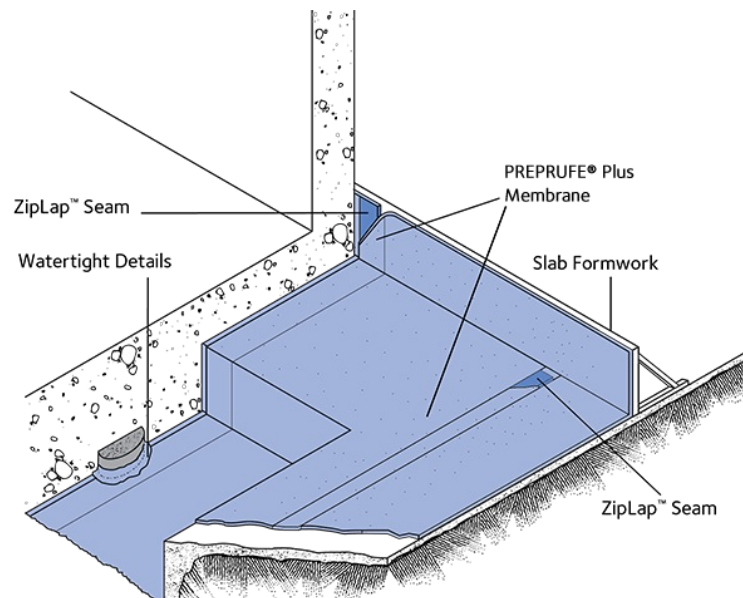
# PREPRUFE<sup>®</sup> Plus Membranes

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

## Product Description

GCP PREPRUFE<sup>®</sup> 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<sup>™</sup> and dual adhesive ZipLap<sup>™</sup> seams, PREPRUFE<sup>®</sup> 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<sup>®</sup> Plus membranes are release liner free and designed for efficient, reliable installation. PREPRUFE<sup>®</sup> Plus ZipLap<sup>™</sup> 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.



Drawings are for illustration purposes only.  
Please refer to [gcpat.com](http://gcpat.com) for specific application details.

## Advantages

- The unique continuous adhesive bond to concrete poured against it prevents water migration and makes it unaffected by ground settlement beneath slabs.
- Designed with fully adhered adhesive to adhesive watertight ZipLap<sup>™</sup> seams and easy to execute 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.
- 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  
Membrane is unaffected by wet jobsite conditions – cannot 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
- PREPRUFE® Plus Membrane unaffected by freeze/thaw, wet/dry cycling
- Chemical resistance – designed to help protect structure from salt or sulphate attack effective in most types of soils and waters,
- Gas resistance – PREPRUFE® Plus Membranes will restrict the ingress of Methane, Radon, Benzene, Toluene, Gasoline & other VOCs Trichloroethylene & Tetrachloroethylene (TCE/PCE) into buildings from landfill and naturally occurring sources and satisfy the performance criteria for a gas-resistant membrane.

## System Components:

### Membrane

- PREPRUFE® 300R Plus/300R Plus LT— 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® 160R Plus/160R Plus LT — 32mil grade membrane designed for vertical use in blindside, zero property line applications against soil retention systems.

### Ancillary Components (refer to the most current Data Sheets for all system components available on [gcpat.com](http://gcpat.com))

- PREPRUFE® Tape – 4 in. wide tape for covering cut edges, roll ends, penetrations and detailing
- PREPRUFE® CJ Tape – 8 in. wide tape for detailing, and may be used at construction joints for optional additional protection
- BITUTHENE® Liquid Membrane - for sealing around penetrations, etc.
- ADCOR® - hydrophilic waterstop for joints in concrete walls and floors
- PREPRUFE® Tieback Covers - preformed cover for soil retention wall tieback heads
- De Neef® INJECTO® Tube groutable Waterstop 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](http://gcpat.com)
- PREPRUFE® Plus Membranes are not intended for any other use. Contact GCP Technical Services where any other use is anticipated or intended.
- PREPRUFE® Plus Membranes are designed for in-service temperatures below 120°F(49°C).
- PREPRUFE® 160R Plus/160R Plus LT membrane should not be used in horizontal applications.
- PREPRUFE® Plus Membranes should not be used with conventional two-sided formwork.  
(See PREPRUFE® Technical Letter # 13 Forming Systems For Use with PREPRUFE® Membranes)

*Special Note: When this information is printed from the [gcpat.com](http://gcpat.com) global website, a footer appearing on this document will restrict its applicability to the United States. Note that the information and references in this document are hereby expanded and apply to North, Central and South America.*

## 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. Carefully read detailed precaution statements on the product labels and SDS's before use. The most current SDS's can be obtained from the GCP web site at [gcpat.com](http://gcpat.com).

## Storage

- Observe 1 year shelf life and use on a first in first out basis
- Store in dry conditions between 40 °F (4.5 °C)–90 °F (32 °C)
- Store off ground under tarps or otherwise protected from rain and ground moisture
- 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](http://gcpat.com). For complete application instructions, please refer to the current Literature on ([www.gcpat.com](http://www.gcpat.com)). Documents in hardcopy as well as information found on websites other than [www.gcpat.com](http://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](http://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® Plus membranes.

Support is also available by full-time technically trained GCP 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 representative. A GCP Representative locator is available at [www.gcpat.com](http://www.gcpat.com).

### Temperature Requirements

- PREPRUFE® 160R plus LT and PREPRUFE® 300R Plus LT membrane can be applied between temperature 25°F to 95°F. Please use PREPRUFE® 300R Plus & PREPRUFE® 160R Plus membranes for application above 95°F.
- PREPRUFE® Tape LT and PREPRUFE® CJ Tape LT can be applied between temperature 25°F to 95°F. Please use PREPRUFE® Tape HC and PREPRUFE® CJ Tape HC for application above 95°F.

### 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 over 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 0.5 in. (12 mm) out of alignment. HYDRODUCT® 220 drainage sheet can be used to bridge voids, gaps and out of alignment up to 2 in. (50mm) prior to PREPRUFE® Plus Membrane installation.

## Membrane Application

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 green 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.

Horizontal substrates – (PREPRUFE® 300R Plus/ PREPRUFE® 300R Plus LT membrane only) – PREPRUFE® 300R Plus & PREPRUFE® 300R Plus LT 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 zip strip facing towards the concrete pour. End laps should be staggered to avoid a build-up of layers. Leave green and blue zip strips on the membrane until overlap procedure is completed. When completed remove release liner. When installing over carton forms, contact your local GCP representative.

Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge with the blue zip strip on top of the green 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 green 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.

- PREPRUFE® 300R Plus/300R Plus LT 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 or PROCOR® fluid-applied 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.
- Rebar Chairs: See PREPRUFE® Technical Letter #15 Rebar Chairs on PREPRUFE® Membranes.
- PREPRUFE® 160R Plus & 160R Plus LT membrane may not be used in horizontal applications.

Vertical substrates – PREPRUFE® 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 zip strip facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvedge within 0.5 in. (50 mm) from the leading edge of the membrane using a small low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps. Accurately position each succeeding sheet to overlap the previous sheet 3 in. (75 mm) along the marked selvedge with the blue zip strip on top of the green 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 green 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.

Note that PREPRUFE® 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 3 in. (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.

## 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 0.5 in. (12 mm) or less by applying PREPRUFE® Tape centered over the damaged area. Repair punctures and holes larger than 0.5 in. (12mm) by applying a patch of PREPRUFE® Membrane. Extend the patch 6 in. (150 mm) beyond the damaged area. Seal all edges of the patch 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. 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 center 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

Ensure the plastic release liner is removed from all PREPRUFE® Tapes.

Under most climatic conditions concrete should be poured within 56 days of membrane installation. Where ambient temperatures will exceed 100°F (38°C) for more than a total of 7 days, concrete should be placed within 42 days of installation of the membrane. Concrete must be placed and compacted carefully to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

## Removal of Formwork

A minimum concrete compressive strength of 3000 psi (20 N/mm<sup>2</sup>) is required prior to stripping formwork supporting PREPRUFE® Plus Membranes. Premature stripping may result in displacement of the membrane and/or spalling of the concrete. (see PREPRUFE® Technical Letter #17 Removal of Formwork Placed against PREPRUFE® Plus Membranes).

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

## Supply

| Dimensions (Nominal)  | PREPRUFE® 300R Plus<br>PREPRUFE® 300R Plus LT  | PREPRUFE® 160R Plus<br>PREPRUFE® 160R Plus LT   |
|---|--|---|
| Roll size Note#1  | 3 ft. 10 in. X 102 ft. (392 ft <sup>2</sup> )<br>1.17m x 31.15m (36.4 m <sup>2</sup> ) | 3 ft. 10 in. X 120 ft. (460 ft <sup>2</sup> )<br>1.17m x 36.6m (42.8 m <sup>2</sup> ) |
| Roll weight   | 108 lbs (49 kg)  | 92 lbs (42 kg)  |
| Minimum side/end laps   | 3 in. (75 mm)  | 3 in. (75 mm)   |
| Note: when calculating coverage account for the Minimum side/end laps |  |   |
| Note#1 Individual roll length may vary +/- 1%                         |  |   |

## Physical Properties

| Property  | PREPRUFE® 300R Plus<br>PREPRUFE® 300R Plus LT      | PREPRUFE® 160R Plus<br>PREPRUFE® 160R Plus LT      | Test Method               |
|---|--|--|---------------------------|
| Color   | white  | white  |                           |
| Thickness                                       | 0.046 in. (1.2 mm)                                 | 0.032 in. (0.8 mm)                                 | ASTM D3767                |
| Lateral Water Migration Resistance              | Pass at 231 ft (71 m) of hydrostatic head pressure | Pass at 231 ft (71 m) of hydrostatic head pressure | ASTM D5385 <sup>1</sup>   |
| Low temperature flexibility                     | Unaffected at -20°F (-29°C)                        | Unaffected at -20°F (-29°C)                        | ASTM D1970                |
| Resistance to hydrostatic head                  | 231 ft (71 m)                                      | 231 ft (71 m)                                      | ASTM D5385 <sup>2</sup>   |
| Elongation                                      | 400%   | 400%   | ASTM D412 <sup>3</sup>    |
| Tensile strength, film                          | 4000 psi (27.6 Mpa)                                | 4000 psi (27.6 Mpa)                                | ASTM D412                 |
| Crack cycling at -9.4°F (-23°C), 100 cycles     | Unaffected, Pass                                   | Unaffected, Pass                                   | ASTM C836 <sup>4</sup>    |
| Puncture resistance                             | 200 lbs (890 N)                                    | 100 lbs (445 N)                                    | ASTM E154                 |
| Peel adhesion to concrete                       | 5 lbs/in. (880 N/m)                                | 5 lbs/in. (880 N/m)                                | ASTM D903 <sup>5</sup>    |
| Lap peel adhesion                               | 8 lbs/in. (1408 N/m)                               | 8 lbs/in. (1408 N/m)                               | ASTM D1876 <sup>6</sup>   |
| Permeance to water vapor transmission           | <0.01 perms (0.6 ng/(Pa x s x m <sup>2</sup> ))    | <0.01 perms (0.6 ng/(Pa x s x m <sup>2</sup> ))    | ASTM E96, method B        |
| VOC permeance                                   | Not Detectable<br>Membrane, Seam                   | Not Detectable<br>Membrane, Seam                   | ASTM F 739<br>Open loop   |
| Methane permeance                               | <40 ml/day.m <sup>2</sup> .atm                     | -  | ASTM D 1434               |
| Radon diffusion coefficient , m <sup>2</sup> /s | 3.7 X 10 <sup>-12</sup><br>Membrane, Seam          | 5.3 X 10 <sup>-12</sup><br>Membrane, 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<sup>®</sup> 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<sup>®</sup> 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).

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