

# PREPRUFE® FLEX

Pre-applied waterproofing membrane for shotcrete foundation walls.

## Description

Preprufe® FLEX is a composite sheet comprised of robust highly flexible backing, an aggressive pressure sensitive adhesive and a weather resistant protective coating using GCP's unique Advanced Bond Technology.

The **Preprufe FLEX** system includes:

- **Preprufe® FLEX**—Waterproofing membrane for vertical use against soil retention systems. Intended for shotcrete construction.
- **Preprufe® Tape**—for covering cut edges, roll ends, penetrations and detailing. LT grade intended for use between 25F (-4C) and 86F (+30C). HC grade available for use above 50F (10C).
- **Preprufe® CJ Tape**—self-adhesive 8 in. (200 mm) wide strip applied to the surface of the membrane along the line of all concrete joints. LT grade intended for use between 25F (-4C) and 86F (+30C). HC grade available for 50F (10C) and above.
- **Bituthene® Liquid Membrane**—for sealing around penetrations, etc.

Preprufe FLEX is to be applied vertically to permanent formwork or adjoining structures. Shotcrete is then cast directly against the adhesive side of the membrane.

Preprufe FLEX is not intended for use in horizontal applications or with cast-in-place concrete.

## Product Advantages

- Flexible membrane withstands shotcrete application
- Fast and easy installation
- Helps to avoid project delays
- Excellent gas and vapor barrier
- Inherently waterproof, non-reactive system
- Chemical resistant

## Advantages

- **Prevents lateral water migration**—GCP's Advanced Bond Technology™ forms a continuous, adhesive and integral seal to concrete.
- **Fast and easy installation**—primerless adhesive laps
- **Excellent gas and vapor barrier**—protects the structure from the harmful effects of moisture
- **Inherently waterproof, non-reactive system**—
  - Cannot activate prematurely or be washed away
  - Not reliant on confining pressures or hydration
  - Unaffected by freeze/thaw, wet/dry cycling
  - Protects against salt, sulfate and a wide range of contaminants
- **Self protecting**—ready for immediate placement of reinforcing steel and the application of shotcrete without costly protective layers.

## Applications

Preprufe FLEX is intended for intermittent water conditions. Applications include construction such as garages, plant rooms and utility grade basements.

For critical projects utilizing shotcrete as the primary concrete placement method (i.e. occupied space and sensitive environments), GCP recommends the use of Preprufe SCS - the only pre-applied grout based waterproofing system designed specifically for the waterproofing shotcrete in critical and elevated hydrostatic head pressure conditions. See separate data sheets.

## Limitations

Preprufe FLEX membrane is not recommended for cast-in-place construction or use with conventional twin-sided formwork on walls, etc.

## Use

Preprufe FLEX is supplied in rolls 4 ft (1.2 m) wide, interwound with a disposable plastic release liner which must be removed before placing reinforcement and concrete.

## 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. 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 0.5 in. (12 mm) out of alignment.

## Membrane Installation

Preprufe FLEX membrane can be applied at temperatures of 50F (10C) and above. Below 50F (10C) all laps should be secured with Preprufe Tape LT. Preprufe FLEX membrane is suitable for application down to 25F (-4C).

**Vertical substrates**—Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the clear plastic release liner facing towards the concrete pour. The membrane may be installed in any convenient length. Fastening can be made through the selvedge using a small and low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps.

Immediately remove the plastic release liner. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap. Roll firmly to ensure a watertight seal.

**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 to dry and apply Preprufe® Tape LT (or HC in hot climates) centered over the lap edges and roll firmly. Immediately remove the tinted plastic release liner from the tape.

## Details

Detail drawings are available at [gcpat.com](http://gcpat.com)

## Membrane Repair

Inspect the membrane before installation of reinforcement steel, and the final placement of concrete. The membrane can be easily cleaned by power washing with water if required. Repair damage by wiping the area with a damp cloth to ensure that the area is clean and free from dust, allow to dry. Repair small punctures (0.5 in. (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 FLEX membrane, which extends 6 in. (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 the selvedge has been exposed or laps have not been sealed, ensure that the area is clean and dry and cover with Preprufe Tape. All Preprufe Tape must be rolled firmly and the tinted release liner removed.

## Pouring of Concrete

**Ensure the plastic release liner is removed from all areas of Preprufe FLEX membrane and Preprufe Tape.**

It is recommended that shotcrete be placed within 40 days (30 days in hot climates) of application 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.

## Supply

Dimensions (Nominal)	Preprufe FLEX Membrane	Preprufe CJ Tape (LT or HC*)	Preprufe Tape (LT or HC*)
Roll size	4 ft x 115 ft (1.2 m x 35 m)	8 in. x 49 ft (200 mm x 15 m)	4 in. x 49 ft (100 mm x 15 m)
Roll area	460 ft <sup>2</sup> (42 m <sup>2</sup> )		
Roll weight	92 lbs (42 kg)	8.6 lbs (4 kg)	4.3 lbs (2 kg)
Minimum side/end laps	3 in. (75 mm)	3 in. (75 mm)	3 in. (75 mm)

\* LT denotes Low Temperature (between 25°F and 86°F), HC denotes Hot Climate (>50°F)

### Ancillary Products

Bituthene Liquid Membrane (LM)

## Physical Properties

Property	Typical Value	Test Method
Color	White	
Film thickness (nominal)	0.020 in. (0.5 mm)	ASTM D3767—method A
Low temperature flexibility	Unaffected at -10°F (-23°C)	ASTM D1970
Lateral water migration	Pass at 180 ft (55 m) of hydrostatic head pressure	ASTM D5385, modified <sup>1</sup>
Elongation	600% min.	ASTM D412 modified <sup>2</sup>
Crack cycling at -10°F (-23°C)	Pass	ASTM C836 <sup>3</sup>
Tensile strength, film	2200 psi	ASTM D412
Peel adhesion to concrete	>5 lbs/in.	ASTM D903 modified <sup>4</sup>
Lap peel adhesion	>5 lbs/in.	ASTM D1876, modified <sup>5</sup>
Resistance to hydrostatic head	180 ft (55 m)	ASTM D5385 modified <sup>6</sup>
Puncture resistance	70 lbs	ASTM E154

### Footnotes:

- 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.
- Elongation of the membrane is assessed at a rate of 2 in. (50 mm) per minute.
- Concrete is cast against the Preprufe membrane.
- Concrete is cast against the protective coating surface of the Preprufe membrane and allowed to properly cure (7 days minimum). Peel adhesion of the membrane to concrete is measured at a rate of 2 in. (50 mm) per minute at room temperature.
- The test is conducted 15 minutes after the lap is formed (per GCP published recommendations) and assessed at a rate of 2 in. (50 mm) per minute at 72F (22C).
- Hydrostatic head tests of Preprufe Membranes are performed by casting concrete against the membrane with a lap. Before concrete cures, a 0.125 in. (3 mm) spacer bar 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 hydrostatic head pressure indicated.

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