

# PERM-A-BARRIER<sup>®</sup> VPL 50

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PERM-A-BARRIER<sup>®</sup>VPL 50 is a fluid applied, one component, STPE membrane that cures to form a resilient, monolithic, fully bonded elastomeric sheet when applied to construction surfaces.

PERM-A-BARRIER<sup>®</sup>VPL 50 membrane provides superior protection against the damaging effects of air and liquid water ingress on building structures. The product creates a solid barrier against air infiltration and exfiltration, which minimizes associated energy loss and condensation problems.

PERM-A-BARRIER<sup>®</sup>VPL 50 membrane is vapor permeable for wall assemblies requiring this “breathable” characteristic. As a vapor permeable membrane, it permits the transfusion of water vapor that may otherwise condense in the wall structure; but is impermeable to liquid water, which allows the material to act as a water drainage plain.

PERM-A-BARRIER<sup>®</sup>VPL 50 will not lose physical properties or wash off the wall when exposed to direct light rain. The Volatile Organic Compound (VOC) content of PERM-A-BARRIER<sup>®</sup>VPL 50 membrane is 48 g/L.

## Product Advantages

- Fire resistant - meets NFPA 285 as part of various wall assemblies with foam plastic insulation
- Phthalate and Halogen-free - safe and environmentally-friendly
- Air tight - protects against air passage and associated energy losses. Meets new ASTM E2357 standard
- Vapor permeable - prevents moisture from being trapped in the wall cavity by allowing walls the ability to dry
- Single component - fast and easy application
- Fully bonded - transmits wind loads directly to the substrate
- Seamless - continuous membrane integrity with no laps
- Damp surface tolerant - can be applied to damp-to-touch surfaces
- Strong adhesion to common construction substrates such as wood, block, concrete, OSB, gypsum sheathing and metal
- Compatible over several GCP PERM-A-BARRIER<sup>®</sup> Flashing Systems

## Principal Applications

Vapor permeable air barrier for new and remedial commercial and residential applications:

- Concrete block walls with brick veneer or pre-formed cladding panels.
- Steel or wood stud walls with exterior gypsum sheathing, brick veneer or pre-formed panels, plywood and OSB.

## System Components

- PERM-A-BARRIER<sup>®</sup> VPL 50 membrane - for vertical applications.
- S100 Sealant - one part neutral curing, ultra low modulus silicone sealant for detailing and joint treatments.
- PERM-A-BARRIER<sup>®</sup> Wall Flashing - heavy duty fully-adhered membrane for through-wall flashing detailing. Wall Flashing must be applied prior to the PERM-A-BARRIER<sup>®</sup> VPL 50 and terminated with a bead of S100 sealant.

- PERM-A-BARRIER® NPS Detail Membrane – primer-less flexible membrane for detail flashing areas. Must be applied prior to PERM-A-BARRIER® VPL 50.
- PERM-A-BARRIER® Detail Membrane – flexible, fully-adhered membrane for detail flashing areas. Must be applied prior to PERM-A-BARRIER® VPL 50 and terminated with a bead of S100.
- PERM-A-BARRIER® Aluminum Flashing – flexible, aluminum faced, fully-adhered membrane for detail flashing areas.
- PERM-A-BARRIER® Liquid Flashing, an STPE based liquid flashing system, fully compatible with PERM-A-BARRIER® VPL 50. Must be applied prior to PERM-A-BARRIER® VPL 50.

## Installation

### Safety

Refer to product label and SDS (Safety Data Sheet) 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 before use.

### Surface Preparation

All surfaces must be sound and free from spalled areas, loose aggregate, loose nails or screws, sharp protrusions or other matter that will hinder the adhesion or regularity of the membrane installation. The surface must also be free from frost, dirt, grease, oil or other contaminants. Clean loose dust and dirt from the surface by brushing or wiping with a clean, dry cloth. Apply primer/adhesive to gypsum board cut edges to reduce dust.

### Concrete and Other Monolithic Cementitious Surfaces

Surface irregularities greater than 1/4 in. (6 mm) across and/or 1/8 in. (3 mm) in depth should be pre-treated with S100 Sealant or repaired with a lean mortar mix or nonshrinking grout. Remove concrete form lines and any high spots greater than 1/8 in. (3 mm) in height to ensure uniform surface. On highly dusty or porous substrates it may be necessary to apply a scratch coat of PERM-A-BARRIER®VPL 50 membrane prior to applying at full thickness.

PERM-A-BARRIER®VPL 50 membrane may be applied to green (minimum 3 day cure time) concrete or over damp-to-touch surfaces. Remove any visible water prior to application.

### Concrete Masonry Units (CMU)

The CMU surface should be smooth and free from projections. Strike all mortar joints full and flush to the face of the concrete block. Fill all voids and holes, particularly at the mortar joints, with a lean mortar mix or nonshrinking grout. Alternatively, a parge coat (typically one part cement to three parts sand) may be used over the entire surface.

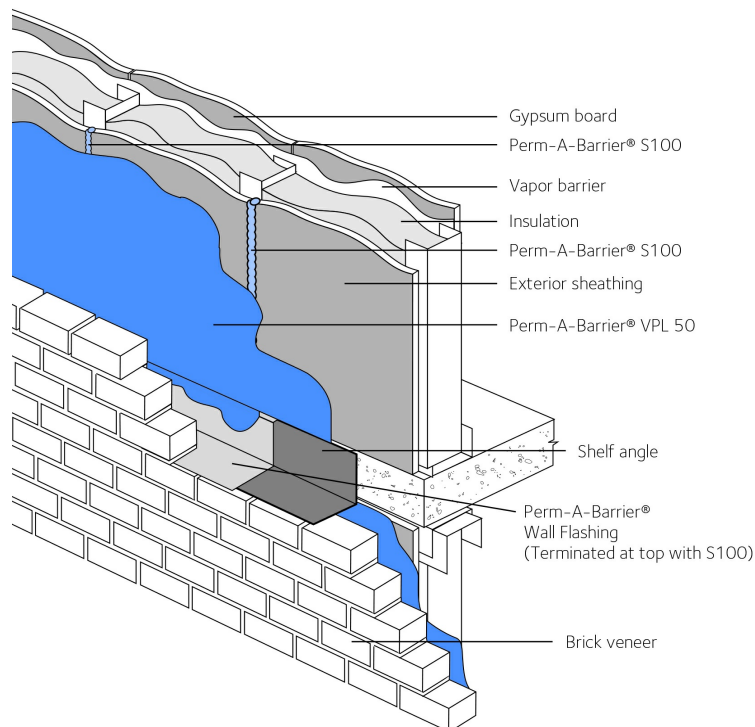
## Exterior Sheathing Panels

PERM-A-BARRIER®VPL 50 membrane may be applied directly to exterior sheathing panels such as exterior drywall, plywood and oriented strand board (OSB) and glass faced wall boards. To avoid deflection at the panel joints, fasten corners and edges with appropriate screws. Fasteners should be driven flush with the panel surface (not counter sunk) and into the framing system in accordance with the manufacturers' recommendations. Completely fill the sheathing joint with S100 Sealant and then install a scratch coat (approx. 15-30 mils) of S100 Sealant with a margin trowel or similar onto the face of the sheathing approximately 1 in. (25 mm) on each side of the sheathing joint. Once the sealant is tack free, the PERM-A-BARRIER®VPL 50 membrane may be applied.

## Detailing

Detailing should be completed prior to applying the full coverage of PERM-A-BARRIER®VPL 50 membrane. The field application should completely cover the detail areas to provide a continuous membrane. For a complete description and instructions on individual details, consult the separate detail sheets found on our web site.

Transitions to beams, columns, windows and doorframes, etc. should be made with a strip of PERM-A-BARRIER®NPS. PERM-A-BARRIER®Detail Membrane, PERM-A-BARRIER®Aluminum Flashing or PERM-A-BARRIER®Wall Flashing can also be used provided the edge is terminated with a bead of Perm-A-Barrier S100 sealant. Rubberized asphalt butyl and SIS Pressure sensitive adhesives cannot be applied to cured VPL 50. Liquid VPL 50 may be applied to the carrier sheet of these membranes. Tape products have to be applied before the VPL 50 membrane. Only PERM-A-BARRIER® Wall Flashing membrane can be used for through wall flashing applications or under masonry units.



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

A minimum 6 in. (150 mm) wide strip of PERM-A-BARRIER®NPS Detail Membrane, PERM-A-BARRIER®Aluminum Flashing or PERM-A-BARRIER®Wall Flashing product should be installed and centered over all outside corners ensuring that all horizontal laps shed water. Installation of the self-adhered flashing at corners should be installed prior to the PERM-A-BARRIER®VPL 50 LT application in accordance with the applicable data sheet and installation instructions. Avoid installing S100 Sealant under self-adhered flashing. Best practice would be to install corner flashing prior to detailing exterior sheathing joints with S100 Sealant. Any gaps around penetrations should be grouted solid or caulked with a polyurethane sealant prior to the PERM-A-BARRIER®VPL 50 membrane application. Refer to standard penetration details.

## Membrane Application

Perm-A-Barrier VPL 50 product can be installed by roller or brush. Multiple material passes may be necessary to ensure that the required wet thickness is achieved.

Contact GCP for further details of local applicators and application techniques.

## Application Temperature

PERM-A-BARRIER®VPL 50 membrane may be applied at temperatures as low as 25° F (-4° C). It is not recommended for use when cold and/or damp conditions exist for prolonged periods. This product is a water-based material. Avoid freezing.

## Thickness Control

Application thickness is controlled in vertical applications by marking the area and spot-checking the thickness with a wet film thickness gauge. Swipe marks on the surface of the PERM-A-BARRIER®VPL 50 product are acceptable as long as the minimum thickness of 20 wet mils is maintained.

## Coverage Rates

PERM-A-BARRIER®VPL 50 membrane is typically applied at a minimum thickness of 20 mils wet. The theoretical coverage rate (not including waste) at a thickness of 20 mils is approximately 80 ft<sup>2</sup>/gal to reach a 20 mil dry thickness.

Coverage may vary depending on application technique and may be reduced over rough and uneven substrates. The applicator goal should be a continuous membrane at a thickness of 20 mils wet; adjust coverage rate accordingly.

## Drying

PERM-A-BARRIER®VPL 50 membrane is dry to touch and can be overcoated within 4 hours under normal conditions (50% R.H, 68° F). The product cures through in 24 hours in normal conditions (50% R.H, 68° F). Drying and skinning times may vary depending on temperature, humidity and surface conditions.

### Application of Insulation and Finishes

PERM-A-BARRIER®VPL 50 membrane is not suitable for permanent exposure. Insulation boards may be installed after the product has fully cured. If the insulation or exterior finish cannot be applied within 9 months of the product application, some form of temporary protection (such as tarpaulins) should be used to protect the product from the effects of sunlight. Installation of insulation boards can be accomplished by using compatible mechanical fasteners or solvent free insulation adhesive.

### Cleaning

Tools and equipment are most effectively cleaned using mineral spirits and removing material as soon as possible to prevent curing on tools and equipment. For short shutdown periods, material can remain in power rolling lines and equipment. For long-term storage, thoroughly flush the entire system with mineral spirits. Good preventative maintenance will lengthen the life of the pumps.

### Storage and Handling

PERM-A-BARRIER®VPL 50 membrane should be stored under cover in original sealed containers above 25 °F (-4 °C) and below 80 °F (27 °C). The shelf life is 9 months in unopened containers. Store opened containers with plastic protective liner covering the material.

### Limitations

PERM-A-BARRIER®VPL 50 should not be used in areas where it will be permanently exposed to sunlight, weather or traffic. Maximum UV exposure period is 6 months. For indirect or intermittent UV exposure applications, refer to PERM-A-BARRIER®VPO.

PERM-A-BARRIER® can be applied at temperatures above 25 °F (-4 °C). Do not recommend applying in the rain, even a light rain. Do not apply in moderate or severe rain.

PERM-A-BARRIER®VPL 50 has a maximum in-service temperature of 180 ° F (82 °C).

### Supply

	UNIT OF SALE	APPROXIMATE COVERAGE	WEIGHT	PALLETIZATION
PERM-A-BARRIER®VPL 50 Membrane	1 pail	80 SF / gallon (400 SF per 5 gallon pail)	51 lbs/pail	32 pails per pallet
PERM-A-BARRIER®Detail Membrane				

6 in. (152 mm)	6 rolls	75 linear ft per roll	11 lbs/roll	25 cartons (150 rolls) per pallet
9 in. (225 mm)	4 rolls	75 linear ft per roll	16 lbs/roll	25 cartons (100 rolls) per pallet
12 in. (305 mm)	3 rolls	75 linear ft per roll	22 lbs/roll	25 cartons (75 rolls) per pallet

**PERM-A-BARRIER®NPS Detail**

**Membrane**

6 in. (152 mm)	12 rolls	109 linear ft per roll	7 lbs/roll	30 cartons (360 rolls) per pallet
9 in. (225 mm)	6 rolls	109 linear ft per roll	10 lbs/roll	30 cartons (180 rolls) per pallet
12 in. (305 mm)	6 rolls	109 linear ft per roll	13 lbs/roll	30 cartons (180 rolls) per pallet

**PERM-A-BARRIER®Aluminium**

**Flashing**

6 in. (152 mm)	12 rolls	50 linear ft per roll	6 lbs/roll	30 cartons (360 rolls) per pallet
9 in. (225 mm)	6 rolls	50 linear ft per roll	9 lbs/roll	30 cartons (180 rolls) per pallet
12 in. (305 mm)	6 rolls	50 linear ft per roll	12 lbs/roll	30 cartons (180 rolls) per pallet

**PERM-A-BARRIER®Wall**

**Flashing**

12 in. (305 mm)	3 rolls	75 linear ft per roll	11 lbs/roll	25 cartons (75 rolls) per pallet
18 in. (457 mm)	2 rolls	75 linear ft per roll	11 lbs/roll	25 cartons (50 rolls) per pallet
24 in. (610 mm)	1 roll	75 linear ft per roll	16 lbs/roll	25 cartons (25 rolls) per pallet
36 in. (914 mm)	1 roll	75 linear ft per roll	22 lbs/roll	25 cartons (25 rolls) per pallet

PERM-A-BARRIER®S100	1 cartridge	approx. 30 linear ft x 1/4 1/4	29 oz. cartridge	10 cartridges/ carton
Sealant		in. bead		42 cartons/ pallet

## Physical Properties

	PERM-A-BARRIER® VPL 50	TEST METHOD
Color	Light Green	
Solids content by volume	98.2%	
Drying time @ 50% R.H., 68 °F <sup>1</sup>	Complete cure in 24 hours Skin over in 2 hours	
Water resistance of in-place membrane	Pass at >15 psf	ASTM E331
Air permeance	<0.02 L/s·m <sup>2</sup> @ 75 Pa (<0.004 cfm/ft <sup>2</sup> @ 1.57 psf)	ASTM E2178
Assembly air permeance	<0.2 L/s·m <sup>2</sup> @ 75 Pa (<0.04 cfm/ft <sup>2</sup> @ 1.57 psf)	ASTM E2357
Water vapor transmission	>16 perms @ 20 mils	ASTM E96 - Method B
Pull adhesion to glass-mat faced gypsum sheathing <sup>2</sup>	>30 psi, facer failure	ASTM D4541
Pull adhesion to concrete	>125 psi	ASTM D4541
Tensile strength	>150 psi	ASTM D412—Die C
Elongation	>500%	ASTM D412—Die C
Nail sealability	Pass	ASTM D1970
Low temperature flexibility	Pass	ASTM D1970 for 1/16 inch crack at -20 °F (-29 °C)
Wall assembly fire test	Pass as part of various wall assemblies with foam plastic insulation	NFPA 285

Crack Bridging

Pass

ASTM C1305 for 1/16 inch crack  
at -15 °F (-26 °C)

## Footnote:

1. Drying and skinning times may vary depending on temperature, humidity and surface conditions.

2. Failure occurs when glass facing pulls away from gypsum core.

Finished and exposed surfaces should be protected from overspray. Perm-A-Barrier VPL 50 membrane should not be used in waterproofing applications in hydrostatic condition.

PERM-A-BARRIER<sup>®</sup> VPL 50 membrane is not compatible with petroleum solvents, fuels and oils, materials containing creosote, pentachlorophenol or linseed oil.

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