



## PERM-A-BARRIER® VP

Fluid applied vapor permeable air barrier membrane

### Description

Perm-A-Barrier® VP is a fluid applied, one component, acrylic membrane that cures to form a resilient, monolithic, fully bonded elastomeric sheet when applied to construction surfaces.

Perm-A-Barrier VP 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 VP is vapor permeable for wall assemblies requiring this “breathable” characteristic. As a vapor permeable

membrane, Perm-A-Barrier VP permits the transference 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.

The Volatile Organic Compound (VOC) content of Perm-A-Barrier VP is less than 20 g/L.

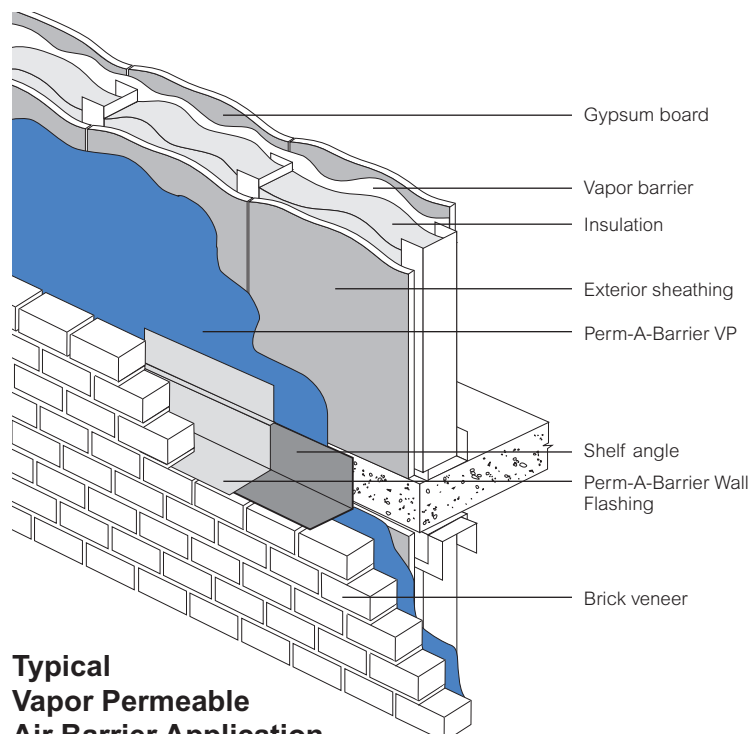
### Advantages

- **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 with simple spray equipment
- **Fully bonded**—transmits wind loads directly to the substrate



### Product Advantages

- Air tight
- Vapor permeable
- Single component
- Fully bonded
- Seamless
- Primerless
- Damp surface tolerant
- Versatile
- Low odor
- UV resistant
- Strong adhesion to common construction substrates such as wood, block, concrete, OSB, gypsum sheathing and metal
- Compatible with Grace Perm-A-Barrier Flashing Systems



### Typical Vapor Permeable Air Barrier Application

\*Consult Grace for climate specific details

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

- **Seamless**—continuous membrane integrity with no laps
- **Primerless**—applied directly to the substrate with minimal surface preparation
- **Damp surface tolerant**—can be applied to damp-to-touch surfaces
- **Versatile**—easy to use at details such as internal and external corners, brick ties, penetrations, etc.
- **Low odor**
- **UV resistant**—can be exposed to UV up to a maximum of 6 months
- **Strong adhesion** to common construction substrates such as wood, block, concrete, OSB, gypsum sheathing and metal
- **Compatible** with Grace Perm-A-Barrier 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 VP**—for vertical applications
- **Bituthene® Liquid Membrane**—for details and terminations
- **Perm-A-Barrier Wall Flashing**—heavy duty fully-adhered membrane for through-wall flashing detailing
- **Perm-A-Barrier Detail Membrane**—flexible, fully-adhered membrane for detail flashing areas
- **Perm-A-Barrier Aluminum Flashing** — flexible, aluminum faced, fully-adhered membrane for detail flashing areas

## Installation

### Safety

Refer to product label and Material 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 MSDS before use.

MSDSs can be obtained from our web site at [graceconstruction.com](http://graceconstruction.com) or by contacting us toll free at 866-333-3SBM (3726).

## 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.

## Concrete and Other Monolithic Cementitious Surfaces

Surface irregularities and large voids should be pre-treated with Bituthene Liquid Membrane or repaired with a lean mortar mix or nonshrinking grout. Remove any high spots to ensure uniform surface. On highly dusty or porous substrates it may be necessary to apply a scratch coat of Perm-A-Barrier VP prior to spraying to full thickness.

Perm-A-Barrier VP 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 VP may be applied directly to exterior sheathing panels such as exterior drywall, plywood and oriented strand board (OSB) and glass faced wall boards, for further information refer to Technical Letter 2, *Substrate Preparation for Application of Perm-A-Barrier Products to Glass-Mat Faced Gypsum Sheathing*. 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. Tape the sheathing board butt joints using either reinforced or mesh-style wallboard tape, min. 2 in. (50 mm) wide (i.e. FibaTape® brand products).

When using mesh-style wallboard tape, ensure that all holes in the tape are filled with Perm-A-Barrier VP. Gaps greater than ¼ in.

(6 mm) should be filled with a compatible sealant, allowing sufficient time for the sealant to fully cure before application of the tape and Perm-A-Barrier VP. Refer to Technical Letter # 13 for compatible sealants and caulks.

### **Detailing**

Detailing should be completed prior to applying the full coverage of Perm-A-Barrier VP. 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 at [graceconstruction.com](http://graceconstruction.com).

Transitions to beams, columns, window and doorframes, etc. should be made with a strip of Perm-A-Barrier Detail Membrane, Perm-A-Barrier Aluminum Flashing or Perm-A-Barrier Wall Flashing. Only Perm-A-Barrier Wall Flashing can be used for through wall flashing applications or under masonry units. Optimum adhesion will be achieved when the membrane or flashing is lapped onto the cured Perm-A-Barrier VP.

As soon as the Perm-A-Barrier VP is cured (approximately 24 hrs after application at 50% R.H, 68°F), it is ready to accept the tape.

Gaps around penetrations should be caulked with a compatible sealant. Consult Technical Letter 13, *Adhesion Compatibility of Perm-A-Barrier VP with Sealants and Caulks* or contact your Grace Construction Products representative.

### **Membrane Application**

Perm-A-Barrier VP can be installed through a spray application. Perm-A-Barrier VP may be applied by roller or brush, however spray application is the preferred method. If applying Perm-A-Barrier VP by roller or brush, multiple material passes may be necessary to ensure that the required wet thickness is achieved.

Contact Grace for further details of local applicators, application techniques and spray equipment.

**Application Temperature**—In spray applications, Perm-A-Barrier VP may be applied at temperatures as low as 40°F (4°C). Perm-A-Barrier VP is not recommended for use when cold and/or damp conditions exist for prolonged periods. Perm-A-Barrier VP is a water-based material. As with all water-

based materials, it is subject to freezing at temperatures below 32°F (0°C).

### **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 VP are acceptable as long as the minimum thickness is maintained.

### **Coverage Rates**

Perm-A-Barrier VP is typically applied at a minimum thickness of 90 mils wet. The theoretical coverage rate (not including waste) at a thickness of 90 mils is approximately 18 ft<sup>2</sup>/gal to reach a 45 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 90 mils wet, adjust coverage rate accordingly.

### **Drying**

Perm-A-Barrier VP is dry to touch and can be overcoated within 4 hours under normal conditions (50% R.H, 68°F). Perm-A-Barrier VP dries through in 24 hours at 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 VP is not suitable for permanent exposure. Insulation boards may be installed after Perm-A-Barrier VP has fully cured. If the insulation cannot be applied within 6 months of the Perm-A-Barrier VP 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 a damp cloth and removing material as soon as possible to prevent curing on tools and equipment. For short shutdown periods, material can remain in the lines and equipment. Material should not be left in the lines for any period of time if temperatures are expected to drop below 40°F (4°C). For long-term storage, thoroughly flush the entire system with water and then purge with Procor® Flushing Oil. Good preventative maintenance will lengthen the life of the pumps.

## Physical Properties

Property	Typical Value	Test Method
Air permeance at a test pressure of 0.3 in. water (75 Pa) on CMU block	<0.0004 cfm/ft <sup>2</sup> (<0.002 L/s/m <sup>2</sup> )	ASTM E2178
Assembly air permeance at test pressure of 1.57 psf (75 Pa) <sup>1</sup>	<0.0008 cfm/ft <sup>2</sup> (<0.004 L/s/m <sup>2</sup> )	ASTM E2357
Water vapor transmission	11.2 perms	ASTM E96—method B
Peel adhesion to concrete block (CMU)	20 lbs/in.	ASTM D903
Peel adhesion of Perm-A-Barrier Wall Flashing	3 lbs/in.	ASTM D903
Peel adhesion to glass faced wall board <sup>2</sup>	5 lbs/in.	ASTM D903
Pull adhesion to glass faced wall board <sup>2</sup>	50 psi	ASTM D4541
Pull adhesion to concrete	200 psi	ASTM D4541
Tensile strength	300 psi	ASTM D412—die C
Elongation	300%	ASTM D412—die C
Color	Green	
Solids content	50% (approx.)	
Density	8.6 lbs/gal	
Drying time @ 50% R.H. 68°F—initial set <sup>3</sup>	4 hours	
Drying time @ 50% R.H. 68°F	24 hours	
UV exposure limit	6 months	ASTM D412, ASTM E96—method B
Nail sealability	Pass	ASTM D1970
Low temperature flexibility and crack bridging -15°F (at -26°C)	Pass	ASTM C836

### Footnotes:

1. Results below detectable limits of laboratory equipment.
2. Failure occurs when glass facing pulls away from gypsum core.
3. Drying and skinning times may vary depending on temperature, humidity and surface conditions.

## Storage and Handling

Perm-A-Barrier VP is available in 55 gallon drums and 5 gallon pails. Perm-A-Barrier VP should be stored under cover in original sealed containers above 40°F (4°C) and below 100°F (38°C).

The shelf life is 9 months in unopened containers.

Store opened containers with plastic protective liner covering the material.

## Limitations

Perm-A-Barrier VP should not be used in areas where it will be permanently exposed to sunlight, weather or traffic.

Maximum UV exposure period is 6 months.

Do not apply Perm-A-Barrier VP in wet weather. Perm-A-Barrier VP should not be applied if rain or temperatures below 40°F (4°C) are expected within 24 hrs.

Perm-A-Barrier VP should be kept from freezing as it is subject to freezing at temperatures below 32°F (0°C).

Finished and exposed surfaces should be protected from overspray.

Perm-A-Barrier VP should not be used in waterproofing applications in hydrostatic condition.

Perm-A-Barrier VP is not compatible with petroleum solvents, fuels and oils, materials containing creosote, pentachlorophenol or linseed oil. Perm-A-Barrier VP has a maximum in-service temperature of 175°F (80°C).

[www.graceconstruction.com](http://www.graceconstruction.com)

**For technical assistance call toll free at 866-333-3SBM (3726)**

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