

PERM-A-BARRIER® NPL 10

Fluid-applied impermeable air and vapor barrier membrane

Description

Perma-A-Barrier NPL 10 is a fluid applied, one component, latex-based membrane that cures to form a resilient, monolithic, fully-bonded elastomeric sheet when applied to construction surfaces. Designed to satisfy the requirements of fire-rated assemblies, Perm-A-Barrier NPL 10 can be included in a wide variety of NFPA 285 compliant wall designs.

Perm-A-Barrier NPL 10 membrane is impermeable and provides superior protection against the damaging effects of air and water vapor ingress on building structures. The product creates a solid barrier against air and vapor infiltration and exfiltration which minimizes energy loss from the structure and associated moisture related issues. Also impermeable to liquid water, Perm-A-Barrier NPL 10 acts as a water drainage plane.

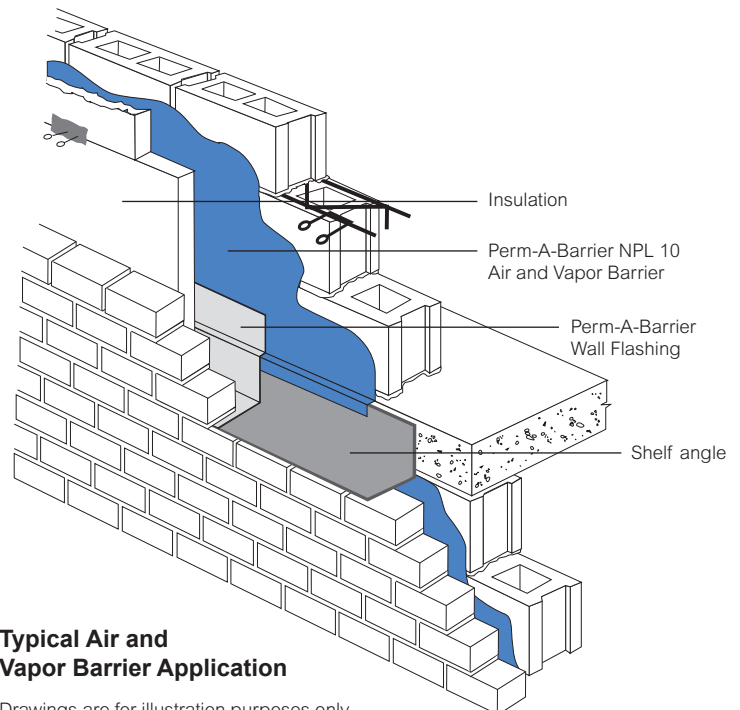
Advantages

- **Fire Resistant**—meets NFPA 285 as part of various wall assemblies

- **Plasticizer, Phthalate and Halogen-free**—safe and environmentally-friendly
- **Air tight**—protects against air passage and associated energy losses. Meets ASTM E2357 standard
- **Vapor impermeable**—protects against the passage of water vapor.
- **Single component**—fast and easy application with simple spray equipment
- **Fully bonded**—transmits wind loads directly to the substrate
- **Seamless**—continuous membrane with no laps
- **Strong adhesion** to common construction substrates such as block, concrete, gypsum sheathing and metal
- **Compatible** with Grace Perm-A-Barrier Flashing Systems

Product Advantages

- NFPA 285 compliant in various wall assemblies
- Single component for easy application
- Impermeable to air, liquid water and water vapor
- Fully bonded
- Seamless
- Strong adhesion to common construction substrates
- Compatible with Grace Perm-A-Barrier® Flashing Systems



Typical Air and Vapor Barrier Application

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

Principal Applications

Air and vapor barrier for new and remedial commercial applications:

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

System Components

- **Perm-A-Barrier NPL 10 membrane**—for vertical applications
- **Grace® S100 Sealant**—one part neutral curing, ultra low modulus silicone sealant for detailing and joint treatments.
- **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 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.

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 Bituthene Liquid Membrane 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 NPL 10 membrane prior to applying to full thickness.

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 NPL 10 membrane may be applied directly to exterior sheathing panels such as glass faced wall boards, exterior drywall, and CMU. 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 Grace S100 Sealant and then install a scratch coat (approx. 15-30 mils) of Grace 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, ensuring the edges are tapered to prevent shadowing of the spray application. Once the sealant is tack free, the Perm-A-Barrier NPL 10 membrane may be applied.

Detailing

Detailing should be completed prior to applying the full coverage of Perm-A-Barrier NPL 10 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 website at 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 NPL 10 membrane. As soon as the Perm-A-Barrier NPL 10 membrane is cured (approximately 24 hrs after application at 50% R.H, 68°F), it is ready to accept self-adhered membranes or flashings.

A minimum 6 in. (150 mm) wide strip of Perm-A-Barrier Detail Membrane, Perm-A-Barrier Aluminum Flashing or Perm-A-Barrier Wall Flashing should be installed and centered over all outside corners ensuring that all horizontal laps shed water. Self-adhered flashing at corners may be installed prior to the Perm-A-Barrier NPL 10 application in accordance with the applicable data sheet and installation instructions or after Perm-A-Barrier NPL 10 has dried. Avoid installing Grace S100 Sealant under self-adhered flashing. Best practice would be to install corner flashing

prior to detailing exterior sheathing joints with Grace S100 Sealant.

Any gaps around penetrations should be grouted solid or caulked with Bituthene Liquid Membrane or a polyurethane sealant prior to the Perm-A-Barrier NPL 10 membrane application. If applying Perm-A-Barrier NPL 10 prior to detailing penetrations, apply Perm-A-Barrier NPL 10 up to penetration and then detail with Grace S100 Sealant by filling any gaps and overlapping onto the Perm-A-Barrier NPL 10 and penetrant 2.5 in (64 mm). Refer to Grace standard penetration details.

Membrane Application

Perm-A-Barrier NPL 10 membrane can be installed through a spray application. The product may be applied by roller or brush, however spray application is the preferred method. If applying the membrane 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 NPL 10 membrane may be applied at temperatures as low as 40°F (4°C). It is not recommended for use when cold and/or damp conditions exist for prolonged periods. The product 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 NPL 10 membrane are acceptable as long as the minimum thickness is maintained.

Coverage Rates

Perm-A-Barrier NPL 10 membrane is typically applied at a minimum thickness of 70 mils wet. The theoretical coverage rate (not including waste) at a thickness of 70 mils is approximately 23 ft²/gal to reach a 40 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 70 mils wet, adjust coverage rate accordingly

Drying

Perm-A-Barrier NPL 10 membrane is dry to touch and can be overcoated within 4 hours under normal conditions (50% R.H, 68°F). The product 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 NPL 10 membrane is not suitable for permanent exposure. Insulation boards may be installed after the product has fully cured. If the insulation cannot be applied within 2 months of the membrane application (1 month in ASHRAE® climate zones 1 and 2), 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 with using a dish soap mix of 1 oz/per gallon water.(i.e. Dawn® Ultra-2x Active Suds). This method works before material is cured. Mineral Spirits can be used on cured material on tools to remove. Flush system before its used to remove the light oil which was left from factory testing. Perm-A-Barrier NPL 10 is a water based product, so soapy water mix to prime pump is best (1-2 gallons). For short shutdown periods, material can remain in equipment and delivery lines. Material should not be left in system for any period of time if temperatures are expected to drop below 40°F (4 C). Normal flushing of system use soapy mix until clear/clean mix is observed.

** Long-term storage, after system has been cleaned with soapy water mix several options can be used. Grace Flushing oil, Graco® - Pump Armor™, Titan™ LS-10 Liquid Shield™ Plus or Mineral Spirits can be pumped through system. Be sure to always pump soapy water mix prior to priming system with Perm-A-Barrier NPL 10.

Note: use proper Safety equipment required and follow all laws/rules of waste disposal materials.

Storage and Handling

Perm-A-Barrier NPL 10 membrane 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 NPL 10 membrane should not be used in areas where it will be permanently exposed to sunlight, weather or traffic.

Maximum UV exposure period is 2 months in typical conditions, 1 month in ASHRAE climate zones 1 and 2.

Do not apply Perm-A-Barrier NPL 10 membrane in wet weather. The product should not be applied if rain or temperatures below 40°F (4°C) are expected within 24 hrs. Perm-A-Barrier NPL 10 membrane should be kept from freezing as it is subject to freezing at temperatures

Physical Properties

Property	Typical Value	Test Method
Color	Grey	
Solids content by volume	53% (approx.)	
Approximate	9.6 lbs./gal	
Drying time @ 50% R.H. 68% ¹	4 hours tack free 24 hours fully dry	
Water Resistance	Pass	ASTM E331
Air permeance	<0.02 L/s·m ² @ 75 Pa (<0.004 cfm/ft ² @ 1.57 psf)	ASTM E2178
Assembly air permeance	<0.2 L/s·m ² @ 75 Pa (<0.04 cfm/ft ² @ 1.57 psf)	ASTM E2357
Water vapor transmission	<1 Perms <1 Perms	ASTM E96 - Method A ASTM E96 - Method B
Pull adhesion to glass-mat faced gypsum sheathing ²	20 psi	ASTM D4541
Pull adhesion to concrete	50 psi	ASTM D4541
Elongation	300%	ASTM D412—Die C
Nail sealability	Pass	ASTM D1970
Low temperature flexibility and crack bridging	Pass at -15°F (at-26°C)	ASTM C1305
Wall assembly fire test ³	Pass as part of various wall assemblies	NFPA 285

Footnotes:

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.
3. NFPA 285 requirements apply to the entire wall assembly and must consider all materials contained therein. Consult with your local sales representative or refer to the Perm-A-Barrier NFPA 285 Compliant Wall Assemblies guide at grace.com for project specific recommendations and compliance confirmation.

below 32°F (0°C). Finished and exposed surfaces should be protected from overspray.

Perm-A-Barrier NPL 10 should be installed over Grace S100 Sealant at exterior sheathing panel joints only.

Perm-A-Barrier NPL 10 membrane should not be used in waterproofing applications or in hydrostatic conditions. This product is not compatible with petroleum solvents, fuels and oils, materials containing creosote, pentachlorophenol or linseed oil.

www.graceconstruction.com

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

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This product may be covered by patents or patents pending.

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