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.
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 NPL10 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 skimming 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 tarps) 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Typical Value</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Grey</td>
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<tr>
<td>Solids content by volume</td>
<td>53% (approx.)</td>
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<tr>
<td>Approximate</td>
<td>9.6 lbs./gal</td>
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<tr>
<td>Drying time @ 50% R.H. 68%¹</td>
<td>4 hours tack free</td>
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<tr>
<td></td>
<td>24 hours fully dry</td>
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<tr>
<td>Water Resistance</td>
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<tr>
<td>Air permeance</td>
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<td>ASTM E2178</td>
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<tr>
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<td>(&lt;0.004 cfm/ft² @ 1.57 psf)</td>
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<td>Assembly air permeance</td>
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<td>ASTM E2357</td>
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<tr>
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<td>(&lt;0.04 cfm/ft² @ 1.57 psf)</td>
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<td>Water vapor transmission</td>
<td>&lt;1 Perms</td>
<td>ASTM E96 - Method A</td>
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<td></td>
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<td>ASTM E96 - Method B</td>
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<tr>
<td>Pull adhesion to glass-mat faced gypsum sheathing²</td>
<td>20 psi</td>
<td>ASTM D4541</td>
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<td>Pull adhesion to concrete</td>
<td>50 psi</td>
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<tr>
<td>Elongation</td>
<td>300%</td>
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<td>Nail sealability</td>
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<td>Low temperature flexibility and crack bridging</td>
<td>Pass at -15°F (at-26°C)</td>
<td>ASTM C1305</td>
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<td>Wall assembly fire test³</td>
<td>Pass as part of various wall assemblies</td>
<td>NFPA 285</td>
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</table>

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

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

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