Perm-A-Barrier® Liquid

Spray applied air and vapor barrier

Advantages

• Air tight – exceeds CCMC requirements for air barrier membranes and complies with Massachusetts State Energy Code
• Fully bonded – transmits wind loads directly to the substrate
• Elastomeric – accommodates minor structural movements and will bridge cracks
• Asphalt free formulation – does not become brittle with age and remains flexible to -30°C (-23°F)
• Chemical cure – no loss of volume; wet thickness is equal to dry thickness
• 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
• Low risk – non-hazardous product, no harmful solvents, safe to use
• Cold applied – eliminates fire hazards during application

Description

Perm-A-Barrier® Liquid is a two component, synthetic rubber, cold-vulcanized, fluid applied membrane. It cures to form a resilient, monolithic, fully bonded elastomeric sheet.

Perm-A-Barrier Liquid will protect above grade wall assemblies against the damaging effects of air, vapor and water ingress. Perm-A-Barrier Liquid also provides an effective barrier against air infiltration and exfiltration and associated energy loss and condensation problems.

The Volatile Organic Compound (VOC) content of Perm-A-Barrier Liquid is less than 75 g/L.
Principal Applications
New and remedial air and vapor barriers for commercial and residential applications:
- Concrete block walls with brick veneer or pre-formed cladding panels
- Steel or wood stud walls with exterior gypsum board, brick veneer or pre-formed panels

System Components
- Perm-A-Barrier Liquid – for horizontal and vertical applications
- Bituthene® Liquid Membrane – for details and terminations
- Perm-A-Barrier Wall Flashing – heavy duty peel and stick tapes for through-wall flashing details
- Grace V40 Tape – peel and stick tape for flashing around windows, doors, sills, etc.

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. MSDS's can be obtained from our web site at www.graceconstruction.com or by contacting us toll free at 866-333-3SBM (3726).

Application
Perm-A-Barrier Liquid is installed by airless spray application. Grace has a network of Specialist Spray Applicators who are trained and experienced in spray application. Contact Grace for further details of local applicators, application techniques and spray equipment.

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 should 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 voids greater than 13 mm (1⁄2 in.) in depth should be pre-treated with Bituthene Liquid Membrane or repaired with a lean mortar mix or non-shrinking grout. Remove high spots greater than 3 mm (1⁄8 in.) in height. On highly dusty or porous substrates it may be necessary to apply Procor® Concrete Sealer before applying the Perm-A-Barrier Liquid.

Perm-A-Barrier Liquid may be applied to green (minimum 3 day cure time) concrete or over damp-to-touch surfaces. Remove any visible water prior to application. In green concrete or damp substrate applications, direct sunlight may cause the surface temperature to rise rapidly, drawing moisture from the substrate and resulting in blisters and pinholes in the membrane. Under these conditions it may be necessary to apply Procor Concrete Sealer or a scratch coat of Perm-A-Barrier Liquid before applying the full thickness of the Perm-A-Barrier Liquid (Refer to Technical Letter #2).

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 non-shrinking grout. Alternatively, a parget coat (typically one part cement to three parts sand) may be used over the entire surface.

Exterior Sheathing Panels
Perm-A-Barrier Liquid may be applied directly to exterior sheathing panels such as exterior drywall, plywood and oriented strand board (OSB) and glass faced wall boards such as DensGlass Gold®. To avoid deflection at the panel joints, fasten corners and edges with appropriate screws. Tape the board butt joints with either 50 mm (2 in.) wide reinforced or mesh-style wallboard tape (i.e. FibaTape® brand products). Gaps greater than 6 mm (1⁄4 in.) should be filled with mastic or caulk, allowing sufficient time for the caulk to fully cure before application of the tape and Perm-A-Barrier Liquid.

Application Temperature

Spray Application: In spray applications using Perm-A-Barrier Liquid, it is possible to work at temperatures below 4°C (40°F) provided there is no frost or condensation on the substrate. The minimum temperature for spray application is -7°C (20°F). Contact your Grace Construction Products representative for details of cold weather spraying.

Detailing
Detailing should be completed prior to applying the full coverage of Perm-A-Barrier Liquid. The continuous field application should completely cover the detail areas to provide double thickness coverage. For a complete description and instructions on individual details, consult the separate detail sheets found on our web site at www.graceconstruction.com.

Transitions to beams, columns, window and door frames, etc. should be made with a strip of Grace V40 Tape or Perm-A-Barrier Wall Flashing. Optimum adhesion will be achieved when the tape is lapped onto the cured Perm-A-Barrier Liquid. As soon as the
Perm-A-Barrier Liquid is tack-free, it is ready to accept the tape. For further information, refer to Technical Letter #4 (Adhesion).

Gaps around penetrations should be caulked with a compatible sealant. Consult Technical Letter #3 (Adhesion Compatibility) or contact your Grace Construction Products representative.

**Thickness Control**
Application thickness is controlled in both horizontal and 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 Liquid are acceptable as long as the minimum thickness is maintained.

**Mixing and Spraying**

**CAUTION!**
Always install the entire contents of the container as soon as possible. The reaction that occurs between Part A and Part B is exothermic (gives off heat) and mixed material left in the pail will reach temperatures higher than 100°C (212°F).

Do not cover the material after it is mixed.

Do not add water or any other material to thin the product.

For Perm-A-Barrier Liquid, use qualified spray equipment systems. Mixing occurs within the spray gun assembly. Premix Part A prior to pumping to bring any settled material back into solution.

**Coverage Rates**
Perm-A-Barrier Liquid is typically applied at a minimum thickness of 1.5 mm (60 mils). The theoretical coverage rate (not including waste) at a 1.5 mm (60 mils) thickness is about 0.6 m²/L (25 ft²/gal).

Coverage rates will be reduced over rough and uneven substrates.

**Application of Insulation and Finishes**
Perm-A-Barrier Liquid is not suitable for permanent exposure and should be protected from the effects of sunlight as soon as possible after application. Insulation boards may be bonded to the Perm-A-Barrier Liquid by pressing them into place after the Perm-A-Barrier Liquid has set enough to hold their weight but is still tacky (generally between 30 minutes and 4 hours depending on temperature). Perm-A-Barrier Liquid has sufficient tack to hold the weight of the boards but insurance clips are recommended for long term attachment. If the insulation cannot be applied within 60 days of the Perm-A-Barrier Liquid application, some form of temporary protection (such as dark plastic sheet or tarpaulins) should be used to protect the product from the effects of sunlight.

**Cleaning**
Tools and equipment are most effectively cleaned by allowing the material to cure and simply peeling it off the next day. Procor Flushing Oil is available to clean spray equipment.

**Storage and Handling Information**
Perm-A-Barrier Liquid (Part A and Part B) should be stored under cover in original sealed containers above 4°C (40°F) and below 38°C (100°F). Keep Part B from freezing during storage. The shelf life is 9 months in unopened containers.

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

Maximum exposure period is 60 days.

Do not apply Perm-A-Barrier Liquid in wet weather. Once applied, the membranes will not be affected by light rain showers.

Perm-A-Barrier Liquid should not be used in negative-side waterproofing applications in hydrostatic condition.

Perm-A-Barrier Liquid is not compatible with petroleum solvents, fuels and oils, materials containing creosote, pentachlorophenol or linseed oil. Do not use part mixes.
### Supply

<table>
<thead>
<tr>
<th>Product</th>
<th>Unit of Sale</th>
<th>Approximate Coverage at 1.5 mm (60 mil)</th>
<th>Weight</th>
<th>Palletization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perm-A-Barrier Liquid</td>
<td>75 gallon kit</td>
<td>1875 ft²/kit</td>
<td>748 lbs/kit, net (573 lbs Part A &amp; 175 lbs Part B)</td>
<td>1 or 2 kits/pallet, for orders of 1 or 2 kits only</td>
</tr>
<tr>
<td>Bituthene Liquid Membrane</td>
<td>1.5 gallon (Part A &amp; Part B)</td>
<td>4 gallon (Part A &amp; Part B)</td>
<td>18 lbs/kit (8 kg) &amp; 44 lbs/kit (20 kg)</td>
<td>100 kits/pallet (100 pails Part A &amp; 100 pails Part B = 80 pails total)</td>
</tr>
</tbody>
</table>

**Perm-A-Barrier Wall Flashing**
- 305 mm (12 in.)
  - 3 rolls 75 linear ft per roll 25 lbs/roll 25 cartons (75 rolls) per pallet
- 457 mm (18 in.)
  - 2 rolls 75 linear ft per roll 37.5 lbs/roll 25 cartons (50 rolls) per pallet
- 610 mm (24 in.)
  - 1 roll 75 linear ft per roll 55 lbs/roll 35 cartons (35 rolls) per pallet
- 914 mm (36 in.)
  - 1 roll 75 linear ft per roll 75 lbs/roll 25 cartons (25 rolls) per pallet

**Grace V40 Tape**
- 152 mm (6 in.)
  - 6 rolls 75 linear ft per roll 11.7 lbs/roll 35 cartons (210 rolls) per pallet
- 229 mm (9 in.)
  - 4 rolls 75 linear ft per roll 17.5 lbs/roll 35 cartons (140 rolls) per pallet
- 305 mm (12 in.)
  - 3 rolls 75 linear ft per roll 23 lbs/roll 35 cartons (105 rolls) per pallet
- 457 mm (18 in.)
  - 2 rolls 75 linear ft per roll 35 lbs/roll 35 cartons (70 rolls) per pallet

### Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Typical Value</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air permeance at 75 Pa (0.3 in. water)</td>
<td>0.0006 L/s/m² (0.00012 cfm/ft²)</td>
<td>CCMC 07273</td>
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<tr>
<td>pressure difference</td>
<td></td>
<td>ASTM E283</td>
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<tr>
<td>Water vapor permeance</td>
<td>4.6 ng/Pa.s.m² (0.08 Perms)</td>
<td>ASTM E96 – Method B</td>
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<tr>
<td>Water vapor permeance after aging²</td>
<td>1.9 ng/Pa.s.m² (0.033 Perms)</td>
<td>CAN/CGSB-51.33-89</td>
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<tr>
<td>Pull adhesion to concrete block (CMU)</td>
<td>0.24 N/mm² (35 psi)</td>
<td>ASTM D4541</td>
</tr>
<tr>
<td>Pull adhesion to glass faced wall board</td>
<td>0.12 N/mm² (18 psi) (pulls board apart)</td>
<td>ASTM D4541</td>
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<tr>
<td>Peel adhesion to concrete</td>
<td>880 N/m (5 lbs/in.)</td>
<td>ASTM D903 Modified³</td>
</tr>
<tr>
<td>Elongation</td>
<td>500%</td>
<td>ASTM D413</td>
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<tr>
<td>Pliability, 180° bend over 25 mm (1 in.) mandrel at -30°C (-23°F)</td>
<td>Unaffected</td>
<td>ASTM D1970</td>
</tr>
<tr>
<td>Low temperature flexibility and crack bridging 3.2 mm (¼ in.) crack cycling at -26°C (-15°F)</td>
<td>Pass</td>
<td>ASTM C836</td>
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<tr>
<td>Extensibility over 6.4 mm (¼ in.) crack after heat aging</td>
<td>Pass</td>
<td>ASTM C836</td>
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<tr>
<td>Color</td>
<td>Green</td>
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<tr>
<td>Solids content</td>
<td>100%</td>
<td>ASTM D1644</td>
</tr>
</tbody>
</table>

**Footnote:**
1. Nominal coverage based on 25 ft²/gal for smooth substrate. Coverage will vary with substrate condition.
2. Aged for 2.5 cycles of 3 hours at 50°C (122°F), 3 hours in water at 21°C (70°F), 18 hours at -10°C (14°F)
3. Perm-A-Barrier Liquid is applied to concrete and allowed to cure. Peel adhesion of the membrane is measured at a rate of 50 mm (2 in.) per minute with a peel angle of 90°.

For Technical Assistance call toll free at 866-333-3SBM (3726).

Visit our web site at www.graceconstruction.com

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