

# UNDER-SLAB VAPOR RETARDER

## (CLASS A, B, AND C)

### PART 1 – GENERAL

#### 1.1 PRODUCT DESCRIPTION

##### BASIC USE:

VaporBlock<sup>a</sup> is a high performance underslab vapor retarder. VaporBlock cost-effectively controls moisture within a building's interior by preventing water vapor from permeating concrete. Made from state-of-the-art polyethylene resins, VaporBlock greatly reduces condensation and the potential for mold formation in a building's interior, helping to protect flooring and furnishings from moisture migration. VaporBlock is designed for use under concrete slabs, in crawl spaces and in foundation walls. VaporBlock installation helps ensure quality construction and energy savings in building projects.

Raven Industries, Inc., also manufactures the following seaming tape and pipe boot kits, which are available to ensure a thorough installation of VaporBlock vapor retarders:

1. VaporBond seaming tape
2. VaporBoot System

##### COMPOSITION & MATERIALS:

VaporBlock is a single-ply blue or blue/white membrane extruded from virgin-grade high impact polyolefin.

##### TYPES:

VaporBlock is available in nominal 10 and 15 mil (0.25 and 0.38 mm) thicknesses to meet a variety of project specifications. VaporBlock high performance vapor retarders are used in residential and commercial projects to impede moisture from entering the structure. VaporBlock 10 and 15 meets and exceeds Class A, B and C requirements under ASTM E1745.

##### SIZES:

VaporBlock 10 is packaged in 15' × 200' (4.6 × 61 m) rolls

VaporBlock 15 is packaged in 12' × 200' (3.7 × 61 m) rolls

Custom sizing is available.

COLORS: Blue or Blue/White are the standard color options for VaporBlock.

##### BENEFITS:

1. Very low moisture vapor permeability
2. Meets and exceeds ASTM E1745 requirements
3. Resists attack by organisms in the contacting soil
4. Greatly reduces damaging moisture migration through walls and under concrete slabs
5. Resists tearing and puncture during the installation phases

#### 1.2 TECHNICAL DATA

##### APPLICABLE STANDARDS:

American Concrete Institute (ACI) -

ACI 302.2R-06 Guide for Concrete Floor and Slab Construction

ASTM International

1. ASTM D1709 Standard Test Methods for Impact Resistance of Plastic Film by the Free- Falling Dart Method
2. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials
3. ASTM E154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover

4. ASTM E1745 Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs

#### APPROVALS:

Contact Raven Industries, Inc., for information about approvals by specific agencies and code bodies.

#### PHYSICAL PROPERTIES:

See Table 1.

### 1.3 INSTALLATION

#### PREPARATORY WORK:

VaporBlock is provided folded and rolled on heavy duty cores for ease of installation and handling. Installation instructions and ASTM E1745 classifications accompany each roll.

Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact. Store materials protected from exposure to ultraviolet light, excessive moisture, heat and sources of ignition. Verify that site conditions are acceptable and approved for installation. Do not proceed with installation until unacceptable conditions are corrected.

#### METHODS:

Instructions on architectural and structural drawings should be reviewed and followed. General installation instructions are detailed below or at [www.ravenefd.com](http://www.ravenefd.com).

Level and tamp or roll the granular base as specified by architectural or structural drawings. If sharp crushed rock is used, a 1/2" (12.7 mm) layer of fine grade compactable fill is required between the base and the vapor retarder.

Unroll the vapor retarder with the longest dimension parallel to the direction of the pour. Open all folds to full width. Overlap the vapor retarder 6" (152 mm) and seal with Vapor Bond tape or equivalent. In a typical floor slab below grade, lay the vapor retarder over the footing and terminate it at the vertical wall and footing corner. Seal with an adhesive-type water stop.

Repair any tears or punctures using a vapor retarder patch that overlaps the damaged area by 6" (152 mm) in all directions. Tape around the patch perimeter.

Seal all holes or openings in the vapor retarder, and seal around plumbing systems, conduit, support columns or any item that passes through the vapor retarder and floor slab. For sealing pipe penetrations, Raven's VaporBoot System includes tape and precut pipe boots. Pipe boots can also be fabricated from an 18" (457 mm) square of the vapor retarder and sealed using stretchable butyl adhesive tape with a split release liner. Cut a hole in the vapor retarder approximately 1/2" (12.7 mm) smaller than the outside diameter of the penetration and make 4 - 8 cuts 1/4" (6.4 mm) from the inside of the hole. Force the vapor retarder square over the penetration to form a tight-fitting lip. Fold the tape in half and remove 1/2 of the release liner. Wrap it around the pipe and allow 1" (25.4 mm) extra for over-lap sealing. Peel off the second half of the release liner and work the tape outward, gradually forming a complete seal.

Finish the boot installation by taping completely around the 18"

× 18" (457 × 457 mm) exterior edge of the boot with VaporBond tape.

Pipe boots can also be sealed to the pipe using an elastomeric sealant (polyurethane or butyl caulk) and spiral wrapping with seaming tape until a seal is achieved.

#### PRECAUTIONS:

Use only brick-type or chair-type reinforcing bar supports to protect the vapor retarder from puncture and avoid driving stakes through it. If this cannot be avoided, repair each individual hole.

To avoid penetrating VaporBlock when installing screed supports, utilize non-penetrating supports such as the Mako Screed Support System.

Use additional care if sharp crushed rock is used as a cushion or blotter layer between the vapor retarder and the slab. Washed rock will provide less chance of damage during placement. Protect the blotter layer from precipitation before concrete is placed.

When placing concrete on a vapor retarder in hot weather, use a wet curing blanket to prevent the concrete from shrinking, curling or cracking as a result of rapid drying.

#### BUILDING CODES:

Installation must comply with the requirements of all applicable local, state and federal code jurisdictions.

### 1.4 AVAILABILITY & COST

#### AVAILABILITY:

VaporBlock is available through reputable construction supply houses across the United States and Canada.

#### COST:

Cost information may be obtained from any qualified distributor. Contact the manufacturer for local distribution information.

### 1.5 WARRANTY

Consult Raven Industries, Inc. for detailed warranty information.

### 1.6 MAINTENANCE

No maintenance is required after installation.

### 1.7 TECHNICAL SERVICES

Technical assistance, including more detailed information, product literature, and test results are available by contacting Raven Industries, Inc.

TABLE 1 PHYSICAL PROPERTIES		
Product	VaporBlock 10	VaporBlock 15
Nominal Thickness	10 mil	15 mil
Weight	49 lbs/MSF	73 lbs/MSF
Classification (ASTM E 1745)	Class A, B, & C	Class A, B, & C
Tensile Strength, new material (ASTM E154)	52 lbs/in	60 lbs/in
Tensile Strength, after soaking (ASTM E 154)	53 lbs/in	61 lbs/in
Puncture Resistance (ASTM D 170)	2600 g	3000 g
Maximum Use Temperature	180° F	180° F
Minimum Use Temperature	-70° F	-70° F
Water Vapor Permeance (ASTM E 96, Procedure B)	0.0084 grain/hr•ft <sup>2</sup>	0.004 grain/hr•ft <sup>2</sup>

#### NOTE:

See manufacturers full-length VaporBlock® Installation Guidelines located at [www.ravenefd.com](http://www.ravenefd.com) for complete details.