

# UNDER-SLAB GAS BARRIER / VAPOR RETARDER

## (CLASS A)

### PART 1 – GENERAL

#### 1.1 SUMMARY

Products Supplied Under This Section

1. Gas Barrier / Vapor Retarder, Seam Tape, and Pipe Boots

#### 1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM E 1745 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil Or Granular Fill Under Concrete Slabs
2. ASTM E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs
3. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
4. ASTM E 1643 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs
5. ASTM D 1434 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting

B. Radon Diffusion Coefficient K124/02/95

C. American Concrete Institute (ACI)

1. ACI 302.1R-6 & 7 Section 3.2.3 Vapor Retarder

#### 1.3 SUBMITTALS

A. Testing/Specifications

1. Laboratory test results showing compliance with ASTM & ACI Standards.
2. Manufacturer's samples, literature.
3. Manufacturer's installation instructions for placement and seaming.

### PART 2 – PRODUCTS

#### 2.1 MATERIALS

A. Provide an EVOH Gas Barrier / Vapor Retarder that meets the following:

1. ASTM E-1745 Standard for Plastic Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs
  - a) Must meet all Class "A" criteria.
2. ASTM D 1434 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting
  - a) Methane Permeance:  
 $3.68E^{-12}$  m/s or 0.32 GTR mL/m<sup>2</sup>•day•atm
3. K124/02/95 Radon Diffusion Coefficient:  $< 1.1 \times 10^{-13}$  m<sup>2</sup>/s
  - a) VaporBlock® Plus™ 20 by Raven Industries: +1 (800) 635-3456

OTHER MANUFACTURERS ACCEPTED MEETING THE ABOVE SPECIFICATION:

- b) Perminator® EVOH by W.R. Meadows: +1 (800) 342-5976
- c) CETCO Liquid Boot Company: +1 (714) 384-0111

## 2.2 ACCESSORIES

### A. Seam Tape

1. VaporSeal™ Tape by Raven Industries, 800-635-3456 or other 4" and 12" wide gas barrier tape approved by the gas barrier / vapor retarder manufacturer.
2. VaporBoot Tape by Raven Industries, 800-635-3456 or other 2" wide stretchable butyl rubber tape.
3. Butyl Seal Tape by Raven Industries, 800-635-3456 or other 2" wide double-sided reinforced butyl rubber seaming tape.

### B. Pipe Boots

1. Raven VaporBoot Plus pipe boots or other manufacturer's supplied pipe boot system.

## PART 3 – EXECUTION

### 3.1 PREPARATION

#### A. Ensure that subsoil is approved by architect

1. Level and tamp or roll aggregate, sand or tamped earth base.

### 3.2 INSTALLATION

#### A. Install Gas Barrier / Vapor Retarder:

1. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643. (Instructions on architectural or structural drawings should be reviewed and followed.)
  - A. Unroll VaporBlock® Plus™ with the longest dimension parallel with the direction of the pour and pull open all folds to full width.
  - B. Lap VaporBlock® Plus™ over footings and seal to the vertical foundation walls with 2-Sided Raven Butyl Seal tape.
  - C. Overlap joints a minimum of 12 inches—it is optional to seal in-between overlap with 2-Sided Raven Butyl Seal tape—then center the Raven VaporSeal™ Tape or other 4" wide gas barrier tape approved by gas barrier / vapor retarder manufacturer over the seal overlap.
  - D. Seal around sewer pipes, support columns or any other penetration with Raven VaporBoot Plus pipe boots or at minimum a combination of VaporBlock® Plus™ and VaporSeal™ Tape or VaporBoot Tape, creating a monolithic membrane between the surface of the slab and moisture sources below as well as at the slab perimeter. Optional, Raven's POUR-N-SEAL™ can also be used to seal around difficult to reach penetrations.
  - E. When VaporBlock® Plus™ gas barrier is used as a part of an active control system for radon gas and other VOCs, a ventilation system will be required. When installed as a passive system it is still recommended to include a ventilation system that could be converted to an active system later.
  - F. Repair damaged areas by applying 12" wide VaporSeal™ tape directly over the center of the hole or tear and apply pressure to create a seal.

#### NOTE:

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