

# UNDER-SLAB GAS BARRIER / VAPOR RETARDER (Class A)

## PART 1 – GENERAL

### 1.1 SUMMARY

- A. 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 a 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:  
 $1.7 \times 10^{-10} \text{ m}^2/\text{d}\cdot\text{atm}$  or  $0.32 \text{ GTR ml}/\text{m}^2\cdot\text{D}\cdot\text{ATM}$
- 3. K124/02/95 Radon Diffusion Coefficient:  $< 1.1 \times 10^{-13} \text{ m}^2/\text{s}$ 
  - VaporBlock® Plus™ 20 by Raven Industries – 800-635-3456

*Other Manufacturer accepted meeting the above specification:*

- CETCO Liquid Boot Company - 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.