

## **Guide Specification** **VBC-350 (31mil) Composite Vapor Retarder**

UNDER-SLAB VAPOR RETARDER (033000&072600)

Version: January 1, 2024

### **PART I – GENERAL**

#### **1.1 SUMMARY**

##### **A. Products Supplied Under This Section**

1. Vapor Retarder, Tape & Accessories manufactured for installation under concrete slabs.

Vapor Retarder must have the following physical properties, qualities, and performance characteristics:

- a. Minimum thickness of 15 mils for plastic membrane.
- b. Manufactured in the USA; marketed and sold by a true manufacturer; (No Imported, Private Labeled, Outsourced, or Toll Manufactured products accepted)
- c. Products from ISO 9001 Certified Manufacturers.
- d. Products and accessories which are stocked, supplied and readily available as needed in project locale.
- e. At least 90% of slab area should be covered by vapor retarder with concrete peel adhesion. Regular vapor retarder without concrete peel adhesion and rely solely upon perimeter tape (with concrete peel adhesion) to tape perimeter areas will NOT be accepted.
- f. Manufacturer that will provide current independent third (3rd) party testing results; third (3rd) party testing to be provided by the manufacturer; and NOT a marketing, private label or out-sourcing entity. The ACTUAL manufacturer name and address must be identified to the requesting party.
- g. Must provide a "Certificate of Origin" upon request.

##### **B. Related Sections**

1. Section 033000 Cast-in-place Concrete
2. Section 072600 Vapor Retarder

#### **1.2 REFERENCES**

##### **A. American Society for Testing and Materials (ASTM)**

1. ASTM E 1745-17 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
2. ASTM E 154 / E 154M-08 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs.
3. ASTM E 96-16 Standard Test Methods for Water Vapor Transmission of Materials.
4. ASTM E 1643-18 Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
5. ASTM D 903-98 (2017) Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.
6. ASTM D 1434 Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting.
7. ASTM D 1894 Standard Test Method for Static and Kinetic Coefficients of Friction of Plastic Film and Sheeting.

##### **B. American Concrete Institute (ACI)**

1. ACI 302.2R-06 Vapor Retarder component (plastic membrane) is not less than 10 mils thick.

##### **C. Others**

1. K124/02/95 Method To Test Radon Diffusion Coefficient in Radon-Proof Membrane.



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### 1.3 SUBMITTALS

#### A. Quality Control / Assurance

1. Submit CURRENT Third Party Laboratory test results showing compliance with ASTM & ACI Standards.
2. Submit Manufacturers Product Samples & Literature.
3. Manufacturer's installation instructions for placement, seaming and pipe boot installation.
4. Products that DO NOT MEET ALL criteria in section (1.1 A -1.) will not be accepted.
5. Provide all letters, certificates and documentation required in section (1.1 A-1.) with submit-tals.

## PART II – PRODUCTS

### 2.1 MATERIALS

#### A. Vapor Retarder

Specifier Note: For greater concrete peel adhesion (Maximum peel strength more than 8 lbs/in) when required by Architect & Engineer (1.) such as, post tension concrete, fiber reinforced concrete applications, shifting soil or sub- grade settlement conditions; (2.) when critical floor finish is needed (such as colored, stained or polished concrete); (3.) under gym floors, mechanical room or computer room floors; (4.) when being utilized in Brown-field Development Projects – Barrier-Bac VBC-350 (Composite) Membrane may be more suitable

1. Manufactured with proprietary polyolefin resins Film thickness alone must be 15 mils or greater – reinforcing scrims or backing cannot be basis for minimum mil thickness.

a. Water Vapor Permeance	ASTM E 96	0.007 Perms
b. Water Vapor Retarder	ASTM E 1745	Meets Class A (Plastics)
c. Tensile Strength	ASTM D 882	83.75 lbs/in
d. Puncture Resistance	ASTM D 1709	3960 grams
e. Max Peel Adhesion to Concrete	ASTM D 903	8 lbs/in
f. Coefficients of Friction	ASTM D 1894	0.6
g. Methane Permeance	ASTM D 1434	90.59 cm <sup>3</sup> /(m <sup>2</sup> . Atm. Day)
h. Radon Diffusion Coefficient	K124/02/95	2.4 x 10 <sup>-11</sup> m <sup>2</sup> /S
i. Elmendorf Tear	ASTM D 1922	9,500 gram
j. Puncture-Propagation Tear	ASTM D 2582	20,000 gram

#### 2. Vapor Retarder Products

- a. Barrier-Bac VBC-350 by Intoplast Group – 877-535-0555 – [www.barrierbac.com](http://www.barrierbac.com)
- b. Underslab 2 by Polyguard Products – 800-541-4994 - [www.polyguardproducts.com](http://www.polyguardproducts.com)
- c. Precon 714-F by W.R.Meadows – 800-342-5976 – [www.na.graceconstruction.com](http://www.na.graceconstruction.com)

### 2.2 ACCESSORIES

#### A. Seam Options

1. White Bond Tape must have the following qualities

a. Water Vapor Permeance	ASTM E 96	0.1 Perms
b. Tensile Strength (lbs/in)	ASTM D 3759	23
c. Peel Adhesion (oz/in)	ASTM D 3330	85



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- d. Elongation to Break                      ASTM D 3759     75%
- e. Total Thickness                            7 mil

### 2. White Bond Tape

- a. Barrier-Bac White Bond Tape by Inteplast Group – 877-535-0555 - [www.barrierbac.com](http://www.barrierbac.com)
- b. In case project design specifications require or it is needed to use additional adhesive to secure Barrier-Bac White Bond Tape, we recommend using 3M™ Scotch-Weld™ HoldFast 70 Cylinder Spray Adhesive Clear to apply on the geo-textile surface overlap prior to tape application.

### B. Pipe Boots

- 1. Construct pipe boots from vapor barrier material & tape per manufacturer details.

### C. Multiple Penetrations (options based on specific jobsite conditions)

- 1. Construct pipe boots from Barrier-Bac membrane material & tape per manufacturer details.

## PART III – EXECUTION

### 3.1 PREPARATION

#### A. Ensure that base material is approved by Architect or Geotechnical firm

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

### 3.2 INSTALLATION

#### A. Install Vapor Retarder:

- 1. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643-18
  - a. Unroll Vapor Retarder w/ the longest dimension parallel with the direction of the pour.
  - b. Black Non-Woven geotextile fabric side facing up to contact the concrete pour to generate peel adhesion against concrete slab.
  - c. Lap Vapor Retarder over footings and seal to foundation walls.
  - d. Overlap joints 6 inches and seal with manufacturer's tape.
  - e. Seal all penetrations (including pipes) per manufacturer's instructions.
  - f. No penetration of the Vapor Retarder is allowed except for reinforcing steel and permanent utilities.
  - g. Repair damaged areas by cutting patches of Vapor Retarder, overlapping damaged area 6 inches and taping all four sides with tape.