



VERSION 18.1

"VAPOR RETARDERS"

DIVISION

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## 1 PRODUCT NAME

**PRODUCT NAME:** Viper® II 10-mil  
ASTM E 1745 "Class C" Under-Slab Vapor Retarder

## 2 MANUFACTURER

**ISI BUILDING PRODUCTS**  
401 Truck Haven Road, East Peoria Illinois 61611  
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## 3 PRODUCT DESCRIPTION

### 3.1 BASIC USE

Viper II 10-mil is a unique high strength polyolefin based under-slab vapor retarder specifically designed for preventing moisture migration through concrete slabs-on-grade. Viper II 10-mil reduces water vapor emission transfer and moisture migration from entering the building envelope on commercial, industrial and residential applications. Viper II 10-mil controls condensation, mold, mildew, degradation and prevents costly flooring failures and damage to moisture sensitive furnishings within a building's interior. Viper II 10-mil may be used to reduce radon and methane gas migration and is resistant to other adverse soil conditions.

### 3.2 COMPOSITION & MATERIALS

Viper II 10-mil is manufactured using the latest generation of prime virgin (non-recycled) polyolefin resin, constructed in a multi-layer plastic extrusion process and engineered with physical properties that maintain long term performance. The multi-layer extrusion process creates an excellent balance of high puncture and tensile strength while maintaining very low water vapor permeance characteristics. This product maintains (long term) high performance and will not biodegrade/decompose when exposed to various soil types and below slab conditions.

### 3.3 SIZE

Standard Size: 2,940 sq. ft. rolls (14' x 210')

### 3.4 WEIGHT

Each roll weighs approximately 140 lbs.

### 3.5 BENEFITS

- Manufactured using multi-layer extrusion technology from virgin polyolefin resin
- Maintains long term performance after exposure to adverse soil conditions
- Exceeds ASTM E 1745 "Class C" guidelines
- High puncture & tensile strength
- Greatly reduces moisture migration through slab-on-grade applications

## 4 TECHNICAL DATA

### 4.1 APPLICABLE STANDARDS

*American Society for Testing & Materials (ASTM)*  
*American Concrete Institute (ACI)*

**ASTM E 1745** Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs

**ASTM E 154** Standard Test Methods for Water Vapor Retarders used in Contact with Earth Under Concrete Slabs, on Walls or as Ground Cover

**ASTM D 1709** Standard Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method

**ASTM D 882** Standard Test Method for Tensile Properties of Thin Plastic Sheeting

**ASTM F 1249** Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor

**ASTM E 96** Standard Test Methods for Water Vapor Transmission of Materials

**ASTM E 1643** Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs

**ACI 302.2R-06** Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials

NOTE: All Viper II 10-mil testing is done by accredited, third-party testing agencies following stringent industry guidelines and testing standards.

### 4.2 ENVIRONMENTAL CONSIDERATIONS

Viper II 10-mil can aid in controlling soil gas and poisons such as methane, radon, sulfates and petroleum contaminated soil.

### 4.3 PHYSICAL PROPERTIES

Viper II 10-mil exceeds all ASTM E 1745 "Class C" requirements for under-slab vapor retarders.

## 5 INSTALLATION

### 5.1 SUB-GRADE PREPARATION

Level and tamp or roll granular base as specified by the architectural or structural drawings.

### 5.2 VAPOR BARRIER PLACEMENT

Unroll Viper II 10-mil with the longest dimension parallel with the direction of the pour. Unfold to full width.

Extend Viper II 10-mil over footings and seal to foundation wall, grade beam or slab at an elevation consistent with the top of the slab or terminate at impediments such as water stops or dowels. Use Viper Vapor Tape, Viper Double Bond Tape, Viper VaporPatch and/or VaporCheck Mastic at such terminations.

### 5.3 SEAMS AND PENETRATIONS

Seal around pipes, support columns or any other penetration with Viper VaporPatch, VaporCheck Mastic or at a minimum, a combination of Viper II 10-mil and Viper Vapor Tape. Doing so creates a monolithic membrane between the surface of the slab and moisture sources below.

Holes or openings through Viper II 10-mil should be effectively sealed with Viper Vapor Tape, Viper VaporPatch or VaporCheck Mastic to maintain the integrity of the vapor barrier. Overlap joints a minimum of six inches. Seal overlap together with Viper Vapor Tape and/or Viper Double Bond Tape.

### 5.4 PROTECTION

When installing reinforcing steel and utilities, in addition to the placement of concrete, take precaution to protect Viper II 10-mil. Carelessness during installation can damage the most puncture-resistant vapor barriers. Provide for additional protection in high traffic areas.

Place standard reinforcing bar supports on Viper II 10-mil. The strength characteristics of Viper II 10-mil will help guard against possible punctures caused by reinforcing bar supports.

Avoid driving stakes through Viper II 10-mil. If this cannot be avoided, each individual hole must be repaired.

If a cushion or blotter layer is required in the design between the vapor barrier and the slab, additional care should be taken, especially if sharp crushed rock is used. Washed rock will provide less chance of damage during placement.

These are very general installation instructions. Instructions on architectural or structural drawings should be reviewed and followed. Detailed installation instructions can be obtained by calling our corporate office at 866.698.6562 or online at [www.isibp.com](http://www.isibp.com).

## 6 AVAILABILITY AND COST

Viper II is sold through construction supply houses and lumberyards across the United States and Canada. Current cost information can be obtained by calling our corporate sales office at 866.698.6562.

## 7 WARRANTY

Additional warranty information can be obtained by calling our corporate office at 866.698.6562 or online at [www.isibp.com](http://www.isibp.com).

## 8 MAINTENANCE

Requires no maintenance once installed.

## 9 TECHNICAL SERVICES

Technical information and detailed test results can be obtained by calling ISI Building Products corporate office at 866.698.6562.

## 10 FILING SYSTEMS

Additional information can be obtained by calling our corporate office at 866.698.6562 or online at [www.isibp.com](http://www.isibp.com).

PROPERTIES	TEST METHOD	RESULTS
TEST PROCEDURE - INDEPENDENT TEST FACILITY	APPLICABLE STANDARDS	IP UNITS
THICKNESS (nominal)	N/A	10-mil
WEIGHT (per roll)	N/A	140 lbs
CLASSIFICATION	ASTM E 1745	EXCEEDS CLASS C
TENSILE STRENGTH	ASTM D 154 SEC. 9	23 lbf/in (MD), 16 lbf/in (TD)
ELONGATION	ASTM D 882	815% (MD), 575% (TD)
PUNCTURE RESISTANCE	ASTM D 1709 METHOD B	>1,000 grams
OPERATING TEMPERATURE RANGE	N/A	-70° F to 180° F
WATER VAPOR PERMEANCE (New Material)	ASTM F 1249	0.0178 perms*
WATER VAPOR TRANSMISSION RATE (WVTR)	ASTM F 1249	0.0078 grains/ft <sup>2</sup> *hr
WATER VAPOR PERMEANCE (After Conditioning)		
PERMEANCE (After Wetting, Drying and Soaking)	ASTM E 154 SEC. 8 (ASTM F 1249)	< 0.1 perms*
PERMEANCE (After Heat Conditioning)	ASTM E 154 SEC. 11 (ASTM F 1249)	< 0.1 perms*
PERMEANCE (After Low Temperature Conditioning)	ASTM E 154 SEC. 12 (ASTM F 1249)	< 0.1 perms*
PERMEANCE (After Soil Organism Exposure)	ASTM E 154 SEC. 13 (ASTM F 1249)	< 0.1 perms*

\*grains/(hr\*ft<sup>2</sup>\*in Hg)

## NOTE:

TO THE BEST OF OUR KNOWLEDGE, THE SPECIFICATION CHART LISTS TYPICAL PROPERTY VALUES AND ARE INTENDED AS GUIDES ONLY, NOT AS SPECIFICATION LIMITS. ISI BUILDING PRODUCTS MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, NO GUARANTEE OF SATISFACTORY RESULTS FROM RELIANCE UPON CONTAINED INFORMATION OR RECOMMENDATIONS AND DISCLAIMS ALL LIABILITY FOR RESULTING LOSS OR DAMAGE.

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