

## SECTION 072600

### SELF-ADHERING AIR/VAPOR RETARDER -MEMBRANE

#### PART 1 – GENERAL

##### 1.1 SUMMARY

- A. Section includes self-adhered, air/vapor retarder membrane at locations indicated on Drawings.

##### 1.2 REFERENCE STANDARDS

- A. The American Association of Textile Chemists and Colorists (AATCC) - Test Method for Water Resistance: Hydrostatic Pressure Test.
- B. American Society of Civil Engineers: ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- C. ASTM International (ASTM):
  - 1. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
  - 2. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension
  - 3. ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.
  - 4. ASTM D1876 - Standard Test Method for Peel Resistance of Adhesives (T-Peel Test).
  - 5. ASTM D1970/ section 7.9 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing for Ice-Dam Protection.
  - 6. ASTM D2240 - Standard Test Method for Rubber Property - Durometer Hardness
  - 7. ASTM D4073 - Standard Test Method for Tensile-Tear Strength of Bituminous Roofing Membranes.
  - 8. ASTM D5034 - Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).
  - 9. ASTM D5147 - Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material.
  - 10. ASTM D2523 - Standard Practice for Testing Load-Strain Properties of Roofing Membranes.
  - 11. ASTM D5601 - Standard Test Method for Tearing Resistance of Roofing and Waterproofing Materials and Membranes.
  - 12. ASTM D5602 - Standard Test Method for Static Puncture Resistance of Roofing Membrane Specimens.

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13. ASTM D7349 - Standard Test Method for Determining the Capability of Roofing and Waterproofing Materials to Seal around Fastener.
14. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
15. ASTM E96/96M - Test Methods for Water Vapor Transmission of Materials.
16. ASTM E154 - Standard Practice for Testing Load-Strain Properties of Roofing Membranes.
17. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
18. ASTM E398 - Standard Test Method for Water Vapor Transmission Rate of Sheet Materials Using Dynamic Relative Humidity Measurement.
19. ASTM E1186 - Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems
20. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.

- D. International Code Council Evaluation Service, Inc. (ICC-ES): ICC-ES AC188 - Acceptance Criteria for Roof Underlayments.
- E. CDPH/EHLB Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers Version 1.2.

### 1.3 PREINSTALLATION CONFERENCE

- A. Preinstallation Meeting: Schedule and conduct preinstallation meeting at Project site not less than two weeks before beginning installation.
  1. Meeting attendees to include Contractor; Architect and their envelope consultant (if one); Installer; manufacturer's technical field representatives; and representatives from all subcontractors and trades whose work must integrate with self-adhered membrane materials.
  2. Review approved submittals and requirements for Project mockups.
  3. Review installation requirements, substrate requirements, special details, bond testing, and protection of installed membrane.

### 1.4 COORDINATION

- A. Coordinate installation of self-adhered membrane assemblies with other roofing work, including flashings and trim, and other adjoining work to provide a watertight and secure installation.

### 1.5 SUBMITTALS

- A. Product Data: For self-adhered, air/vapor retarder membrane
- B. Shop Drawings: For air/vapor retarder.

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1. Show locations and extent of air/vapor retarder membrane. Include project-specific details of treatment of substrate joints, flashing conditions, penetrations, corner conditions, terminations, and tie-ins with adjacent construction.
  2. Include details of interfaces with other materials that are part of the building's air-barrier assemblies.
- C. Manufacturer's Installation Instructions: Include manufacturer's instructions for evaluating and preparing substrates; and installation instructions for air/vapor retarder membrane and accessories.
- D. Field quality-control reports.

#### 1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Entity that has specialized in manufacturing of self-adhesive, air/vapor retarder membrane for not less than ten years; that employs technical and field observation personnel to provide technical support throughout construction period.
- B. Installer Qualifications: Entity that employs experienced installers and supervisors that are trained, certified, or approved in writing by manufacturer for installation of products required for the Project; that has successfully completed installations similar in material, design, and extent to that required for the Project; and whose work has resulted in construction with a record of successful in-service performance for a period of not less than 5 years.
- C. Fire Performance Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
1. Flame Spread Index: 5 or less
  2. Smoke Developed Index: 15 or less

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the Project site in manufacturer's original, undamaged packaging, with intact labels indicating the contents.
- B. Store materials on end in accordance with manufacturer's written instructions. Protect materials from direct sunlight and weather until ready for use.

#### 1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions are within ranges recommended in writing by manufacturer.
1. Protect substrates from conditions that affect installation or performance of air/vapor retarder membrane materials.

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2. Do not install air/vapor retarder membrane materials to damp or wet substrates or during snow, rain, fog, or mist.

## 1.9 WARRANTY

- A. Provide manufacturer's standard warranty in which manufacturer agrees to replace air/vapor retarder membrane that exhibits failures in material within specified warranty period.
  1. Warranty Period: Twenty (20) years from date of Substantial Completion.

## PART 2 – PRODUCTS

### 2.1 SOURCE LIMITATIONS

- A. Obtain self-adhered, air/vapor retarder membrane from a single manufacturer. Obtain accessory materials from manufacturer of air/vapor retarder membrane or from manufacturers acceptable in writing to air/vapor retarder membrane manufacturer.

### 2.2 SELF-ADHERED AIR/VAPOR RETARDER MEMBRANE

- A. Air/vapor retarder air membrane: Slip-resistant, self-adhered, air/vapor retarder membrane fabricated from spun-bonded polyester fabric with proprietary coatings on both surfaces and pressure-sensitive adhesive with release film on back side.
  1. Basis-of-Design Product: Subject to compliance with requirements, provide the following:
    - a. VaproShield LLC; BlockShield SA Plus.
  2. Physical Properties:
    - a. Thickness: 10.6 mils (0.27 mm) nominal.
    - b. Color: White.
    - c. UV Exposure Resistance: Can be exposed to sunlight for 180 days.
  3. Performance Properties:
    - a. Air Permeance: Maximum 0.00912 L/s•m<sup>2</sup> @ 75 Pa (0.0018 cfm/ft<sup>2</sup> @ 1.57 psf); ASTM E2178.
    - b. Water Vapor Permeance: Maximum 0.0173 Perm (grain/h•ft<sup>2</sup>•inchHg) (0.992 ng/Pa•s•m<sup>2</sup>) @23°C 0-500%RH; ASTM E96, Desiccant Method.
    - c. Tensile Set, Minimum: MD 409%, XMD 276%; ASTM D412.
    - d. Tensile Strength: MD - 3.85 N/mm (22 lbf/in), XMD - 3.85 N/mm (22 lbf/in); ASTM D882.
    - e. Breaking Strength: MD - 541%, XMD - 617%; ASTM D882.
    - f. Tear Strength: MD - 338 N (76 lbf), XMD - 356 N (80 lbf); ASTM D4533.

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- g. Puncture Resistance: Deflection 5.84 cm (2.3") Max Load 249 N (56 lbf) (1.71 in)); ASTM E154.
- h. Nail Sealability: Pass; ASTM D1970.

## 2.3 ACCESSORY MATERIALS

- A. Transition and Flashing Membrane: Self-adhered transition and flashing membrane.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide the following:
    - a. VaproShield LLC; BlockShield SA Plus.
- B. Liquid Flashing: Liquid-applied flashing.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide the following:
    - a. VaproShield LLC; VaproLiqui-Flash.
- C. Liquid Flashing for Rough Openings: Liquid-applied, modified silicone sealant.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide the following:
    - a. VaproShield LLC; VaproBond sealant.
- D. Penetration Sealant: Liquid-applied sealant for penetrations.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide one of the following:
    - a. VaproShield LLC; VaproBond sealant.
    - b. VaproShield LLC; VaproLiqui-Flash.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and installation conditions, with Installer present, for compliance with manufacturer's requirements and other conditions that could affect installation or performance of the air/vapor retarder membrane.
  - 1. Verify that substrates are clean, sound, and free of oil, grease, dirt, or other contaminants or materials that could be detrimental to adhesion.
  - 2. Verify that substrates are visibly dry and free of moisture.
  - 3. Verify that fasteners used to secure roof sheathing or other substrate materials are not projecting from surface of substrates.

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4. Verify that penetrating items are securely and firmly installed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

A. Treat and seal cracks and joints in substrate in accordance with manufacturer's written instructions and details.

B. At changes of plane of substrates, apply transition roof membranes, sealants, or other accessory materials in accordance with manufacturer's written instructions and details.

C. Bridge isolation joints and discontinuous deck to wall or deck to deck joints with accessory materials that accommodate movement in accordance with manufacturer's written instructions and details.

### 3.3 INSTALLATION OF AIR/VAPOR RETARDER MEMBRANE

A. Install materials in accordance with membrane manufacturer's written instructions and details to properly seal with adjacent construction and ensure continuity of air and water barrier.

B. Prepare, treat, and seal inside and outside corners, valleys, terminations, and penetrations in accordance with manufacturer's written instructions and details.

C. Install self-adhered, air/vapor retarder membrane.

1. Install membrane flat, in full contact with substrates, and free from wrinkles or fish-mouths.

2. Lap sides and ends as recommended in writing by manufacturer, but not less than 3-inches (76 mm) for side and end laps, and cover laps with manufacturer's detailing tape.

3. Where joints occur at corner locations, lap inside and outside corners as recommended in writing by manufacturer, but not less than 6-inches (152 mm).

4. Stagger end laps between courses at least 72 inches (1828 mm).

D. Immediately after installation of air/vapor retarder membrane, fully roll installed membrane with weighted roller to ensure positive contact and adhesion with substrate.

E. Transition Conditions:

1. Treat tie-ins of air/vapor retarder membrane to structural elements, parapets, curbs, roofing systems, and adjoining materials in accordance with membrane manufacturer's written instructions and details.

2. Install transitions and flashings

3. Immediately after installation, roll self-adhering transitions and flashings in accordance with manufacturer's written instructions to ensure positive contact and adhesion with substrate.

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- F. Openings: Install flashing and transition membranes at roof curbs, roof hatches, skylights, and other penetrating items and openings in accordance with manufacturer's written instructions and details. Install flashing membranes in shingled fashion and firmly roll membranes after installation to ensure proper adhesion.
- G. Horizontal Applications: Install air/vapor retarder membrane aligned with lowest point of roof. Install with extra material sufficient for tie-ins and proper interfaces with adjoining materials. Install subsequent courses in shingle fashion to ensure proper drainage of water from membrane surface.

#### 3.4 FIELD QUALITY CONTROL

- A. Inspections: Arrange for air/vapor retarder membrane manufacturer's technical personnel to observe installation at regular intervals and to inspect installation on completion and prepare report.

#### 3.5 PROTECTION

- A. Protect installed air/vapor retarder membranes in accordance with manufacturer's written instructions during subsequent construction activities to protect membranes from damage due to construction activities, high wind conditions, and extended exposure to inclement weather.
  - 1. Repair any air/vapor retarder membrane that become damaged.

END OF SECTION 072600