

**SPEC WRITERS NOTE:** This specification includes materials and installation procedures for **BlockShield™ SA** self-adhered non-asphaltic, durable, impermeable air, water and vapor barrier membrane. **BlockShield™ SA** sheet membrane is used behind rainscreen wall cladding assemblies such as ventilated rainscreen cladding systems incorporating; composite, metal, wood, masonry and stone veneers, stucco and mechanically attached EIFS without the need of a primer. This guide specification should be adapted to suit the requirements of individual projects. It is prepared in CSI Master Format and should be included as a separate section under Division 7 - Thermal and Moisture Protection.

## **SECTION 072746**

### **SELF-ADHERING IMPEARMABLE AIR BARRIER MEMBRANE**

#### **PART 1 - GENERAL**

##### **1.1 GENERAL REQUIREMENTS**

- A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the work of this section.
- B. Examine all Drawings and all Sections of the Specifications for requirements and provisions affecting the work of this Section.

##### **1.2 DESCRIPTION OF WORK**

- A. The work of this Section includes furnishing and installation of BlockShield SA, a fully self-adhered, non-asphaltic, durable, impermeable air, water, and vapor barrier membrane with an aggressive pressure-sensitive adhesive incorporated at exterior rain screen wall assemblies, at locations indicated on Drawings and elsewhere as noted and as required by code.
- B. The work of this Section also includes furnishing and installation of compatible flashing membranes to bridge gaps, for transition areas around windows, curtain wall, louvers, roof to wall interface and elsewhere as indicate or required by code to provide a continuous air barrier assembly. Locations include, but are not limited to, the following:
  - 1. Connection of the walls to the roof membrane
  - 2. Connections of the walls to the foundations
  - 3. Seismic and expansion joints
  - 4. Openings and penetrations of window and door frames, store front, curtain wall
  - 5. Piping, conduit, duct and similar penetrations
  - 6. Masonry ties, screws, bolts and similar penetrations
  - 7. All other air leakage pathways in the building envelope
- C. Provide material and work of this Section required to complete mock-up panel(s). Refer to exterior elevations for extent of mock-up panels or as indicated herein.

##### **1.3 RELATED WORK SPECIFIED ELSEWHERE**

- A. Carefully examine all of the Contract Documents for requirements which effect the work of this section.
- B. Other specifications sections which directly relate to the work of this section include, but are not limited to, the following:
  - 1. Section 042000 - Unit Masonry: Masonry units used as non-load bearing walls or partitions, veneer, and cavity unit masonry construction, including related accessories.
  - 2. Section 061600 - Sheathing
  - 3. Section 072100 - Building Insulation and Vapor Barriers

4. Section 072727.01 - Self-Adhering Water-Resistive Air Barrier Membrane System-WrapShield
5. Section 072743 - Highly Permeable Self-Adhering Air Barrier Membrane/Roofing Underlayment
6. Section 074263 - Composite Metal Panels
7. Section 075300 - Thermoplastic Membrane Roofing System
8. Section 078400 - Firestopping
9. Section 079200 - Joint Sealants
10. Section 082630 - Aluminum-Clad Sliding Doors
11. Section 084100 - Aluminum Entrances and Storefront System.
12. Section 089116 - Louvers and Grilles
13. Section 092116 - Gypsum Board Assemblies

#### 1.4 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 D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.
  2. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
  3. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
  4. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
  5. ASTM D3330 - Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape.
  6. ASTM D5034 - Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).
  7. ASTM D7349 - Standard Test Method for Determining the Capability of Roofing and Waterproofing Materials to Seal Around Fasteners
  8. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
  9. ASTM E96/96M - Test Methods for Water Vapor Transmission of Materials.
  10. ASTM E154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
  11. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
  12. ASTM E398 - Standard Test Method for Water Vapor Transmission Rate of Sheet Materials Using Dynamic Relative Humidity Measurement.
  13. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.
  14. ASTM F1249 - Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor
- D. International Code Council Evaluation Service, Inc. (ICC-ES): ICC-ES AC308 - Acceptance Criteria for Water-Resistive Barriers.
- E. CDPH/EHLB Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers Version 1.2

#### 1.5 SUBMITTALS

- A. Submit manufacturers' current product data sheets, details and installation instructions for the water-resistive vapor impermeable air barrier membrane components and accessories.

- B. Submit samples of the following:
1. Manufacturer's sample warranty.
  2. 3 each water-resistive vapor impermeable air barrier membrane, minimum 8 by 10 inches (203 by 254 mm).
  3. Accessory components.
    - a. VaproBond™, 1 sausage
    - b. 3 each VaproShim SA™ Self-Adhered, 3 mm (1/8 in.), 1 in. x 4 in. (2.5 cm x 10.1 cm)
    - c. 3 each VaproShim SA™ Self-Adhered, 7 mm (1/4 in.), 1 in. x 4 in. (2.5 cm x 10.1 cm)
    - d. 3 each VaproMat™ 3 mm (1/8 in.), 8.5 in. x 11 in. (21.59 cm x 27.94 cm)
    - e. 3 each VaproMat™ 7 mm (1/4 in.), 8.5 in. x 11 in. (21.59 cm x 27.94 cm)
  4. Membrane flashing products.
    - a. 3 each BlockFlashing Samples, minimum, 8 by 10 inches (203 by 254 mm).
  5. Cladding and window system flashing components which interface with air barrier system (i.e. rigid metal head flashing above windows) minimum 10" length.
  6. Fasteners, clips, strapping, cladding attachment fasteners and masonry ties.
  7. Sealants (included by others) required to provide a complete air barrier membrane system.

Delete section C if not pursuing LEED certification.

- C. LEED Submittals:
1. Integrative process [IP] has a 1 pt. potential. VaproShield encourages this through preconstruction planning, for 'building envelope attributes'.
  2. Energy and Atmosphere [EA].
    - a. Minimum Energy requirement prerequisite and performance points – by providing a complete air barrier system: up to 18 pts.
    - b. Commissioning (i.e. BECx): Energy load reductions, Indoor Environmental Quality, and longevity of building components which are required to satisfy the prerequisite if commissioning / verification for building envelope is chosen as a path prior to DD. Envelope Commissioning may qualify for additional 2 pts, on top of the 4 pts via building energy simulation (enhanced commissioning), or complying with the prescriptive paths in ASHRAE 90.1-2010
  3. Indoor Environmental Quality [IEQ/EQ]].
    - a. As part of IAQ Management plan for construction phase which protects building from moisture infiltration, BlockShield SA can help provide an additional 1 pt.
    - b. BlockShield SA complies with exterior product (emission req. exempt) requirements and VOC limits per SCAQMD Rule #1168 (as published Sept. 2017).
      - 1) All window sealant and flashing materials to interior pass CDPH/EHLB/Standard Method V1.2 (Sect. 01350) for VOC's after 14 days cure time.
  4. Awareness and Education [AE] and/or Innovation [IN/ID]
    - a. Applies to projects which offer both a case study and educational outreach program, which use the project as an example. 1 pt. available.

## 1.6 QUALITY ASSURANCE

- A. Single Source: Obtain self-adhered water and vapor impermeable air barrier membrane components and accessories from a single-source membrane system manufacturer to ensure total system compatibility and integrity.
- B. Manufacturer Qualifications:
1. Company specializing in manufacturing and supply of highly vapor permeable water resistive air barrier products and water and vapor impermeable air barrier products specified in this Section with minimum **[10]** ten years' experience and successful installations in similar project applications.
    - a. Provide manufacturer's experienced in-house technical and field observation personal qualified to provide technical support.

- C. Applicator:
  - 1. Company specializing in performing Work of this Section with minimum [3] three years' experience.
- D. Fire Performance Characteristics: Provide water-resistive barrier meeting the following fire-test characteristics.
  - 1. Surface-Burning Characteristics: ASTM E84
    - a. Flame spread index: 5 or less
    - b. Smoke developed index: 15 or less

#### 1.7 MOCK-UP

- A. Construct mock-up in accordance with Section 014339 - Mock-up, or as specified under General Requirements Section 011000.
- B. Provide mock-up of specified water and vapor impermeable air barrier materials under provisions of Section 013323 - Shop Drawings, Product Data and Samples.

Generally, retain first subparagraph below if requiring preconstruction testing.

- 1. Coordinate construction of mockups to permit inspection and testing of impermeable air barrier and drainage placed along with interfacing window, flashing and cladding system components, before external insulation and cladding are installed.
- 2. Prior to installation of specified water and vapor impermeable air barrier materials or related materials on the building, construct a 100 square foot mockup of typical exterior assembly, including connection between wall and roof, wall and floor to indicate relationship of materials with water/air barrier and quality of workmanship. Provide mock-up using actual water/air barrier membrane and associated products, for wall materials. Provide several mock-ups if necessary to include the various conditions. Acceptable mock-ups, undamaged at time of Substantial Completion, may be incorporated into the finish work. Rebuild mock-up's which are not approved at no additional cost to the Owner.
- 3. Construct mock-up in accordance with details of mock-up indicated on the Drawings.

#### 1.8 PRE-INSTALLATION CONFERENCE

- A. Provide a pre-installation conference [two] [Insert] weeks prior to commencing work of this section, under provisions of Section 013119 - Project Meetings or as specified under General Requirements Section 011000. Location of conference is at building site, unless noted otherwise.
- B. Ensure all contractors responsible for creating a continuous plane of water and air tightness are present.
- C. Agenda includes the following:
  - 1. Review of approved submittals.
  - 2. Review of mock-ups.
  - 3. Coordination with sequence of installation with adjacent materials.
  - 4. Schedule for subsequent work covering air barrier.
  - 5. Procedures for quality assurance.

#### 1.9 DELIVERY, STORAGE AND HANDLING

- A. Refer to current Product Data Sheet, Installation Instructions and Safety Data Sheets (SDS) at [www.vaproshield.com](http://www.vaproshield.com) for proper storage and handling.
- B. Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer and product.

- C. Store roll materials on end in original packaging. Protect rolls from direct sunlight and inclement weather until ready for use.
- D. Waste Management and Disposal
  - 1. Separate and repurpose or recycle waste materials in accordance with Section [017419 Construction Waste Management and Disposal], and with the Waste Reduction Work Plan.

#### 1.10 COORDINATION

- A. Ensure shingled lapping and continuity of the fully self-adhered water and vapor impermeable air barrier membrane throughout the scope of this section.
  - 1. Provide BlockShield SA that includes self-adhered water/air barrier membrane, transition membranes, flashing and sealants at penetrations. Provide BlockFlashing which includes VaproBond™ by VaproShield, a liquid-applied sealant.
  - 2. At locations indicated provide unimpeded vertical drainage plane that include ventilated drainage cavity, self-adhered water/air barrier and flashings to the exterior.
  - 3. Coordinate for optimal sequencing with all related or interfaced building components and trades to facilitate best practices including: shingle-fashion, drainage, water-tightness, and air barrier continuity.

#### 1.11 WARRANTY

- A. Provide manufacturer's standard material warranty in which manufacturer agrees to provide replacement material for the fully self-adhered water and vapor impermeable air barrier material installed in accordance with manufacturer's instructions that fail due to material defects within [20] twenty years from the date of substantial completion.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Provide a fully self-adhered water and vapor impermeable air barrier membrane and accessories obtained from a single-source manufacture to ensure total system compatibility and integrity.
- B. Water and Vapor Impermeable Self-Adhered Air Barrier Materials.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide fully self-adhered air barrier sheet membrane BlockShield™ SA Water and Vapor Impermeable Air Barrier Sheet as manufactured by VaproShield, a zero VOC fully self-adhered vapor impermeable air barrier sheet membrane consisting of laminated layers of polypropylene with adhesive. Provide sheet membrane tested in accordance with ICC-ES AC 308 criteria to meet IBC and IRC requirements for weather resistive barriers having the following properties
    - a. Color: white membrane with allowable UV exposure for 12 months, prior to coverage.
    - b. Thickness: 0.26 mm (10.2 mil)
    - c. Weight: ASTM D5147 Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material: 289 g/m<sup>2</sup> (0.95 oz/yd<sup>2</sup>)
    - d. Roll Weight with release film: 1.5 m (59") W 21 kg (47 lbs) and 0.75 m (29.5") W 11 kg (24 lbs)
    - e. Roll Width and Length: 1.5 m x 30.5 m (59" x 100') and 0.75 m x 30.5 m (29.5" x 100')
    - f. Roll Coverage: 1.5 m (59") W: 45.7 m<sup>2</sup> (492 ft<sup>2</sup>) gross and 0.75 m (29.5") W: 22.8 m<sup>2</sup> (246 ft<sup>2</sup>) gross
    - g. Warranty: 20 years
    - h. Ultra Violet Light Exposure: 12 months prior to covering
    - i. Service Temperature: -40 °C (-40 °F) - 93.3 °C (200 °F)
    - j. Installation Temperature minimum: -6.7 °C (20 °F)[A1]

- k. Composition: Tri-laminate polypropylene
- l. Primer: No Primer Required
- m. Elongation to ASTM D412: MD – 409%, XMD – 276%
- n. Tensile Strength, Minimum to ASTM D412: MD – 16.96 MPa (2460 psi), XMD – 11.87 MPa (1721 psi)
- o. Dry Tensile Strength, to ASTM 882: MD – 3.85 N/mm (22 lbf/in), XMD – 3.85 N/mm (22 lbf/in)
- p. Elongation at Break to ASTM D882: MD – 541%, XMD – 616%
- q. Dry Breaking Force (Grab Method) to ASTM D5034: MD – 338 N (76 lbf), XMD – 356 N (80 lbf)
- r. Elongation at Break to ASTM D5034: MD – 120%, XMD – 157%
- s. Minimum Puncture Resistance to ASTM E154: Deflection 5.84 cm (2.3”), Max Load 249 N (56 lbf)
- t. Water Vapor Permeance tested to ASTM E96 desiccant method, procedure A: 0.0173 perms (0.992 ng/Pa•s•m<sup>2</sup>).
- u. Water Vapor Permeance tested to ASTM F1249 (23 °C 50% RH): 0.0173 perms (0.992 ng/Pa•s•m<sup>2</sup>).
- v. 90° Peel Adhesion to AAMA 711 (ASTM D3330 Method F): All conditions PASS ≥ 0.26 N/mm (1.5 lbs/in).
- w. Air Leakage: 0.00912 L/s•m<sup>2</sup> @ 75 Pa (0.0018 cfm/ft<sup>2</sup> @ 1.57 psf) when tested in accordance with ASTM E2178.
- x. Nail Sealability to ASMT D1970 section 7.9 referring to ASTM D7349: PASS
- y. Water Resistance tested to AC38 - Test Method for Water Resistance: Hydrostatic Pressure Test, 550 mm hydrostatic head for 5 hours: No leakage - Pass.
- z. Surface Burning Characteristics tested to ASTM E84: Class A, Flame-Spread index of less than 5, Smoke-Developed index of less than 15.

C. Vapor Impermeable Transition and Flashing Membrane

- 1. Provide self-adhered air barrier transition and flashing membrane for all window jambs, headers, door openings, inside and outside corners, and other transitions. Provide pre-cut BlockFlashing by VaproShield. BlockFlashing is a zero VOC fully self-adhered vapor impermeable sheet membrane having the following properties:
  - a. Same material and properties as BlockShield SA Self-Adhered Water and Vapor Impermeable Air Barrier Sheet, factory slit to flashing sizes. (See 2.1.B.1 above).
  - b. Physical Dimensions: BlockFlashing White: 0.17 m (6.5”) x 30.5 m (100 feet), 0.3 m (11.75”) x 30.5 m (100 feet), 0.37 m (14.75”) x 30.5 m (100 feet).

**SPEC WRITERS NOTE:** Acceptable substrates for BlockShield Self-Adhered Water and Vapor Impermeable Air Barrier Sheet; exterior grade gypsum board, plywood, OSB, precast concrete, cast-in place concrete, concrete block, steel, aluminum and galvanized metal. Best practice guidelines for the application of BlockShield SA on clean, dry surfaces of sheathing surfaces without the use of adhesive-primers. Applications of BlockShield SA on sheathing surfaces clean of oil, dust, bulk water or other contaminants including primers, should be followed by two-handed roller pressure to ensure good adhesion, immediately after installation of material.  
Rough opening flashing system includes: BlockFlashing.

- 2. BlockFlashing a self-adhered, water and vapor barrier flashing for rough openings: 6.5, 11.75 or 14.75 inches.
  - a. Include BlockFlashing by VaproShield, a flexible 2 mil (0.26 mm) polypropylene sheet with an adhesive backing at window and door locations and elsewhere as required or indicated.

D. Through-Wall Flashing

- 1. Through-Wall flashing includes Vapro-SS Flashing™ by VaproShield, a flexible 2 mil (0.05 mm) stainless steel sheet with an 8 mil (0.20 mm) butyl adhesive backing which includes a VaproTermination Bar™ when the top section of the Vapro-SS Flashing™ is exposed.



- a. Vapro-SS Flashing™: 6, 12, or 18 inches (15.2, 30.5, 45.7 cm) x 50 feet (15.24 m) long.
  - b. Tensile Strength/Puncture: 100,000 psi when tested in accordance with ASTM D882 and 2,500 psi when tested in accordance with ASTM E154
  - c. VaproTermination Bar™: 8 feet (2.4 m) long x 1 inch (25 mm) wide x 1/8<sup>th</sup> inch (3 mm) thickness, UV-resistance rigid thermoplastic extrusion, prepunched with elongated nail/screw penetrations on 1-inch centers as required for installation.
- E. Transition Flashing
- 1. Transition flashing includes VaproSilicone Transition™ Sheet by VaproShield, a flexible 80 mil (2 mm) extruded silicone sheet.
    - a. VaproSilicone Transition™ Sheet: 4, 6 or 9 inches (10.2, 15, 23 cm) x 50 feet (15.24 m) long.
    - b. Dynamic Movement Capability: +200 / -50 % when tested in accordance to ASTM C1523.
    - c. Elongation: 400 % when tested in accordance to ASTM D412.
    - d. Tensile Strength: 295 psi (2.03 MPa) when tested in accordance with ASTM D412.
    - e. Tear Strength: 20 ppi (3.5 N/mm) when tested in accordance to ASTM D624.

## 2.2 PENETRATION SEALANT

- A. Provide sealant for penetrations as recommended by manufacturer and as specified under Division 07 Section: Sealants, and complying with ASTM C920. Appropriate sealant shall be VaproBond™.

## 2.3 WALL ROLLER

- B. Provide extendible roller tool designed to provide optimal leverage for roller-based self-adhered membrane. Provide roller incorporating heavy duty design die-cast second handle for additional leverage, two handed operation to firmly secure the adhesive to the substrate. Provide unit that is compact and lightweight with a 7.5 inch (19 cm) wide design.

**SPEC WRITERS NOTE:** VaproShield's self-adhered membranes incorporates a pressure sensitive adhesive (PSA) that requires pressure rolling to activate the adhesion.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Verify that surfaces and conditions are ready to accept the work of this section. Notify **[Envelope Consultant] [Engineer] [Architect] [Construction Manager]** in writing of any discrepancies. Commencement of the work or any parts thereof shall mean acceptance of the prepared substrates.
- B. All surfaces must be dry, sound, clean, free of oil, grease, dirt, excess mortar or other contaminants detrimental to the adhesion of the water and vapor impermeable air barrier membrane and flashings. Fill voids and gaps in substrate greater than 7/8 inch (22 mm) in width to provide an even surface. Strike masonry joints full-flush. Tool sheathing joints filled with sealant materials so that no sealant is spread onto the exterior surface of the sheathing. Remove any sealant products from sheathing surface prior to installation of air barrier membrane.
- C. Minimum application temperature of fully self-adhered membrane and flashings to be above 20 °F (minus 6.7 °C). Substrate must be clean, dry and frost free.
- D. Ensure all preparatory work is complete prior to applying primary fully self-adhered vapor impermeable air barrier with attached drainage matrix sheet membrane.

- E. Set flush with sheathing, any mechanical fasteners used to secure sheathing surfaces or that penetrate sheathing surfaces. Provide fasteners secured into solid backing and covered with the upper overlapping membrane. If exposed fasteners are present on the surface of the membrane, cover and seal with VaproBond™.
- F. If exposed fasteners are required, use VaproCaps™ with the appropriate fastener into structural members to ensure water/air tight seal.

### 3.2 COORDINATION OF SELF-ADHERED VAPOR IMPERMEABLE PERMEABLE AIR BARRIER MEMBRANE INSTALLATION

- A. Download Installation Instructions at <http://vaprosshield.com/public-documents/installation-instructions>.
- B. Installation Summary:
  - 1. Self-adhered water and vapor impermeable water/air barrier is installed horizontally or vertically over the outside wall face of exterior sheathing board or other approved substrates.
  - 2. Complete detail work at; wall openings, building transitions and penetrations prior to field applications allowing for shingle laps with release film temporarily left in place as needed.
  - 3. Install fully self-adhered water and vapor impermeable water/air barrier sheet over the outside face of exterior sheathing board or substrate, measure and pre-cut into manageable sized sheets to suit the application conditions.
  - 4. Install fully self-adhered water and vapor impermeable water/air barrier complete and continuous to substrate in a sequential minimal 3 inch (76 mm) overlapping weatherboard.
  - 5. Stagger all end lap seams.
  - 6. Roll installed membrane with a two-handed roller to ensure positive contact and adhesion with substrate immediately.

### 3.3 BUILDING TRANSITION CONDITIONS

- A. Tie-in to structural beams, columns, floor slabs and intermittent floors, parapet curbs, foundation walls, roofing systems and at the interface of dissimilar materials with self-adhering air barrier transition and flashing membrane.
- B. Align and position fully self-adhered water and vapor impermeable water/air barrier membrane, remove protective film and press firmly into place. Provide minimum 3 inch (76 mm) lap on to substrates.
- C. Ensure minimum 3 inch (76 mm) overlap at side and end laps of membrane and 6 inch (152.4 mm) at inside and outside corners, if joints occur at corner locations.
- D. Roll membrane and lap seams with roller to ensure positive contact and adhesion, immediately.

### 3.4 MECHANICAL EQUIPMENT PENETRATIONS

- A. Mechanical pipe, electrical conduit and/or duct work must be secured solid into position prior to installation of fully self-adhered vapor impermeable water/air barrier membrane.
- B. Electrical services penetrating the wall assembly and fully self-adhered vapor impermeable water/air barrier with attached drainable matrix membrane must be placed in appropriate conduit and secured solid into position.
- C. Install manufactured flanged penetration sleeves as recommended by sleeve manufacturer.



- D. For straight sided penetrations, cut and fit fully self-adhered vapor impermeable water/air barrier to accommodate sleeve, install VaproBond™ to seal the water/air barrier membrane to ductwork or preformed flange sleeve.
- E. For pipe penetrations, refer to manufacturer's standard details.

### 3.5 WINDOW, DOOR AND OTHER WALL OPENINGS

- A. BlockFlashing by VaproShield around window or wall rough openings subject to the opening size and installation of window, door or louver type.
  - 1. BlockFlashing transition and flashing membrane installed into rough wall openings for the sill, jambs and head.
  - 2. Remove release film, align flashing membrane and apply pressure to ensure positive contact. Roll lap seams to ensure adhesion. For the sill installation, leave the release film on the section that will overlap the field membrane. Provide lap seams in singled fashion, to shed water. Seal corner overlapping seam with a thin bead, tooled onto the seam surface.
- B. Through-Wall Flashing membrane
  - 1. Apply through-wall self-adhered flashing membrane along the base of masonry veneer walls and over shelf angles as detailed by designer.
    - a. Press membrane firmly into place, overlap minimum 3 inches (76 mm) at all laps. Promptly roll all surfaces using a hand roller to ensure good adhesion.
    - b. Applications shall form a continuous flashing membrane and shall extend up a minimum of 8 inches (20 cm) up the back-up wall.
    - c. Seal the top edge of the membrane where it meets the substrate using VaproBond™. Trowel-apply a feathered edge to seal termination to shed water or install VaproTermination™ Bar and VaproBond™ sealant at the top edge.
    - d. Install through-wall flashing membrane ½ inch (13 mm) from outside edge of veneer. Provide "end dam" flashing as detailed by designer.
- C. Optional Vapro-SS Flashing vapor impermeable flashing for rough openings
  - 1. Self-Adhered stainless-steel membrane for window and door flashing shall be Vapro-SS Flashing™ by VaproShield, an impermeable air and water barrier flashing material, replaces VaproLiqui-Flash. Not recommended for wood framing.
  - 2. Apply Vapro-SS Flashing™, 1-inch (25 mm) onto the face continuing into the rough opening, covering the BlockFlashing and any exposed rough opening surface.

### 3.6 HORIZONTAL AND VERTICAL APPLICATIONS

- A. For horizontal and vertical applications, align sheets and begin installation of water and vapor impermeable weather barrier at bottom or lowest point of wall.
- B. To avoid wrinkles and misalignment of subsequent applications, it is recommended to pre-mark or "Snap" a level line to work from.
- C. Measure and pre-cut into manageable sized sheets to suit the application conditions.
- D. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- E. Align and position fully self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch (76 mm) overlap at all side and end laps of membrane. Roll membrane and lapped seams with a two-handed roller to ensure contact and adhesion.

- F. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.
- G. Install subsequent sheets of fully self-adhered vapor impermeable water/air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lapped seams with a two-handed roller to ensure contact and adhesion.
- H. Refer to <http://vaproshield.com/installation/instructions> for the most current and complete installation instructions.

### 3.7 FASTENING CLIPS AND MASONRY TIES

- A. Install clips and masonry ties over primary self-adhered vapor impermeable water/air barrier membrane.
- B. Secure clips and masonry ties with corrosion-resistant, or stainless-steel screws with gasketed fasteners.
- C. Consult VaproShield Technical Services for recommendations on fastener treatments for rainscreen screen cladding attachment components by others.

### 3.9 FIELD QUALITY CONTROL

- A. Make notification when sections of work are complete to allow review prior to covering fully self-adhered water-resistive vapor impermeable water/air barrier system.
- B. Owner to engage independent consultant to observe substrate and membrane installation prior to placement of cladding system(s) and provide written documentation of observations.

### 3.10 PROTECTION

- A. Protect wall areas covered with self-adhered water impermeable water/air barrier from damage due to construction activities, high wind conditions, and up to 12 months extended exposure to inclement weather.
- B. Review condition of fully self-adhered water-resistive vapor impermeable air barrier prior to installation of cladding. Repair, or remove and replace damaged sections with new membrane.
- C. Recommend to cap and protect exposed back-up walls against wet weather conditions during and after application of membrane, including wall openings and construction activity above completed fully self-adhered water impermeable air barrier installations.
- D. Remove and replace water impermeable air barrier membrane affected by chemical spills or surfactants.

END OF SECTION