

SECTION 07 27 27.01
SELF-ADHERING WATER-RESISTIVE AIR BARRIER MEMBRANE

SPEC WRITERS NOTE: This specification includes materials and installation procedures for **RevealShield SA®** Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet Membrane meeting ASTM E2357 for air barrier assemblies. **RevealShield SA®** Self-Adhered UV stable sheet membrane is used behind open joint rain screen wall cladding assemblies which allow direct UV exposure at the open joints, without the need of a primer. Joints limited to 2 inch maximum and no more than 40% of the total area. With a vapor permeance rating of greater than 60 perms (3433 ng/Pa.s.m²) **RevealShield SA®** Self Adhered Water-Resistive Vapor Permeable Air Barrier Sheet membrane prevents air leakage and allows the wall assembly to breathe or 'dry-out' as necessary to meet the conditions of seasonal changes for each climate zone. 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.

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

- A. This Specification shall be read as a whole by all parties concerned. Each Section may contain more or less the complete work of any trade. The Contractor is solely responsible to make clear to the Subcontractors the extent of their work and coordinate overlapping work.

1.02 SYSTEM DESCRIPTION

- A. Supply labor, materials and equipment for a fully adhered water-resistive vapor permeable air barrier membrane system.
- B. Complete Work as shown on the Drawings and specified herein to bridge gaps and seal the water-resistive vapor permeable air barrier membrane against air leakage and water intrusion, including:
 - 1. Connections 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. Install primary water-resistive vapor permeable air barrier, flashing, and ventilation strip accessories.

1.03 RELATED SECTIONS

- A. Masonry Veneer: Section [04 XX XX]
- B. Gypsum Sheathing: Section [06 XX XX]
- C. Plywood Sheathing: Section [06 XX XX]
- D. Insulation: Section [07 XX XX]
- E. Roofing: Section [07 XX XX]
- F. Wall Panels: Section [07 XX XX]
- G. Flashing Section [07 XX XX]
- H. Sealants Section [08 XX XX]
- I. Door Frames Section [08 XX XX]
- J. Window Frames Section [08 XX XX]

1.04 REFERENCE STANDARDS

- A. ASTM International (ASTM):
 - 1. ASTM D5034 - Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).
 - 2. ASTM E 96/E 96M - Test Methods for Water Vapor Transmission of Materials.
 - 3. ASTM E398 Standard Test Method for Water Vapor Transmission Rate of Sheet Materials Using Dynamic Relative Humidity Measurement.
 - 4. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.
 - 5. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.
 - 6. 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.
 - 7. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

- B. American Association of Textile Chemists and Colorists (AATCC): ATCC 127 - Test Method for Water Resistance: Hydrostatic Pressure Test.
- C. International Code Council Evaluation Service, Inc. (ICC-ES): ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers.

1.05 SUBMITTALS

- A. Submit manufacturers' current product data sheets, details and installation instructions for the water-resistive vapor permeable air barrier membrane components and accessories.
- B. Submit samples of the following:
 - 1. Manufacturer's sample warranty
 - 2. Water-resistive vapor permeable air barrier sheet, minimum 8 by 10 inches (203 by 254 mm)
 - 3. Components, minimum 12 inch (305 mm) lengths
 - 4. Membrane flashings
 - 5. Fasteners, clips, strapping, cladding attachment fasteners and masonry ties
 - 6. Sealants

1.06 QUALITY ASSURANCE

- A. Single Source: Self-adhered water-resistive vapor permeable air barrier membrane components and accessories must be obtained as a single-source membrane system to ensure total system compatibility and integrity.
- B. Manufacturer Qualifications
 - 1. Manufacturer of specified products listed in this Section to have minimum 10 years of continued experience in the manufacture and supply of highly vapor permeable water resistive air barrier products successfully installed in similar project applications.
 - 2. Manufacturer of specified products listed in this Section to have experienced in-house technical and field observation personal qualified to provide expert technical support.
- C. Fire Performance Characteristics: Provide water-resistive barrier meeting the following fire-test characteristics.
 - 1. Surface-Burning Characteristics: ASTM E84 Class "A" Rating
 - 2. Flame spread index: 0 or less
 - 3. Smoke developed index: 75 or less

1.07 MOCK-UP

- A. Construct mock-up in accordance with Section 01 43 39 – Mock-ups.
- B. Provide mock-up of specified water-resistive vapor permeable air barrier materials under provisions of Section 01 33 23 - Shop Drawings, Product Data and Samples.
- C. Where directed by [engineer] [architect] [consultant], construct typical exterior wall panel, 6 foot long by 6 foot wide incorporating the sheathing board or substrate, window rough opening preparation or flashing method, window frame and attachment method, clips, strapping or masonry ties, or cladding attachment components, attachment of insulation and detailing of water-resistive vapor permeable air barrier membrane application and lap seams.
 - 1. Perform water spray test of mockup to demonstrate performance, as per ASTM Standards.
- D. Allow 48 hours for inspection of mock-up by [engineer] [architect] [consultant] before proceeding with water-resistive vapor permeable air barrier work. Mock-up may remain as part of the work.

1.08 PRE-INSTALLATION CONFERENCE

- A. Contractor shall convene [one] week prior to commencing work of this section, under provisions of Section 01 31 19 – Project Meetings.
- B. Ensure all contractors responsible for creating a continuous plane of water and air tightness are present.

1.09 DELIVERY, STORAGE AND HANDLING

- A. Refer to current Product Installation Instructions and SDS at 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 recycle waste materials in accordance with Section [01355 - Waste Management and Disposal], and with the Waste Reduction Work Plan.

1.10 COORDINATION

- A. Ensure continuity of the fully self-adhered water-resistive vapor permeable air barrier system throughout the scope of this section.
 - 1. Air barrier vapor permeable membrane to include self-adhered air barrier, transition membranes and sealants at penetrations.
 - 2. Drainage plane to include drainage cavity, water resistive barrier and flashings to the exterior.

1.11 ALTERNATES

Submit request for alternates in accordance with Section 01 25 00 – Substitution Procedures.

- A. Submit requests for alternates a minimum of ten (10) working days prior to bid date.
- B. Alternate submission to include:
 - 1. Evidence that alternate materials meet or exceed performance characteristics of specified Product requirements as well as documentation from an approved independent testing laboratory certifying the minimum physical dimensions, tensile strength, fire burning characteristics, vapor permeance and air leakage rates of the fully self-adhered water-resistive vapor permeable air barrier membrane. All testing to be performed without the aid of primers or surface conditioners.
 - 2. Manufacturer's complete set of details for fully self-adhered water-resistive vapor permeable air barrier membrane system showing a continuous plane of water and air tightness throughout the building enclosure.
 - 3. Manufacturer of alternate materials has experienced in-house technical and field observation personal qualified to provide expert technical support.
- C. Acceptable alternates will be confirmed by addendum. Substitute materials not approved in writing prior to bid date shall not be permitted for use on this project.

1.12 WARRANTY

- A. Provide manufacturer's standard material warranty in which manufacturer agrees to provide replacement material for the fully self-adhered water-resistive vapor permeable air barrier sheets installed in accordance with manufacturer's instructions that fail due to material defects within 20 years of the date of Purchase.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Primary fully self-adhered water-resistive vapor permeable air barrier membrane components and accessories must be obtained from a single-source manufacture to ensure total system compatibility and integrity.
 - 1. Self-Adhered water-resistive vapor permeable air barrier membrane by VaproShield LLC., Gig Harbor, WA, Phone: (866) 731-7663, Website: www.vaproshield.com.
- B. WATER-RESISTIVE VAPOR PERMEABLE SELF-ADHERED AIR BARRIER MATERIALS (Basis of Design)
 - 1. Primary fully self-adhered air barrier sheet membrane shall be RevealShield SA® Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet by VaproShield, a zero VOC fully self-adhered vapor permeable air barrier sheet membrane consisting of multiple layers of spun-bonded polypropylene tested in accordance with ICC-ES AC 38 criteria to meet IBC and IRC requirements for weather resistive barriers having the following properties:
 - a. Color: Black UV stable, 12 months 100% exposure prior to coverage with an open joint cladding.
 - b. Breaking strength and Elongation to ASTM D5034: 119 lbf (529 N), machine direction; 96 lbf (427 N), cross-machine direction.
 - c. Water Vapor Permeance tested to ASTM E96 Method B: minimum of 63 perms (3620 ng/Pa.s.m²)
 - d. Water Vapor Permeance tested to ASTM E398: minimum of 63 perms (3620 ng/Pa.s.m²)

- e. Air Leakage: ≤ 0.00002 cfm/ft² @ 1.57 psf (≤ 0.0001 L/s m² @ 75 Pa) when tested in accordance with ASTM E2178 and < 0.002 cfm/ft² @ 1.57 psf (< 0.01 L/s m² @ 75 Pa) when tested in accordance with ASTM E2357. Meets Air Barrier Association of America (ABAA) requirements for "Adhesive Backed Commercial Building Wraps".
 - f. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage
 - g. Application Temperature: Ambient temperature must be above -40 °F (- 40 °C)
 - h. Surface Burning Characteristics tested to ASTM E84: Class A, Flame-spread index of less than 0, Smoke-developed index of less than 75
 - i. Physical Dimensions: 0.0189 inches (0.48 mm) thick and 59 inches (1.5 m) wide and 11.0 oz/yd² (373 g/m²).
- C. WATER-RESISTIVE VAPOR PERMEABLE TRANSITION AND FLASHING MEMBRANE Part I of Two Part Flashing System
- 1. Self-adhered air barrier transition and flashing membrane for all window jambs, headers, door openings, inside and outside corners, and other transitions shall be pre-cut RevealFlashing SA™ Self-Adhered by VaproShield, a zero VOC fully self-adhered water-resistive vapor permeable sheet membrane having the following properties:
 - a. RevealFlashing SA™ Self-Adhered Black: 11 3/4 inches (30 cm) wide x 102 feet (31 m) long
 - i. Breaking strength and Elongation to ASTM D 5034: 119 lbf (529 N), machine direction; 96 lbf (427 N), cross-machine direction.
 - ii. Water Vapor Permeance tested to ASTM E 96 Method B: minimum of 63 perms (3620 ng/Pa.s.m²)
 - iii. Water Vapor Permeance tested to ASTM E398: minimum of 63 perms (3620 ng/Pa.s.m²)
 - iv. Air Leakage: ≤ 0.00002 cfm/ft² @ 1.57 psf (≤ 0.0001 L/s m² @ 75 Pa) when tested in accordance with ASTM E2178 and < 0.002 cfm/ft² @ 1.57 psf (< 0.01 L/s m² @ 75 Pa) when tested in accordance with ASTM E2357
 - v. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage

SPEC WRITERS NOTE: Acceptable substrates for RevealShield SA® Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet include DensGlass®, exterior grade gypsum board, plywood, precast concrete, cast-in place concrete, concrete block, steel, aluminum and galvanized metal. Best practice guidelines for the application of RevealShield SA® Self Adhered on clean, dry surfaces of sheathing surfaces without the use of adhesive-primers. Applications of RevealShield SA® Self Adhered on sheathing surfaces clean of oil, dust, bulk water or other contaminants including primers, should be followed by two handed roller pressure to insure good adhesion, immediately after installation of material.

Rough opening flashing system includes two components. Part I: VaproFlashing™ SA® Self-Adhered flashing and Part II: VaproLiqui-Flash™ or as alternates, Vapro-SS Flashing™ or VaproBond™ Flashing.

- D. VAPROLIQUI-FLASH™ VAPOR PERMEABLE WATER RESISTIVE FLASHING FOR ROUGH OPENINGS Part II of Two Part Flashing System
- 1. Window and door pre-cut RevealFlashing™ SA Self-Adhered shall include VaproLiqui-Flash™ by VaproShield, a liquid-applied vapor permeable air barrier flashing material with vapor permeance and resistance to air leakage properties compatible with the primary air barrier membrane.

SPEC WRITERS NOTE: Best construction practice for wood frame construction is to protect the jamb of rough openings with the two part system of RevealFlashing™ SA Self-Adhered flashing and vapor permeable VaproLiqui-Flash™ to reduce the risk of wood deterioration. Alternatively, for steel stud frame construction with DensGlass® or gypsum sheathing surfaces a Vapro-SS Flashing™ or VaproBond™ Flashing may be used to protect the head, jamb and sill of rough openings.

- E. ALTERNATE: VAPROBOND™ FLASHING WATER IMPERMEABLE LOW VAPOR PERMEANCE FLASHING FOR ROUGH OPENINGS Alternate for Part II of Two Part Flashing System

1. Window and door shall include VaproBond™ Flashing by VaproShield, a modified silicon sealant.
 - a. VaproBond™ Flashing: 20 ounce (592 ml) sausage.
 - b. Elongation: 1,500 % when tested in accordance with ASTM D412.
- F. ALTERNATE: VAPRO-SS FLASHING™ WATER AND VAPOR IMPERMEABLE FLASHING FOR ROUGH OPENINGS Alternate for Part II of Two Part Flashing System
 2. Window and door shall include 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.
 - a. Vapro-SS Flashing™: 4, 6, 9, 12, 18 or 24 inches (10.2, 15.2, 22.9, 30.5, 45.7, 61 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.
- G. THROUGH WALL FLASHING
 1. Thru-wall flashing self-adhered shall include 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 and may include a VaproTermination Bar™ when the top section of the Vapro-SS Flashing™ is exposed.
 - a. Vapro-SS Flashing™: 4, 6, 9, 12, 18 or 24 inches (10.2, 15.2, 22.9, 30.5, 45.7, 61 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™: 1 inch (25 mm) wide x 8 feet (2.4 m) long, UV-resistance rigid thermoplastic extrusion, if required by sequence of installation.
- H. TRANSITION FLASHING
 2. Transition flashing shall include VaproSilicone Transition™ by VaproShield, a flexible 80 mil (2 mm) extruded silicone sheet.
 - a. VaproSilicone Transition™: 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.

SPEC WRITERS NOTE: With pressure equalized rain screen wall cladding systems such as composite wall panels and metal siding, air circulation and cavity ventilation is critical in allowing moisture to escape. VaproBattens™ with VaproVent™ Strips, the VaproShim SA™ Self-Adhered and VaproMat™ to ensure continuous air flow throughout the cavity, for the life of the building. Include 2.1.H. for Water-Resistive Weather Barrier Batten and Ventilation Accessories.

I. WATER-RESISTIVE WEATHER BARRIER BATTEN, SHIM OR MAT ACCESSORIES OPTIONS:

1. Water-resistive weather barrier batten and ventilation accessories by VaproShield shall be made of black PVC material.
 - a. VaproBatten™ Black vinyl extrusion with pre-formed moisture drainage channels configured to create a ventilated airspace between wall cladding and weather-resistive barrier, bull nose edges prevent membrane tearing. Fasteners are installed directly through VaproBatten™ into the structural elements regardless of weather conditions.
 - b. VaproVent™ Strips are available in two types: VaproVent™ L Strip and VaproVent™ Hook Strip.
 - i. VaproVent™ Gray vinyl L Strips are attached to the top and bottom of VaproBattens™. They prevent insect invasion and provide maximum ventilation.
 - ii. VaproVent™ Gray vinyl Hook Strips are used with VaproBattens™ as a starter strip for vinyl and beveled siding applications, in place of the VaproVent™ L Strip at the bottom of the assembly.
 - c. VaproShim SA™ Self-Adhered, Neoprene/EPDM accessory used under horizontal or vertical cladding attachment components to create a vertical rain screen drainage plane for cladding, while sealing fastener penetrations.

- d. VaproMat™ Lightweight, hydrophobic filter fabric with a 3 mm or 7 mm polypropylene drainage matrix attached, designed to keep the drainage cavity clean and unobstructed during the lath and plaster or adhesive mortar installation, promoting rapid draining and drying of the rain screen cavity

2.02 PENETRATION SEALANT

- A. Provide sealant for penetrations as recommended by manufacturer and as specified under Division 07 Section: Sealants. Appropriate sealants shall be VaproBond™ or VaproLiqui-Flash™.

PART 3 EXECUTION

3.01 GENERAL

- A. Verify that surfaces and conditions are ready to accept the work of this section. Notify [engineer] [architect] [consultant] 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 resistive 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.
- C. Minimum application temperature of fully self-adhered membrane and flashings to be above 20 °F (minus 6.0 °C).
- D. Ensure all preparatory Work is complete prior to applying primary fully self-adhered vapor permeable air barrier sheet membrane.
- E. Mechanical fasteners used to secure sheathing surfaces or penetrate sheathing surfaces shall be set flush with sheathing, fastened 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 Vapro-LiquiFlash™ or VaproBond™.
- F. If exposed fasteners are required, use VaproCaps™ to insure water/air tight seal.

3.02 COORDINATION OF SELF-ADHERED VAPOR PERMEABLE AIR BARRIER MEMBRANE INSTALLATION

- A. Download Installation Instructions at <http://vaprosshield.com/public-documents/installation-instructions>.
- B. Installation Summary:
 - a. Self-adhered vapor permeable air barrier sheets may be installed vertically or horizontally over the outside face of exterior sheathing board or other approved substrates.
 - b. Complete detail work at; wall openings, building transitions and penetrations prior to field applications.
 - c. Install fully self-adhered vapor permeable 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.
 - d. Install fully self-adhered vapor permeable air barrier sheet complete and continuous to substrate in a sequential minimal 3 inch (76 mm) overlapping weatherboard.
 - e. Stagger all end lap seams.
 - f. Roll installed membrane with roller to ensure positive contact and adhesion with substrate immediately.

3.03 BUILDING TRANSITION CONDITIONS

- A. Consult published details at WWW.VaproShield.com.
- B. 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.
- C. Align and position fully self-adhered air barrier transition and flashing membrane, remove protective film and press firmly into place. Provide minimum 3 inch (76 mm) lap on to substrates.
- D. Ensure minimum 3 inch (76 mm) overlap at side and end laps of membrane and 6 inch (152 mm) at inside and outside corners, if joints occur at corner locations.
- E. Roll membrane and lap seams with roller to ensure positive contact and adhesion, immediately.

3.04 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 permeable air barrier membrane.
- B. Electrical services penetrating the wall assembly and fully self-adhered vapor permeable air barrier 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 permeable air barrier to accommodate sleeve, install VaproLiqui-Flash™ to seal the air barrier membrane to ductwork or preformed flange sleeve.
- E. For pipe penetrations, refer to manufacturer's standard details.

3.05 WINDOW, DOOR AND OTHER WALL OPENINGS

- A. Consult published installation instructions at WWW.VaproShield.com.
- B. Two part flashing system; RevealFlashing™ SA Self Adhered flashing and VaproLiqui-Flash™, Vapro-SS Flashing™ or VaproBond™ Flashing by VaproShield around window or wall openings subject to the opening size and installation of window, door or louver type.
- C. RevealFlashing™ SA Self-Adhered air barrier transition and flashing membrane installed 2 ¾ inch (70 mm) into rough wall openings for the sill, jams and head.
- D. Remove release film, align flashing membrane and apply pressure to ensure positive contact. Roll Lap seams to ensure adhesion. Provide lap seams in singled fashion, to shed water.
- E. VAPROLIQUI-FLASH VAPOR PERMEABLE WATER RESISTIVE FLASHING FOR ROUGH OPENINGS
 - 1. Download Installation Instructions at <http://vaprosshield.com/public-documents/installation-instructions>.
 - 2. Liquid-applied window and door flashing shall be VaproLiqui-Flash™ by VaproShield, a liquid-applied vapor permeable air barrier flashing material with resistance to moisture and air leakage properties compatible with the primary weather resistant air barrier membrane.
 - 3. Apply a 12-15 wet mil (0.030-0.038 mm) coating onto the installed RevealFlashing™ SA Self-Adhered flashing, 1 inch (25.4 mm) onto the face continuing into the rough opening, covering the 2 ¾ inch (70 mm) RevealFlashing™ SA Self-Adhered flashing and the exposed rough opening surface.
- F. THROUGH-WALL FLASHING MEMBRANE
 - 1. Download Installation Instructions at <http://vaprosshield.com/public-documents/installation-instructions>.
 - 2. Apply through-wall 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 VarpoTermination™ 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.

SPEC WRITERS NOTE: Rough opening flashing system includes two components. Part I: RevealFlashing™ SA Self-Adhered flashing and Part II: VaproLiqui-Flash™ or as Alternates, Vapro-SS Flashing™ or VaproBond™ Flashing. Vapro-SS Flashing™ and VaproBond™ Flashing are optional replacements for Part II flashing system or in addition to VaproLiqui-Flash.

- G. OPTIONAL VAPROBOND™ FLASHING WATER IMPERMEABLE LOW VAPOR PERMEANCE FLASHING FOR ROUGH OPENINGS
 - 1. Fluid applied membrane for window and door flashing shall be VaproBond™ Flashing by VaproShield, a low vapor permeable, impermeable air and water barrier flashing material, replaces VaproLiqui-Flash™. Not recommended for wood framing.
 - 2. Apply VaproBond™ Flashing, 1 inch (25 mm) onto the face continuing into the rough opening, covering the 2 ¾ inch (70 mm) RevealFlashing™ SA Self-Adhered flashing and the exposed rough opening surface.

- H. OPTIONAL VAPRO-SS FLASHING VAPOR IMPERMIABLE FLASHING FOR ROUGH OPENINGS
 - 3. Self-Adhered stainless steel membrane for window and door flashing shall be Vapro-SS Flash™ by VaproShield, an impermeable air and water barrier flashing material, replaces VaproLiqui-Flash. Not recommended for wood framing.
 - 4. Apply Reveal Flashing™ SA Self-Adhered flashing, 1 inch (25 mm) onto the face continuing into the rough opening, covering the 2 ¾ inch (70 mm) RevealFlashing™ SA Self-Adhered flashing and the exposed rough opening surface.

3.06 VERTICAL APPLICATIONS SUMMARY

- A. Download Installation Instructions at <http://vaprosshield.com/public-documents/installation-instructions>.
- B. For vertical applications, align sheets with an 'inside' or 'outside' corner to avoid wrinkles and misalignment of subsequent applications.
- C. Measure and pre-cut into manageable sized fully self-adhered 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. Roll up pre-cut material lengths with release paper facing OUTWARD.
- F. Starting at a corner of the roll, peel back approx. 6" (152 mm) of release film from across the width of the pre-cut material roll.
- G. Using hand pressure, lightly apply the exposed adhesive surface to the substrate.
- H. Allow the rolled up material to drop down the wall, with the remainder of the release film still attached (facing the wall), and extend down to lowest point of wall, checking for proper alignment, repositioning as necessary.
- I. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- J. Align and position fully self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch (76 mm) overlap at side and end laps of membrane.
- K. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.
- L. Install subsequent sheets of fully self-adhered vapor permeable air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lap seams with two handed roller to ensure contact and adhesion.
- M. Refer to <http://vaprosshield.com/installation/instructions> for the most current and complete installation instructions.

3.07 HORIZONTAL APPLICATIONS

- A. For horizontal applications, align sheets and begin installation of water-resistive 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 lap seams with 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 permeable 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://vaprosshield.com/installation/instructions> for the most current and complete installation instructions.

3.08 BATTENS VENTILATION STRIPS, SHIMS OR MAT FOR RAIN SCREEN CLADDING SYSTEMS

- A. Provide and install specified battens and ventilation strips under cladding systems.
- B. Install horizontal starter strip or vent strip at base of wall, vertical battens and top vent strip, secure into solid backing ready for installation of cladding system.
- C. Coordinate spacing of battens and vent strips to accommodate cladding system.
- D. Coordinate spacing of VaproShim SA™ Self-Adhered to accommodate cladding system attachments.

E. Coordinate attachment of VaproMat™ to accommodate cladding system attachments.

3.09 FASTENING CLIPS AND MASONRY TIES

- A. Install clips and masonry ties over primary self-adhered vapor permeable 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 rain screen cladding attachment components by others.

3.10 FIELD QUALITY CONTROL

- A. Make notification when sections of work are complete to allow review prior to covering fully self-adhered water-resistive vapor permeable 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.

3.11 PROTECTION

- A. Protect wall areas covered with self-adhered water-resistive vapor permeable air barrier from damage due to construction activities, high wind conditions, and extended exposure to inclement weather.
- B. Review condition of fully self-adhered water-resistive vapor permeable 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-resistive vapor permeable air barrier installations.
- D. Remove and replace water-resistive weather barrier membrane affected by chemical spills or surfactants.

END OF SECTION