

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 E 2357 for air barrier assemblies. **RevealShield SA®** self-adhering sheet membrane is specifically designed for open joint rain screen wall cladding systems, where permanent UV exposure is inherent. With a vapor permeance rating of over 40 perms and air leakage rate of 0.00004 cfm/sq.ft., **RevealShield SA®** Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet 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.
- B. Consult Vaproshield.com for updates to this document and current installation instructions. Always use the latest version available.

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.
 - 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, lap seam tapes, sill pan 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]

1.04 REFERENCE STANDARDS

- A. American Association of Textile Chemists and Colorists (AATCC): ATCC 127 - Test Method for Water Resistance: Hydrostatic Pressure Test.
- B. ASTM International (ASTM):
 - 1. ASTM D 882 - Test Method for Tensile Properties of Thin Plastic Sheeting.
 - 2. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.
 - 3. ASTM E 96/E 96M - Test Methods for Water Vapor Transmission of Materials.
 - 4. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - 5. ASTM E 2178 - Standard Test Method for Air Permeance of Building Materials.
 - 6. ASTM E2357 - Standard Test Method for determining Air Leakage of Air Barrier Assemblies.
- 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 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 E 84 Class A Rated

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, sill pan protection system, window frame and attachment method, clips, strapping or masonry ties, attachment of insulation and detailing of water-resistive vapor permeable air barrier membrane application, transitions and lap seams.
 1. Perform water spray test of mockup to demonstrate performance.
- 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 literature 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. Wasted 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 and proper shingling of the self-adhered water-resistive vapor permeable air barrier system throughout the scope of this section.

1.11 ALTERNATES

- A. Submit request for alternates in accordance with Section 01 25 00 – Substitution Procedures.
- B. Submit requests for alternates a minimum of ten (10) working days prior to bid date.
- C. 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 self-adhered water-resistive vapor permeable air barrier membrane without the aid of primers or surface conditioners.
 2. Manufacturer's complete set of details for 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
- D. 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 self-adhered water-resistive vapor permeable air barrier sheets installed in accordance with manufacturer's instructions that fails due to material defects within 20 years of the date of Purchase.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Primary self-adhered water-resistive vapor permeable air barrier membrane components and accessories must be obtained as a single-source to ensure total system compatibility and integrity.
 - 1. Self-Adhered water-resistive vapor permeable air barrier membrane by VaproShield LLC., Gig Harbor, WA, Ph (866) 731-7663, Email: info@VaproShield.com, Website: www.vaproshield.com.
- B. WATER-RESISTIVE VAPOR PERMEABLE AIR BARRIER MATERIALS (Basis of Design)
 - 1. Primary self-adhered air barrier sheet membrane shall be RevealShield SA® Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet by VaproShield, a zero VOC self-adhered vapor permeable air barrier sheet membrane consisting of multiple layers of UV stabilized proprietary membrane having the following properties:
 - a. Color: Black (exterior) with allowable UV exposure for 180 days
 - b. Air Leakage: <0.01 cfm/ft. sq. when tested in accordance with ASTM E 2357 and < 0.0000263 cfm/sq. ft. @ 75 Pa (0.000134 L/s/m sq @ 75 Pa) when tested in accordance with ASTM E 2178
 - c. Water Vapor Permeance tested to ASTM E 96 Method B: minimum 40 perms
 - d. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage
 - e. Tensile Strength tested to ASTM D 882: 44.8 lbf/inch (78 N/mm), machine direction; 25 lbf/inch (43.8 N/mm), cross-machine direction
 - f. Application Temperature: Ambient temperature must be above 20 degrees F
 - g. Surface Burning Characteristics tested to ASTM E 84: Class A
 - h. Physical Dimensions: 0.026 inches (0.65 mm) thick and 59 inches (1.5 m) wide and minimum 10 oz per sq. yd.
- C. WATER-RESISTIVE VAPOR PERMEABLE TRANSITION AND FLASHING MEMBRANE
 - 1. Self-adhered air barrier transition and flashing membrane shall be RevealFlashing SA™ by VaproShield, a zero VOC self-adhered water-resistive vapor permeable membrane having the following properties:
 - a. RevealFlashing SA™ Black: 11-3/4 inches x 100 feet long
 - b. Air Leakage: < 0.0000263 cfm/sq. ft. @ 75 Pa (0.000134 L/s/m sq @ 75 Pa) when tested in accordance with ASTM E 2178
 - c. Water Vapor Permeance tested to ASTM E 96 Method B: minimum 40 perms
 - d. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage
- D. VAPROLIQUI-FLASH™ VAPOR PERMEABLE WATER RESISTIVE FLASHING FOR ROUGH OPENINGS
 - 1. Window and door flashing shall be 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: 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. VaproShield battens ensure continuous air flow throughout the cavity for the life of the building. Include 2.1.G. for Water-Resistive Weather Barrier Batten Accessories.

- E. WATER-RESISTIVE WEATHER BARRIER BATTEN ACCESSORIES
 - 1. Water-resistive weather barrier batten accessories by VaproShield shall be made of black PVC material
 - a. VaproBatten™: Black vinyl extrusion with pre-formed fastener and moisture drainage channels configured to create a ventilated airspace between wall cladding and weather-resistive air barrier.

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 Dow 758 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 and 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 ¼ inch in width to provide an even surface. Strike masonry joints full-flush.
- C. Minimum application temperature self-adhered membrane and flashings to be above 20 degrees F (minus 6.0 degrees C).
- D. Ensure all preparatory Work is complete prior to applying primary self-adhered vapor permeable air barrier sheet membrane.
- E. Mechanical fasteners used to secure sheathing boards or penetrate sheathing boards shall be set flush with sheathing and fastened into solid backing.

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

- A. Self-adhered vapor permeable air barrier sheets may be installed vertically or horizontally over the outside face of exterior sheathing board or substrate.
- B. Complete detail Work around corners, wall openings, building transitions and penetrations prior to field applications.
- C. Install 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 self-adhered vapor permeable air barrier sheet complete and continuous to substrate in a sequential overlapping weatherboard method starting at bottom or base of wall and working up.
- E. Stagger all end lap seams.
- F. Roll installed membrane with roller to ensure positive contact and adhesion with substrate.

3.03 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 self-adhered air barrier transition and flashing membrane, remove protective film and press firmly into place. Provide minimum 3 inch lap on to substrates.
- C. Ensure minimum 3 inch overlap at side and end laps of membrane.
- D. Roll membrane and lap seams with roller to ensure positive contact and adhesion.
- E. At inside and outside corners provide minimum 12 inch off-set of vertical seams.

3.04 MECHANICAL EQUIPMENT PENETRATIONS

- A. Mechanical pipe, electrical conduit and/or duct work must be secured solid into position prior to installation of self-adhered vapor permeable air barrier membrane.
- B. Electrical services penetrating the wall assembly and 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 self-adhered vapor permeable air barrier to accommodate sleeve, install specified single sided flashing tape to seal the air barrier membrane to ductwork or preformed flange sleeve.
- E. For all penetrations, refer to manufacturer's current standard details at www.vaproshield.com

3.05 VERTICAL APPLICATIONS

- A. For vertical applications, align sheets with an 'inside' or 'outside' corner to avoid wrinkles and miss-alignment of subsequent applications.
- B. Measure and pre-cut into manageable sized self-adhered sheets to suit the application conditions.
- C. Hang self-adhered sheets over wall and extend down to lowest point of wall. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- D. Align and position self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at side and end laps of membrane. Roll membrane and lap seams with roller to ensure contact and adhesion.
- E. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.

- F. Install subsequent sheets of 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 roller to ensure contact and adhesion.

3.06 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 miss-alignment of subsequent applications it is recommended to pre-mark or "Snap" a level line to work from. Measure and pre-cut into manageable sized sheets to suit the application conditions.
- C. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- D. Align and position self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at all side and end laps of membrane. Roll membrane and lap seams with roller to ensure contact and adhesion.
- E. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.
- F. Install subsequent sheets of 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 roller to ensure contact and adhesion.

3.07 BATTENS FOR RAIN SCREEN CLADDING SYSTEMS

- A. Provide and install specified battens under cladding systems.
- B. Coordinate spacing of battens to accommodate cladding system.

3.08 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 appropriate masonry tie types and methods to seal penetrations.

3.09 FIELD QUALITY CONTROL

- A. Make notification of when sections of work are complete to allow review prior to covering 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 systems and provide written documentation of observations.

3.10 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 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 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