SECTION 07 27 26

FLUID-APPLIED WATER RESISTIVE AIR BARRIER MEMBRANE

SPEC WRITERS NOTE: This specification includes materials and installation procedures for VaproLiqui-Shield™ Fluid-Applied Vapor Permeable Air Barrier (AB) Water Resistive Barrier (WRB). VaproLiqui-Shield™ is a one-component, silyl-modified polymer (STPE) fluid-applied air barrier designed to create a seamless, flexible barrier that prevents penetration of unwanted water and air through the building envelope while remaining vapor permeable to allow damp surfaces to dry. With an ASTM E96 method B vapor permeance rating of greater than 21 perms, VaproLiqui-Shield™ prevents air leakage and allows the wall assembly to dry through vapor diffusion, 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

1.1 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 fluid-applied vapor-permeable water-resistive air barrier membrane at exterior 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 fluid-applied flashing membranes to bridge gaps, for transition areas around windows, curtain wall, louvers, roof-to-wall interface, and elsewhere as indicated 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, storefront, and 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 the material and work of this Section required to complete mock-up panel(s). Refer to exterior elevations for the extent of mock-up panels.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all of the Contract Documents for requirements that affect 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 03 00 00 – Concrete
2. Section 04 20 00 – Unit Masonry
3. Section 06 16 00 – Sheathing
4. Section 07 10 00 – Dampproofing and Waterproofing
5. Section 07 21 00 – Building Insulation and Vapor Barriers
6. Section 07 42 63 – Composite Metal Panels
7. Section 07 50 00 – Membrane Roofing
8. Section 07 92 00 – Joint Sealants
9. Section 08 40 00 – Entrances, Storefronts, and Curtain Walls

1.4 REFERENCE STANDARDS

A. American Architectural Manufacturers Association (AAMA)
   1. AAMA 711, Specification for Self-Adhering Flashing Used for Installation of Exterior Wall Fenestration Products.

B. The American Association of Textile Chemists and Colorists (AATCC)
   1. Test Method for Water Resistance: Hydrostatic Pressure Test.

C. American Society of Civil Engineers: ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

D. ASTM International (ASTM):
   1. ASTM C661 - Standard Test Method for Evaluating Degree of Cracking of Exterior Paints
   2. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
   3. ASTM C1305 - Standard Test Method for Crack Bridging Ability of Fluid-Applied Waterproofing Membrane
   4. ASTM C1338 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facing
   5. ASTM C1498 - Standard Test Method for Hygroscopic Sorption Isotherms of Building Materials
   6. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
   7. ASTM D522 - Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings
   8. ASTM D543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents
   9. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
   10. ASTM D2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
   11. ASTM D4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
   12. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
   13. ASTM E96/96M - Test Methods for Water Vapor Transmission of Materials.
   14. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials
   15. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
   16. ASTM E2485 - Standard Test Method for Freeze/Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water Resistive Barrier Coatings

17. ASTM G154 - Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

E. International Code Council Evaluation Service, Inc. (ICC-ES): ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers.

F. CDPH/EHLB Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers Version 1.2

G. Air Barrier Association of America (ABAA) - ABAA T0002- Standard Test Method for Pull-Off Strength of Adhered Air and Water Resistive Barriers Using an Adhesion Tester

H. Air Barrier Association of America (ABAA) - ABAA T0004 - Standard Test Method for Determining Gap Bridging Ability of Air and Water Resistive Barrier Materials

1.5 SUBMITTALS

A. Submit manufacturers' current product data sheets, details, and installation instructions for the water-resistive vapor-permeable air barrier membrane components and accessories.
   1. Product data
      a. Guide specifications
      b. Safety data sheets
      c. Detail drawings showing typical conditions, transitions, and terminations
      d. Technical data sheets
      e. Application equipment requirements and recommendations.
   2. Certificates
      a. Manufacturer's sample warranty.
      b. Product certification stating assembly components are supplied and warranted by a single-source Manufacturer.
      c. Declaration Status: LBC Red List Free

Delete B if not pursuing LEED certification.

B. 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 to DD. Envelope Commissioning may qualify for an 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 the IAQ Management plan for the construction phase, which protects the building from moisture infiltration, VaproLiqui-Shield can help provide an additional 1 pt.
   4. Awareness and Education [AE] and/or Innovation [IN/ID]

a. Applies to projects that offer both a case study and an educational outreach program, which use the project as an example. 1 pt. available.

1.6 QUALITY ASSURANCE

A. Single Source: Obtain fluid-applied water-resistive vapor-permeable 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 the manufacturing and supply of fluid-applied water-resistive vapor-permeable air barrier products specified in this Section with a minimum of [**10**] ten years' experience and successful installations in similar project applications.
   2. Provide manufacturer's experienced in-house technical and field observation personnel qualified to provide technical support.

C. Applicator:
   1. Company specializing in performing Work of this Section with a minimum [3] three years' experience with fluid-applied water-resistive vapor-permeable air barrier systems.
   2. Applicator with documented experience in spray or roller application of fluid-applied membranes.

1.7 MOCK-UP

A. Construct mock-up in accordance with Section 01 43 39 - Mock-up, or as specified under General Requirements Section 01 10 00.

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.

Generally, retain the first subparagraph below if requiring preconstruction testing.

   1. Coordinate the construction of mockups to permit inspection and testing of the air barrier and drainage place along with the interfacing window, flashing, and cladding system components, before external insulation and cladding are installed.
   2. Include in the mock-up all typical conditions, including:
      a. Field application of primary air barrier
      b. Sheathing joints with reinforced treatment
      c. Inside and outside corners
      d. Rough opening treatment
      e. Penetration sealing
      f. Transitions between dissimilar materials
      g. Integration with adjacent materials

1.8 PRE-INSTALLATION CONFERENCE

A. Provide a pre-installation conference [two] weeks before commencing work on this section, under provisions of Section 01 31 19 - Project Meetings or as specified under General Requirements Section 01 10 00.

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. Surface preparation requirements
4. Application equipment and thickness control
5. Environmental conditions and limitations
6. Coordination with the sequence of installation with adjacent materials.
7. Schedule for subsequent work covering the air barrier.
8. Procedures for quality assurance.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Refer to the current Product Data Sheet, Installation Instructions, and Safety Data Sheets (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 VaproLiqui-Shield unopened containers at temperatures between 41°F to 86°F (5°C to 30°C). Store VaproLiqui-Flash and VaproAirSeal unopened sausages at temperatures between 41°F to 86°F (5°C to 30°C). Avoid high humidity. Do not open containers until preparation work has been completed.

D. VaproLiqui-Shield, VaproLiqui-Flash and VaproAirSeal have a shelf life of 18 months, when stored properly in original, unopened containers.

E. Waste Management and Disposal
1. Separate and repurpose or recycle waste materials in accordance with Section [01 74 19 Construction Waste Management and Disposal], and with the Waste Reduction Work Plan. Dispose of unused product and container in accordance with local, state, and federal regulations.

1.10 COORDINATION

A. Ensure continuity of the fluid-applied vapor-permeable air barrier system throughout the scope of this section.
1. Provide VaproLiqui-Shield fluid-applied air and water barrier that includes transition membranes, flashing, and sealants at penetrations. Provide VaproLiqui-Flash fluid-applied vapor-permeable air barrier flashing material.
2. At locations indicated, provide an unimpeded vertical drainage plane that includes a ventilated drainage cavity, fluid-applied air and water 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: drainage, water-tightness, and air barrier continuity.

1.11 WARRANTY

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

PART 2 - PRODUCTS

1.12 2.1 MATERIALS

A. Provide fluid-applied vapor-permeable air barrier material components and accessories obtained from a single-source manufacturer to ensure total system compatibility and integrity.

B. Water-Resistive Vapor Permeable Self-Adhered Air Barrier Materials.

1. Basis-of-Design Product: Subject to compliance with requirements, provide VaproLiqui-Shield™ Fluid-Applied Vapor Permeable Air Barrier as manufactured by VaproShield, a sprayable/rollable STPE (silyl modified polymer) that is solvent and isocyanate-free. Provide the fluid membrane tested in accordance with ICC-ES AC 38 criteria to meet IBC and IRC requirements for water-resistive barriers having the following properties:
   a. Color: Black
   b. Composition: Silyl Modified Polymer (STPE).
   c. VOC Content EPA Method 24 at 0.4%.
   d. Application Method: Spray or roller application.
   e. Application Thickness: 20-25 wet mils.
   f. Coverage: 40-75 sq ft/gallon (based on surface texture).
   g. Service Temperature: -40°F to 248°F (-40° to 120°C).
   h. Minimum Application Temperature: 32°F and rising (0°C and rising).
   i. UV Exposure: 12 months maximum before cladding installation.
   j. Peel Adhesion tested to ASTM C794: Pass ≥80.88 N/mm (≥5 pli).
   k. Fungal Resistance: No Growth when testing in accordance with ASTM C1338.
   l. Elongation at break: 235% when testing in accordance with ASTM D412.
   m. Tensile Strength: 1.26 MPa (183 psi) when tested in accordance with ASTM D412.
   n. Low Temperature Flexibility: No surface changes when testing in accordance with ASTM D522.
   o. Alkali Resistance: No deleterious effects when testing in accordance with ASTM D543.
   p. Water Resistance in 100%RH: No blistering or other deleterious effects when testing in accordance with ASTM D2247.
   q. Surface Burning Characteristics tested to ASTM E84: Flame-Spread index of 25, Smoke-Developed index of 90.
   r. Water Vapor Permeance tested to ASTM E96 desiccant method, procedure A: minimum of 13.6 perms (778 ng/Pa•s•m^2).
   s. Water Vapor Permeance tested to ASTM E96 water method, procedure B: minimum of 20.5 perms (1173 ng/Pa•s•m^2).
   t. Air Permeance: 0.0009 L/s•m^2 @ 75 Pa (0.0002 cfm/ft^2 @ 1.57 psf) when tested in accordance with ASTM E2178.
   u. Air Barrier Assembly: 0.005 L/s•m^2 @ 75 Pa (0.001 cfm/ft^2 @ 1.57 psf) when tested in accordance with ASTM E2357.
   v. Freeze Thaw Resistance: No surface changes when tested in accordance with ASTM E2485.
   w. Water Resistance tested to AATCC 127, 55 cm hydrostatic head for 5 hours: Pass - No leakage.
   x. Crack Bridging tested to ABAA T0004: Pass
   y. Physical Properties: 5-gallon (3.8-liter) pail, 60 lbs. (27.2 kg) weight, 52-gallon (197-liter) drum, 624 lbs. (283 kg).

C. Fluid-Applied Vapor Permeable Transition and Flashing Membrane

1. Provide a fluid-applied air barrier transition and flashing system for all window jambs, headers, door openings, inside and outside corners, and other transitions. Provide VaproLiqui-Flash™ and VaproAirSeal by VaproShield, fluid-applied vapor-permeable air barrier flashing material with resistance to moisture and air leakage properties compatible with the primary fluid-applied water-resistive vapor permeable air barrier, having the following properties:
    a. VaproLiqui-Flash™ Vapor Permeable Water Resistive Flashing For Rough Openings.
        1) Same vapor-permeable properties as VaproLiqui-Shield™ primary air barrier.
        2) Application: 20 oz. (.57kg) sausage
            a) Application Temperature: 35°F to 110°F (1.7°C to 43°C)
            b) Application Method: Sausage gun, putty knife, or brush
            c) Application Thickness: 12-15 wet mils for detail work
            d) Tack-free time: 25-35 minutes at 77°F (25°C) and 50% RH
            e) Pass: CDPH/EHLB/Standard Method V1.2 (Sect. 01350) VOC test
    b. VaproAirSeal Vapor Permeable Water Resistive Flashing for coverage of exposed gypsum edges.
        1) Similar vapor-permeable properties as VaproLiqui-Shield, primary air barrier.
        2) Application: 20 oz. (0.57kg) sausage
            a) Application Temperature: 35°F to 110°F (1.7°C to 43°C)
            b) Application Method: Sausage gun, putty knife, or brush
            c) Application Thickness: 12-15 wet mils for detail work; 30-50 wet mils total when used with reinforcing fabric
            d) Tack-free time: 25-35 minutes at 77°F (25°C) and 50% RH
            e) Pass: CDPH/EHLB/Standard Method V1.2 (Sect. 01350) VOC test
    c. VaproFlashing SA air, water, and vapor barrier flashing with an aggressive pressure-sensitive adhesive, white: 4, 6, 12 inches (10.3, 15.2, 30.5 cm) wide x 100 feet (30.48 m) long.
        1) Provide VaproFlashing SA at all joints, corners, transitions, and rough openings.

SPEC WRITERS NOTE: Acceptable substrates for VaproLiqui-Shield Fluid-Applied Vapor Permeable Air Barrier include: concrete, CMU block, plywood, framing lumber, OSB, brick, metal (steel, aluminum), MGO board, and exterior gypsum sheathing—best practice guidelines for the application of VaproLiqui-Shield on clean, dry surfaces without the use of primers. Applications of VaproLiqui-Shield on clean surfaces, free from oil, dust, bulk water, or other contaminants, should be verified for proper thickness using a wet mil gauge immediately after the material is installed. VaproLiqui-Shield's moisture-curing technology allows application to damp substrates without compromising performance.

2.2 PENETRATION SEALANT

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

2.3 APPLICATION EQUIPMENT

A. Spray Equipment: Professional airless spray equipment producing 4000 psi at the gun; optimal 5,000-6,500 psi at the pump.

B. Roller Application: Standard ⅜-inch nap roller.

C. Detail Work: Sausage gun for VaproLiqui-Flash, brush, trowel, or putty knife.

D. VaproFlashing SA Installation: J-roller or hand roller.

E. Wet Mil Gauge: For thickness verification throughout the application.

SPEC WRITERS NOTE: VaproShield's fluid-applied membranes are designed for spray or roller application. The one-component formulation requires no mixing and cures through moisture in the air, allowing application to damp substrates.

PART 3 - EXECUTION

1.13 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 clean and free of frost, oil, grease, dirt, excess mortar, or other contaminants detrimental to the adhesion of the fluid-applied air barrier membrane and flashings. New concrete should be cured for a minimum of 3 days. Fresh mortar joints in CMU should be properly cured. CMU walls must be capped (protected from moisture) before the installation of VaproLiqui-Shield.

C. Surface and ambient temperatures should be above 32°F (0°C) and rising for VaproLiqui-Shield application. VaproLiqui-Flash and VaproAirSeal can be applied from 32°F to 110°F (0°C to 43°C). Both products can be applied to damp surfaces.

D. Do not apply VaproLiqui-Shield if precipitation is forecast or imminent within 24 hours at 75°F (23.5°C) and 50% RH of application. Materials will withstand rain after installation once the skin has formed.

E. Ensure all preparatory work is complete before applying the primary fluid-applied vapor-permeable air barrier membrane.

3.2 DETAIL PREPARATION

A. Sheathing joints:
   1. Identify all sheathing joints requiring treatment. Gaps less than ¼" require filler application.
   2. Apply a bead of VaproAirSeal centered over the joint, tool to a minimum 1" on each side of the joint.
   3. Gaps ¼ to ½ inch apply VaproFlashing SA centered over the gap.
      a. Affix the VaproFlashing pressing firmly using a roller.
   4. Gaps greater than ½ inch require repair.

B. Inside/outside corners:
   1. Inside and outside corners require special attention to prevent bridging and ensure flexibility.
   2. Apply VaproFlashing into the corner, extending a minimum of 3" onto each surface
      a. Affix the VaproFlashing pressing firmly using a roller.

3.3 ROUGH OPENING TREATMENT SEQUENCE

A. Rough openings receive reinforced treatment for long-term performance.
   1. Apply a coat of VaproAirSeal to any exposed gypsum edges, tooling to cover the gypsum.
   2. Apply a liberal coat of VaproLiqui-Flash to the sill, legs, and header, tooling to create positive drainage.

3.4 PENETRATION SEALING

A. Mechanical/electrical penetrations:
   1. Penetrations are sealed with VaproAirSeal or VaproLiqui-Flash.
   2. Apply VaproAirSeal or VaproLiqui-Flash liberally around penetration, extending a minimum of 2" onto the substrate. Fill all gaps.
   3. Tool VaproAirSeal or VaproLiqui-Flash smooth around penetration to shed water. No reinforcement needed for typical penetrations.

B. Mechanical pipe, electrical conduit, and/or duct work must be secured solidly into position before installation of the fluid-applied vapor-permeable air barrier membrane.

C. Electrical services penetrating the wall assembly and fluid-applied vapor-permeable air barrier membrane must be placed in an appropriate conduit and secured solidly into position.

D. Install manufactured flanged penetration sleeves as recommended by the sleeve manufacturer.

E. For straight-sided penetrations, apply VaproLiqui-Flash to seal the air barrier membrane to ductwork or a preformed flange sleeve.

F. For pipe penetrations, refer to the manufacturer's standard details.

3.5 PRIMARY APPLICATION

A. Field Application of VaproLiqui-Shield:
   1. After all reinforced details have cured, begin VaproLiqui-Shield field application. Maintain 20 wet mil thickness.
      a. Application on porous substrate may require additional thickness up to 26 mil.
   2. Apply VaproLiqui-Shield over the primary field and all cured VaproLiqui-Flash details, ensuring complete integration. Overlap a minimum of 2".
   3. Monitor thickness throughout application using a wet mil gauge. VaproLiqui-Shield bonds to cured VaproLiqui-Flash, creating a monolithic air barrier.

B. Spray Application:
   1. Use professional airless spray equipment producing 4000 psi at the gun; optimal 5,000-6,500 psi at the pump.
   2. Apply in overlapping passes to ensure complete coverage and proper thickness.
   3. Maintain uniform application thickness of 20-25 wet mils.

C. Roller Application:
   1. Use a standard 3/8-inch nap roller for smaller areas or where spray application is not practical.
   2. Apply in thin, even coats to achieve the specified thickness.
   3. Work material into surface texture to ensure complete coverage.

D. Curing and Drying:
   1. At 77°F (25°C) and 50% RH, skin time is 40-50 minutes.

2. Higher temperature and/or humidity will accelerate cure time.
3. Low temperatures/relative humidity slow dry time; high temperatures/relative humidity accelerate dry time.
4. If air or surface temperatures exceed 95°F (35°C), apply VaproLiqui-Shield to the shady side of the structure.
5. Misting hot surfaces with fresh water can cool surface temperature and accelerate drying.

3.6 THROUGH-WALL FLASHING

A. 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 the designer.
      a. Press the membrane firmly into place, overlap a minimum of 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. Install through-wall flashing membrane ½ inch (13 mm) from the outside edge of the veneer. Provide "end dam" flashing as detailed by the designer.

3.7 INSTALLATION SEQUENCE SUMMARY

A. Proper Sequencing is Critical:
   1. Surface Preparation - Clean all substrates
   2. Joint Treatment – VaproAirSeal at sheathing joints <¼ inch.
      VaproFlashing at sheathing joints ¼ to ½ inches.
      Repair joints > ½ inch
   3. Corner Treatment – VaproAirSeal at material changes
      VaproFlashing at joints ¼ to ½ inches.
      Repair joints > ½ inch
   4. Rough Openings – VaproAirSeal over exposed gypsum.
      VaproLiqui-Flash to cover rough opening.
   5. Penetrations – VaproAirSeal.
   6. Field Application - VaproLiqui-Shield over the entire surface
   7. Integration - VaproLiqui-Shield overlaps all details by 2" minimum

3.8 FASTENING CLIPS AND MASONRY TIES

A. Install clips and masonry ties over the primary fluid-applied vapor-permeable air barrier membrane after full cure.

B. Secure clips and masonry ties with corrosion-resistant or stainless-steel screws with gasketed fasteners.

C. Seal all fastener penetrations with VaproAirSeal or VaproLiqui-Flash.

D. Consult VaproShield Technical Services for recommendations on fastener treatments for rainscreen cladding attachment components by others.

3.9 FIELD QUALITY CONTROL

A. Make a notification when sections of work are complete to allow review before covering the fluid-applied vapor-permeable air barrier system.

B. Owner to engage an independent consultant to observe substrate and membrane installation prior to placement of cladding system(s) and provide written documentation of observations.

C. Inspection Checklist:
   1. All joints fully encapsulated
   2. All corners treated without bridging
   3. All transitions are properly detailed
   4. Rough openings completely sealed with positive drainage
   5. All penetrations sealed
   6. VaproLiqui-Shield applied at proper thickness
   7. Complete integration of all systems
   8. No holidays, voids, or thin spots

D. Common Errors to Avoid:
   1. Bridging corners with VaproFlashing instead of working into an angle
   2. Insufficient overlap of VaproFlashing at intersections
   3. Applying VaproLiqui-Shield before VaproAirSeal or VaproLiqui-Flash details cure
   4. Missing concealed joints behind flashings
   5. Inadequate thickness at details

3.10 REPAIR PROCEDURES

A. FIELD REPAIR (VaproLiqui-Shield/VaproAirSeal/VaproLiqui-Flash Only Areas):
   1. Field damage away from details can be repaired with VaproAirSeal or VaproLiqui-Flash only, extending 2" beyond the damage.

3.11 PROTECTION

A. Protect wall areas covered with fluid-applied vapor permeable air barrier from damage due to construction activities, high wind conditions, and up to 12 months of extended exposure to inclement weather.)

B. Review the condition of the fluid-applied vapor-permeable air barrier before installation of cladding. Repair damaged sections with a new application.

C. Recommend to cap and protect exposed back-up walls against wet weather conditions during and after application of the membrane, including wall openings and construction activity above completed fluid-applied vapor-permeable air barrier installations.

D. Remove and replace the air barrier membrane affected by chemical spills or surfactants.

END OF SECTION