WHITE PLAINS CITY SCHOOL DISTRICT

HIGH SCHOOL ADDITION
SED CONTROL NO. 66-22-00-01-0-016-030

CONTRACT C - CIVIL AND SITE WORK
CONTRACT G - GENERAL CONSTRUCTION WORK
CONTRACT M - HEATING VENTILATION AND AIR CONDITIONING WORK
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QUALIFICATIONS OF BIDDERS

Experience and Qualifications of the Bidder: Each bidder is required to submit the following documentation to demonstrate its experience and qualifications for the work of the Project for which a bid is submitted as well as the following Statement of Bidder's Qualifications.:

a. A description of its experience with projects of comparative size, complexity, and cost, together with documentary evidence showing that said projects were completed to the Owner's satisfaction and were completed in a timely fashion;

b. Documentation from each of the projects it has performed capital work in the last five (5) years concerning the bidder's:

(i) timeliness of performance of the work of the project

(ii) evidence that the project was completed to the Owner's satisfaction;

(ii) whether or not any extensions of time were requested by the contractor and whether or not such requests were granted;

(iv) whether litigation and/or arbitration was commenced by either the Owner or the bidder as a result of the work of the project performed by the bidder;

(v) whether any liens were filed on the project by subcontractors or material suppliers of the bidder;

(vi) whether the bidder was defaulted on the project by the owner;

(vii) whether the bidder made any claims for extra work on the project, including whether said claim resulted in a change order;

c. Documentation evidencing the bidder's financial responsibility, including a certified financial statement prepared by a certified public accountant.

d. Documentation evidencing the bidder's existence under the same name for the last five (5) years.

e. Documentation evidencing the bidder's Worker's Compensation Experience Modification.

STATEMENT OF BIDDER'S QUALIFICATIONS

IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE ANSWER TO ALL OF THE QUESTIONS IN THIS STATEMENT. IF ADDITIONAL SPACE IS REQUIRED TO FURNISH A COMPLETE ANSWER, BIDDER MAY ATTACH PAGES AS NECESSARY. IN THE EVENT THAT COMPLETE ANSWERS ARE NOT PROVIDED TO EVERY QUESTION, THE BID WILL BE REJECTED.

1. Name of Bidder

_____

2. Type of Business Entity (e.g., sole proprietor, partnership, corporation, LLC, etc.)

_____

3. If the bidder is a corporation, state the date and place of incorporation of the corporation.

_____

4. For how many years has the bidder done business under its present name?

_____

5. List the persons who are directors, officers owners, managerial employees or partners in the bidder's business.

_____

_____

_____

_____

6. Have any of the persons listed in Number 5 owned/operated/been shareholders in any other companies? If so, please state name of the other companies and the individuals who owned, operated, or have been shareholders:

7. Has any director, officer, owner or managerial employee had any professional license suspended or revoked? If the answer to this question is yes, list the name of the individual, the professional license he/she formerly held, whether said license was revoked or suspended and the date of the revocation or suspension.

8. Has the bidder been found guilty of any OSHA Violations? If the answer to this question is yes, describe the nature of the OSHA violation, an explanation of remediation or other steps taken regarding such violation(s).

9. Has the bidder been charged with any claims pertaining to unlawful intimidation or discrimination against any employee by reason of race, creed, color, disability, sex or natural origin and/or violations of an employee's civil rights or equal employment opportunities? If the answer to this question is yes, list the persons making such claim against the bidder, a description of the claim, the status of the claim, and what disposition (if any) has been made regarding such claim.

_____

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10. Has the bidder been named as a party in any lawsuit arising from performance of work related to any project in which it has been engaged? If the answer to this question is yes, list all such lawsuits, the index number associated with said suit and the status of the lawsuit at the time of the submission of this bid.

_____

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_____

11. Has the bidder been the subject of an investigation and/or proceedings before the Department of Labor for alleged violations of the Labor Law as it relates to the payment of prevailing wages and/or supplemental payment requirements? If the answer to this question is yes, please list each such instance of the commencement of a Department of Labor proceeding, for which project such proceeding was commenced, and the status of the proceeding at the time of the submission of this bid.

_____

_____

12. Has the bidder been the subject of an investigation and/or proceeding before any law enforcement agency, including, but not limited to any District Attorney's Office? If the answer to this question is yes, please list each such instance, the law enforcement agency, the nature of the proceeding, the project for which such proceeding was commenced, if applicable to a project, and the status of the proceeding at the time of the submission of this bid.

13. Has the bidder been the subject of proceedings involving allegations that it violated the Workers' Compensation Law, including but not limited to, the failure to provide proof of worker's compensation or disability coverage and/or any lapses thereof? If the answer to this question is yes, list each such instance of violation and the status of the claimed violation at the time of the submissions of this bid.

14. Has the bidder, its officers, directors, owner and/or managerial employees been convicted of a crime or been the subject of a criminal indictment? If the answer to this question is yes, list the name of the individual convicted or indicted, the charge against the individual and the date of disposition of the charge.

_____

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15. Has the bidder been charged with and/or found guilty of any violations of federal, state, or municipal environmental and/or health laws, codes, rules and/or regulations? If the answer to this question is yes, list the nature of the charge against the bidder, the date of the charge, and the status of the charge at the time of the submission of this bid.

_____

_____

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16. Has the bidder bid on any projects for the period April 1, 2020 to present? If the answer to this question is yes, list the projects bid on, whether said bid was awarded to the bidder and the expected date of commencement of the work for said project. For those projects listed, if the bidder was not awarded the contract, state whether the bidder was the lowest monetary bidder.

IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE LIST OF PROJECTS AS REQUIRED BY THIS QUESTION #16 WITH ITS BID. IN THE EVENT THE LIST REQUESTED IS NOT SUBMITTED WITH THE BIDDER'S BID, THE BID WILL BE REJECTED

17. Does the bidder have any projects ongoing at the time of the submission of this bid? If the answer to this question is yes, list the projects on which the bidder is currently working, the percentage complete, and the expected date of completion of said project.

IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE LIST OF PROJECTS AS REQUIRED BY THIS QUESTION #17 WITH ITS BID. IN THE EVENT THE LIST REQUESTED IS NOT SUBMITTED WITH THE BIDDER'S BID, THE BID WILL BE REJECTED.

18. Have the bidder and its bond surety ever been notified by a project Owner that the Owner is contemplating declaring a default and requested a conference to discuss the performance of the contract? If the answer to this question is yes, list the projects on which such a conference was held, and the result of the conference, and the status of the project in question.

19. Has the bidder ever been terminated from a Project by the Owner? If the answer to this question is yes, list the projects on which the bidder was terminated, the nature of the termination (convenience, suspension, for cause), and the date of said termination.

IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE LIST OF PROJECTS AS REQUIRED BY THIS QUESTION #19 WITH ITS BID. IN THE EVENT THE LIST REQUESTED IS NOT SUBMITTED WITH THE BIDDER'S BID, THE BID WILL BE REJECTED.

20. Has the bidder's surety ever been contacted to provide supervisory services in connection with an on-going project. If the answer to this question is yes, list the project(s) for which the surety provided supervisory services.

IMPORTANT: BIDDERS ARE REQUIRED TO FURNISH A COMPLETE LIST OF PROJECTS AS REQUIRED BY THIS QUESTION #20 WITH ITS BID. IN THE EVENT THE LIST REQUESTED IS NOT SUBMITTED WITH THE BIDDER'S BID, THE BID WILL BE REJECTED.

21. Bidder's Worker's Compensation Experience Modifier: _____

Dated: By: _____
(Signature)

_____
(Print Name and Title)

Sworn to before me this

_____day of_____, 20_____

_____
Notary Public

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Liquid-applied self-leveling floor underlayment.
   1. Cementitious type.
   2. Polished Finishing and Sealant Application.

1.02 REFERENCE STANDARDS

A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50 mm] Cube Specimens); 2021.

B. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2018.

C. ASTM C348 - Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars; 2021.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.

E. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2022.

F. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

1.03 SUBMITTALS

A. See Section 013300 - SUBMITTALS, for submittal procedures.

B. Product Data: Provide manufacturer's data sheets documenting physical characteristics and product limitations of underlayment materials. Include information on surface preparation, environmental limitations, and installation instructions.

C. Certificate: Certify that products meet or exceed specified requirements.

D. Manufacturer's Instructions.

1.04 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the work of this section, and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Keep dry and protect from direct sun exposure, freezing, and ambient temperature greater than 105 degrees F (41 degrees C).

1.06 MOCK-UP

A. Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Prepare mock-up in location designated by Architect/Engineer.

2. Area: 6 ft by 6 ft (2 m by 2 m).
3. Do not proceed with underlayment work until workmanship of mock-up has been approved by Architect/Engineer.

B. Mock-up may remain as part of the Work.

1.07 FIELD CONDITIONS

A. Do not install underlayment until floor penetrations and peripheral work are complete.

B. Maintain minimum ambient temperatures of 50 degrees F (10 degrees C) 24 hours before, during and 72 hours after installation of underlayment.

C. During the curing process, ventilate spaces to remove excess moisture.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Cementitious Underlayment:
1. ARDEX Engineered Cements: ARDEX K 520: www.ardexamericas.com/#sle. (Basis of Design).
2. Custom Building Products; CL-150 Self-Leveling Underlayment: www.custombuildingproducts.com/#sle.
3. Maxxon Corporation; Level-One EZ: www.maxxon.com/#sle.
4. MAPEI Corp.; Novoplan 2 Plus (standard set) or Ultraplan 1 Plus (rapid set) with Primer T: www.mapei.com
5. UZIN, a division of UFLOOR Systems Inc; UZIN PE 260 primer with UZIN NC 170 LevelStar: www.ufloorsystems.com/#sle.
6. W. R. Meadows, Inc; Floor-Top STG: www.wrmeadows.com/#sle.

2.02 MATERIALS

A. Cast Underlayments, General:
1. Comply with applicable code for combustibility or flame spread requirements.
2. Provide certificate of compliance from authority having jurisdiction indicating approval of underlayment materials in the required fire rated assembly.

B. Cementitious Underlayment: Blended cement mix, that when mixed with water in accordance with manufacturer's directions will produce self-leveling underlayment with the following properties:
1. Compressive Strength: Minimum 5000 pounds per square inch (34.5 MPa) after 28 days, tested per ASTM C109/C109M.
2. Flexural Strength: Minimum 1000 psi (6.9 MPa) after 28 days, tested per ASTM C348.
3. Density: 125 pounds per cubic foot (2002 kg/cu m), nominal.
4. Final Set Time: 1-1/2 to 2 hours, maximum.
5. Thickness: Capable of thicknesses from feather edge to maximum 3-1/2 inch (89 mm).
6. Surface Burning Characteristics: Flame spread/Smoke developed index of 0/0 in accordance with ASTM E84.

C. Aggregate: Dry, well graded, washed silica aggregate, approximately 1/8 inch (3 mm) in size and acceptable to underlayment manufacturer.

D. Reinforcement: Galvanized metal lath complying with recommendations of underlayment manufacturer for specific project circumstances.

E. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to underlayment mix materials.

F. Primer: Manufacturer's recommended type.

G. Joint and Crack Filler: Latex based filler, as recommended by manufacturer.

H. Topical Color or Integral Color
   1. As selected by Architect and suitable for use with a cementitious product.

2.03 MIXING

A. Site mix materials in accordance with manufacturer's instructions.

B. Add aggregate for areas where thickness will exceed 1/2 inch (12.7 mm). Mix underlayment and water for at least two minutes before adding aggregate, and continue mixing to assure that aggregate has been thoroughly coated.

C. Mix to self-leveling consistency without over-watering.

2.04 CONCRETE POLISH EQUIPMENT & TOOLING

A. Equipment and Tooling for use as part of the multi-step dry mechanical process and accessories. Acceptable products include:
   1. Planetary Grinder and Polisher
      a. Features: Large Platform: planetary floor polisher.
      b. Tooling
         1) Metal Bonded Diamonds 100 - 150 Grit of bonded metal
         2) Transitional Diamonds Ceramic
         3) Resin Bonded Diamonds - 200, 400, 800, 1500 Grit, as needed.
   2. Micro Polisher – Burnishers
      a. Specific weight and RPM are required for application of floor finish/guard
      b. Required Tooling: Diamond Impregnated Pads – 400, 800, 1500, 3000 Grit
   3. Other equipment and tooling as necessary for small areas and edge work.
   4. Power generator – as needed
   5. All grinding and polishing completed with grinder/polisher equipment should be connected to a dust collector.

2.05 CONCRETE TREATMENT CHEMICALS

A. Concrete treatments designed for use in conjunction with the installation of the ARDEX Polished Concrete Topping.

B. Color: As selected by the Architect from the manufacturer's full color offering.

2.06 STAIN AND WEAR PROTECTION

A. Concrete stain and wear protection designed for used in conjunction with the installation of ARDEX K 520™ and suitable for the type/location of the installation.

B. Provide a compatible and manufacturer approved, nano-based, sealant to impart non-slip coefficients required by ADA and local building code requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are clean, dry, unfrozen, do not contain petroleum byproducts, or other compounds detrimental to underlayment material bond to substrate.

3.02 PREPARATION

A. General: Prepare and clean substrate according to manufacturer's written instructions.
   1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
   2. Fill substrate voids to prevent underlayment from leaking.

B. Concrete Substrates: Mechanically remove, according to manufacturer's written instructions, laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.
   1. Moisture Testing: Perform anhydrous calcium chloride test, ASTM F1869. Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of Insert value in 24 hours.

C. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.

D. Concrete: Prepare surfaces according to ICRI 310.2R, CSP 6 (medium scarification)

E. Wood: Install metal lath for reinforcement of underlayment.

F. Remove substrate surface irregularities. Fill voids and deck joints with filler. Finish smooth.

G. Vacuum clean surfaces.

H. Prime substrate in accordance with manufacturer's instructions. Allow to dry.

I. Close floor openings.

3.03 APPLICATION

A. Install underlayment in accordance with manufacturer's instructions.

B. Pump or pour material onto substrate. Do not retemper or add water.
   1. Pump, move, and screed while the material is still highly flowable.
   2. Be careful not to create cold joints.
   3. Wear spiked shoes while working in the wet material to avoid leaving marks.

C. Place to indicated thickness, with top surface level to 1/16 inch in 10 ft (1:2000).

D. For final thickness over 1-1/2 inches (38 mm), place underlayment in layers. Allow initial layer to harden to the point where the material has lost its evaporative moisture. Immediately prime and begin application of the subsequent layer within 24 hours.

E. Place before partition installation.

F. Where additional aggregate has been used in the mix, add a top layer of neat mix (without aggregate), if needed to level and smooth the surface.

G. If a fine, feathered edge is desired, steel trowel the edge after initial set, but before it is completely hard.

3.04 CURING

A. Once underlayment starts to set, prohibit foot traffic until final set has been reached.

B. Air cure in accordance with manufacturer's instructions.

3.05 FIELD QUALITY CONTROL

A. An independent testing agency will perform field inspection and testing, as specified in Section 014000 - Quality Requirements.

B. Placed Material: Agency will inspect and test for compliance with specification requirements.

3.06 PROTECTION

A. Protect against direct sunlight, heat, and wind; prevent rapid drying to avoid shrinkage and cracking.

B. Do not permit traffic over unprotected floor underlayment surfaces.

END OF SECTION

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. Rainscreen support systems.
   8. 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 REFERENCE STANDARDS

A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2016 (Reapproved 2021).

B. ASTM D5034 - Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test); 2021.

C. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000 (Reapproved 2020).

D. ASTM D828 - Standard Test Method for Tensile Properties of Paper and Paperboard Using Constant-Rate-of-Elongation Apparatus; 2016, with Editorial Revision (2018).

E. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting; 2018.

F. ASTM E154/E154M - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover; 2008a (Reapproved 2019).

G. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials; 2021a.

H. ASTM E2357 - Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies; 2018.

I. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.

J. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2022.

K. American Association of Textile Chemists and Colorists (AATCC): ATCC 127 - Test Method for Water Resistance: Hydrostatic Pressure Test.

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

1.04 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

1.05 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
2. Flame spread index: 5 or less
3. Smoke developed index: 15 or less

1.06 MOCK-UP

A. Provide mock-up of specified water-resistive vapor permeable air barrier materials under provisions of Section 013300 - SUBMITTALS.

B. Where directed by Architect/Engineer, 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.

C. Allow 48 hours for inspection of mock-up by Architect/Engineer before proceeding with water-resistive vapor permeable air barrier work. Mock-up may remain as part of the work.

1.07 PRE-INSTALLATION CONFERENCE

A. Contractor shall convene one week prior to commencing work of this section, under provisions of Section 013119 - PROGRESS MEETINGS.

B. Ensure all contractors responsible for creating a continuous plane of water and air tightness are present.

1.08 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.

1.09 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.

1.10 ALTERNATES

A. Submit request for alternates in accordance with Section 012500 - PRODUCT 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 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.

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.

1.11 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 or approved equal.

B. WATER-RESISTIVE VAPOR PERMEABLE SELF-ADHERED AIR BARRIER MATERIALS
   1. Basis-of-Design Product: Subject to compliance with requirements, provide fully self-adhered air barrier sheet membrane RevealShield SA Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet as manufactured by VaproShield, a zero VOC fully self-adhered vapor permeable air barrier sheet membrane consisting of coated spun-bonded polyethylene with vapor-permeable adhesive. Provide sheet membrane 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 with allowable UV exposure for 12 months, prior to coverage.
      b. Dry Tensile strength and Elongation to ASTM D828: 37.7 lbf (6.6 N), machine direction; 21.3 lbf (390 N), cross-machine direction.
      c. Dry Breaking strength and Elongation to ASTM D5034: 119 lbf (529 N), machine direction; 96 lbf (427 N), cross-machine direction.
      d. Water Vapor Permeance tested to ASTM E96/E96M desiccant method, procedure A: minimum of 28.058 perms (1605 ng/Pa•s•m2).
      e. Water Vapor Permeance tested to ASTM E96/E96M water method, procedure B: minimum of 63.481 perms (3632 ng/Pa•s•m2).
      f. Water Vapor Permeance tested to ASTM E398: minimum of 65.53 perms (3748 ng/Pa•s•m2).
      g. Air Leakage: ?0.00002 cfm/ft2 @ 1.57 psf (?0.0001 L/s m2 @ 75 Pa) when tested in accordance with ASTM E2178 and <0.01 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.
      h. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage
      i. Application Temperature: Ambient temperature must be above 20 °F (minus 6 °C).
      j. Surface Burning Characteristics tested to ASTM E84: Class A, Flame-Spread index of less than 0, Smoke-Developed index of less than 75.
      k. Physical Dimensions: RevealShield SA: 19 mil (0.48 mm) thick, 59 inches (1.5 m) wide, 102 feet (31.1 m). 380.67 g/m2 (11.227 oz/yd2) membrane weight.

C. WATER-RESISTIVE VAPOR PERMEABLE TRANSITION AND FLASHING MEMBRANE Part One 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

VaproFlashing SA™ by VaproShield, a zero VOC fully self-adhered water-resistive vapor permeable sheet membrane having the following properties:

a. VaproFlashing SA™ Self-Adhered Orange: 6 ½ inches (17.8 cm), 11 3/4 inches (30 cm) or 19 2/3 inches (50 cm) wide x 164 feet (50 m) long
   1) Air Leakage: =0.00002 cfm/ft2 @ 1.57 psf (=0.0001 L/s m2 @ 75 Pa) when tested in accordance with ASTM E 2178 and <0.01 cfm/ft2 @ 1.57 psf (<0.01 L/s m2 @ 75 Pa)) when tested in accordance with ASTM E2357.
   2) Water Vapor Permeance tested to ASTM E96/E96M Method B: minimum 50 perms (2861 ng/Pa.s.m2)
   3) Water Vapor Permeance tested to ASTM E398: minimum of 50 perms (2861 ng/Pa.s.m2)
   4) 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 Part II of Two Part Flashing System
   1. Window and door pre-cut VaproFlashing™ 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.

E. 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. THROUGH WALL FLASHING
   1. Thru-wall flashing 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/E154M
      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.

G. TRANSITION FLASHING
   1. 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 psi (3.5 N/mm) when tested in accordance to ASTM D624.

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 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://vaproshield.com/public-documents/installation-instructions.

B. Installation Summary:
1. 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.
2. Complete detail work at; wall openings, building transitions and penetrations prior to field applications.
3. 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.
4. Install fully self-adhered vapor permeable air barrier sheet 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 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 lap on to substrates.

D. Ensure minimum 3 inch overlap at side and end laps of membrane and 6 inch 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; VaproFlashing™ 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. VaproFlashing™ SA Self-Adhered air barrier transition and flashing membrane installed 2 ¾ inch into rough wall openings for the sill, jambs 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://vaproshield.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 VaproFlashing™ SA Self-Adhered flashing, 1 inch (25.4 mm) onto the face continuing into the rough opening, covering the 2 ¾ inch (70 mm) VaproFlashing™ SA Self-Adhered flashing and the exposed rough opening surface.

F. THROUGH-WALL FLASHING MEMBRANE
   1. Download Installation Instructions at: http://vaproshield.com/public-documents/installation-instructions.
   2. 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 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 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 from outside edge of veneer. Provide “end dam” flashing as detailed by designer.

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 onto the face continuing into the rough opening, covering the 2 ¾ inch VaproFlashing™ SA Self-Adhered flashing and the exposed rough opening surface.

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 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 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 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://vaproshield.com/installation/instructions for the most current and complete installation instructions.

3.07 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.

3.08 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 fastener treatments for rain screen cladding attachment components by others.

3.09 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.

3.10 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 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