PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. Drawings and general provisions of the Contract, including General and Supplementary
      Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY
   A. Section Includes:
      1. Breathable Underlayment.
      2. Flexible flashing.
   B. Related Requirements:
      1. Section 06 10 00 "Rough Carpentry" for sheathing underlayment supporting weather
         barriers.

1.3 ACTION SUBMITTALS
   A. Product Data: For each type of product.
      1. For building wrap, include data on air and water-vapor permeance based on testing
         according to referenced standards.

1.4 INFORMATIONAL SUBMITTALS
   A. Evaluation Reports: For water-resistant barrier and flexible flashing, from ICC-ES.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
   A. Basis of Design Manufacturer: Vaproshield USA, 866-731-7663, www.vaproshield.com
   B. Provide all major components of the weather barrier system by one manufacturer except
      where allowed under Division 1 substitution procedures.
C. The following products are basis of design products, provide as specified or provide equals subject to Division 1 substitution requirements.

2.2 WEATHER-RESISTIVE VAPOR PERMEABLE AIR BARRIERS

A. Self-adhered Vapor Permeable Weather Resistive Air Barrier Sheet Membrane: Basis of Design Products: WrapShield SA and RevealShield SA Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheets, zero VOC self-adhered vapor permeable air barrier sheet membranes consisting of multiple layers of UV stabilized spun-bonded polypropylene having the following properties:
   1. 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
   2. Water Vapor Permeance tested to ASTM E 96 Method B: 50 perms (2875ng/Pa.s.m2)
   3. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage
   4. 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
   5. Application Temperature: Ambient temperature must be above 20 degrees F
   6. Surface Burning Characteristics tested to ASTM E 84: Class A, Flame-spread index of less than 10, Smoke-development index of less than 15
   7. Physical Dimensions: 0.026 inches (0.65 mm) thick and 59 inches (1.5 m) wide and 8.26 oz per sq. yd.
   8. Uses:
      a. Allowable to use WrapShield SA in concealed locations:
         1) Color: Orange with allowable UV exposure for 180 days.
      b. Use RevealShield SA in areas exposed to view, including thru reveals and perforations in metal siding or soffits.
         1) Color: black, w/ no labels

2.3 WEATHER-RESISTIVE VAPOR PERMEABLE ROOF UNDERLAYMENT

A. Self-adhered Vapor Permeable Ice and Weather Resistive Underlayment: Basis of Design Product: SlopeShield SA.
   1. Color: Red
   2. Water Vapor Permeance tested to ASTM E 96 Method B: 59 perms (2875ng/Pa.s.m2)
   3. Water Resistance tested to AC 48: Pass, No leakage
   4. Tensile Strength tested to ASTM D 1682: Pass.
   5. Application Temperature: Ambient temperature must be above 20 degrees F
   6. Physical Dimensions: 0.020 inches (0.65 mm) thick and 5.01 oz per sq. yd

2.4 WEATHER-RESISTIVE VAPOR PERMEABLE TRANSITION AND FLASHING MEMBRANE
A. Self-adhered Air Barrier Transition and Flashing Membrane: Basis of Design Products: VaproFlashing SA and RevealFlashing SA, a zero VOC self-adhered water-resistive vapor permeable membrane having the following properties:
   1. Air Leakage: $< 0.0000263 \text{ cfm/sq. ft. @ 75 Pa (0.000134 L/s/m sq @ 75 Pa)}$ when tested in accordance with ASTM E 2178Water
   2. Vapor Permeance tested to ASTM E 96 Method B: 50 perms (2875ng/Pa.s.m²)
   3. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage
   4. Use black RevealFlashing SA in all locations subject to view when building is completed, including visible thru siding reveals or thru perforated metal soffits.

2.5 WATER-RESISTIVE FLASHING AND PENETRATION TAPES

A. Basis of Design Products: VaproTape and VaproAluma Tape by VaproShield: UV stable, double/single sided, moisture-resistant flexible tape with adhesive backing having the following properties:

B. VaproTape (Single-Sided): 20 mil thick by 3 inches (76 mm) wide penetration seam tape.

C. VaproTape (Double-Sided): 30 mil thick by 1 inch (25 mm) wide penetration seam tape.

D. VaproTape UV-Resistant Black: 35 mil thick by 4 inches (102 mm) wide penetration seam tape.

   1. Location: At open rain screen joints.

E. VaproAlumaTape: 20 mil thick by 4.5 inches (114 mm) and 9 inches (229 mm) wide, foil faced, UV stable, moisture-resistant flashing and membrane transition tape for use with silicone sealants

F. Sealant: As approved and recommended by membrane manufacturer.

2.6 MISCELLANEOUS MATERIALS

A. Primer for Flexible Flashing: Product recommended by manufacturer of flexible flashing for substrate.

B. Nails and Staples: ASTM F 1667.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance.
1. Verify that substrates are sound and free of oil, grease, dirt, excess mortar, or other contaminants.
2. Verify that concrete is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
3. Verify that masonry joints are flush and completely filled with mortar.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

A. Clean, prepare, and treat substrate according to manufacturer’s written instructions. Provide clean, dust-free, and dry substrate for air barrier application.

B. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.

C. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D 4258.

D. Install modified bituminous strips and center over treated construction and contraction joints and cracks exceeding a width of 1/16 inch (1.6 mm).

E. Bridge and cover isolation joints, expansion joints and discontinuous deck-to-wall and deck-to-deck joints with overlapping modified bituminous strips.

F. At changes in substrate plane, apply sealant or termination mastic beads at sharp corners and edges to form a smooth transition from one plane to another.

G. Cover gaps in substrate plane and form a smooth transition from one substrate plane to another with stainless-steel sheet mechanically fastened to structural framing to provide continuous support for air barrier.

3.3 INSTALLATION

A. Install modified bituminous sheets according to air barrier manufacturer’s written instructions and according to recommendations in ASTM D 6135.
   1. When ambient and substrate temperatures range between 25 and 40 deg F (minus 4 and plus 5 deg C), install self-adhering, modified bituminous air barrier sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 deg F (16 deg C).

B. Corners: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.
   1. Install modified bituminous transition strips centered over vertical inside corners, extending a minimum of 3-inches. Ensure a minimum of 2-inches overlap at all end and side laps of membrane. Install 3/4-inch (19-mm) fillets of termination mastic on horizontal inside corners.
C. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations with termination mastic and according to ASTM D 6135.

D. Apply primer to substrates at required rate and allow to dry. Limit priming to areas that will be covered by air barrier sheet in same day. Re-prime areas exposed for more than 24 hours.
   1. Prime glass-fiber-surfaced gypsum sheathing with number of prime coats needed to achieve required bond, with adequate drying time between coats.

E. Apply and firmly adhere modified bituminous sheets horizontally over area to receive air barrier sheets. Accurately align sheets and maintain a uniform 2-1/2-inch- (64-mm-) minimum lap widths and end laps. Overlap and seal seams and stagger end laps to ensure airtight installation.
   1. Apply sheets in a shingled manner to shed water without interception by any exposed sheet edges.
   2. Roll sheets firmly to enhance adhesion to substrate. Use carpet tucks, linoleum rollers and heat guns as required.

F. Apply continuous modified bituminous sheets over modified bituminous strips bridging substrate cracks, construction, and contraction joints, lapped a minimum of 1-1/2 inches on both sides of the crack.

G. Seal top of through-wall flashings to air barrier sheet with an additional 6-inch- (150-mm-) wide, modified bituminous strip or with termination mastic.

H. Seal edges of sheets at seams, cuts, penetrations, and terminations not concealed by metal counterflashings or ending in reglets with termination mastic.

I. Install air barrier sheets and auxiliary materials to form a seal with adjacent construction and to maintain a continuous air barrier.
   1. Coordinate the installation of air barrier with installation of roofing membrane and base flashing to ensure continuity of air barrier with roofing membrane.
   2. Install modified bituminous strip on roofing membrane or base flashing so that a minimum of 3 inches (75 mm) of coverage is achieved over both substrates.

J. Connect and seal exterior wall air barrier membrane continuously to roofing membrane air barrier, concrete below-grade structures, floor-to floor construction, exterior glazing and window systems, glazed curtain-wall systems, storefront systems, exterior louvers, exterior door framing, and other construction used in exterior wall openings using accessory materials as indicated and according to manufacturer's tested assembly.

K. Wall Openings: Prime concealed perimeter frame surfaces of windows, curtain walls, storefronts, and doors. Apply foil-faced self-adhered membrane so that a minimum of 3 inches (75 mm) of coverage is achieved over both substrates. Maintain 3 inches (75 mm) of full contact over firm bearing to perimeter frames with not less than 1 inch (25 mm) of full contact.
L. Fill gaps in perimeter frame surfaces of windows, curtain walls, store fronts, doors, and miscellaneous penetrations of air barrier membrane with foam sealant.

M. At end of each working day, seal top edge of membrane to substrate with termination mastic.

N. Apply joint sealants forming part of air barrier assembly within manufacturer’s recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

O. Repair punctures, voids, and deficient lapped seams in air barrier. Slit and flatten fishmouths and blisters. Patch with air barrier sheet extending 6 inches (150 mm) beyond repaired areas in all directions.

P. Correct deficiencies in or remove air barrier that does not comply with requirements; repair substrates and reapply air barrier components.

3.4 CLEANING AND PROTECTION

A. Protect air barrier system from damage during application and remainder of construction period, according to manufacturer’s written instructions.
   1. Protect air barrier from exposure to UV light and harmful weather exposure as required by manufacturer. Remove and replace air barrier exposed to these conditions for more than 30 days.
   2. Protect air barrier from contact with creosote, uncured coal-tar products, TPO, EPDM, flexible PVC membranes, and sealants not approved by air barrier manufacturer.

B. Clean spills, stains, and soiling from adjacent construction that would be exposed in the completed work using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 07 25 00