Part 1 General

1.1 GENERAL

.1 Membranes are not to be installed by individual trades.

.2 Membranes are to be installed by qualified installer as noted.

1.2 RELATED REQUIREMENTS

.1 Section 07 21 00 - Building Insulation

.2 Section 07 92 00 – Joint Sealants

.3 Section 07 46 13 – Preformed Metal Siding

1.3 REFERENCES

.1 American Society for Testing and Materials (ASTM).

.1 ASTM D4263-83(2018), Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.

.2 ASTM D4541-17, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

.3 ASTM E96/E96M-16, Standard Test Methods for Water Vapour Transmission of Materials.

.4 ASTM E283/E283M-19, 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 E783-02(2018), Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.

.6 ASTM E1105-15, Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform or Cyclic Static Air Pressure Difference.

.7 ASTM E1186-17, Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00- Standard General Requirements.

.2 Product Data: Provide data indicating material characteristics, performance criteria, and limitations. Include data sheets for membrane, primers, and sealants.

.3 Submit WHMIS and MSDS data sheets for all materials used.

.4 Manufacturer's Installation Instructions: Indicate preparation, installation requirements and techniques, and product storage and handling criteria.

1.5 ENVIRONMENTAL REQUIREMENTS

.1 Maintain temperature and humidity recommended by the materials manufacturers before, during and after installation.

.2 Do not apply AVB membrane to damp or wet substrates.

.3 Do not install AVB membrane in snow, rain, fog or mist.

1.6 COORDINATION

.1 Coordinate the work of this section with all sections referencing this Section.

.2 Coordinate the interfacing of roof level vapour retarder with exterior wall air/vapour retarder.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.2 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, packaging materials as specified in Construction Waste Management Plan in accordance with Section 01 74 21 - Construction/Demolition Waste Management HPB.

Part 2 Products

2.1 MATERIALS

.1 AVB Membrane: SBS-modified membrane, minimum 1.0 mm (40 mil) thickness:

.1 Use regular or low-temperature formulation depending on site conditions, within temperature ranges specified by membrane manufacturer.

.2 Provide related accessories including non-water based primer, seam tape, mastic, fluid and sealant recommended by manufacturer.

.3 Transition Membrane: AVB membrane noted, field-cut to suit. Alternatively, provide manufacturer’s membrane tape.

2.2 ACCESSORIES

.1 Transition Membrane: AVB membrane, field-cut to suit. Alternatively, provide manufacturer’s membrane tape.

.2 Galvanized Steel: Membrane support, to ASTM A653/A653M, Z275 (G90) finish; 0.60 mm (24 gauge) core steel.

.3 Pressure Plate /Termination Bar: Painted Aluminum extrusion or formed 18 gauge sheet metal pressure plate /termination bar with sealant trough.

.4 Sealant: Two-part, VOC compliant elastomeric, trowel grade material designed for use with self-adhered membranes and tapes.

Part 3 Execution

3.1 PERFORMANCE REQUIREMENTS

.1 Install air and vapour barrier components and assemblies to resist air leakage caused by static air pressure across exterior wall assemblies and other interruptions to the integrity of the building enclosure systems as follows:

.1 Maximum air leakage rate of 0.02 L/sec·m² when subjected to a pressure differential of 75 Pa as measured in accordance with ASTM E283.

.2 Maximum vapour permeance of 0.1 perms when tested according to ASTM E96.

.2 Air and vapour barrier system to be a continuous barrier to air infiltration, air exfiltration and water vapour transmission.

.3 Air and vapour barrier system to act as a liquid water drainage plane, flashed to discharge condensation or water penetration.

.4 Connections to Adjacent Materials: Provide connections to prevent air leakage and vapour migration at all possible locations including but not limited to the following locations:

.1 Foundation and walls, including penetrations, ties and anchors.

.2 Walls, windows, curtain walls, storefronts, louvers or doors.

.3 Different wall assemblies, and fixed openings within those assemblies.

.4 Wall and roof connections.

.5 Floors over unconditioned space.

.6 Walls, floor and roof across construction, control and expansion joints.

.7 Walls, floors and roof to utility, pipe and duct penetrations.

.8 Seismic and expansion joints.

.9 All other leakage pathways in the building envelope.

.10 Make all penetrations of the AVB membrane and paths of air infiltration/exfiltration airtight.

3.2 EXAMINATION

.1 Examine substrates, areas, and conditions under which air and vapour barrier assemblies will be applied, with Applicator present, for compliance with requirements.

.2 Verify that surfaces and conditions are suitable prior to commencing work of this Section.

.1 Do not proceed with installation until unsatisfactory conditions have been corrected.

.3 Ensure that surfaces are sound, dry, even, and free of oil, grease, dirt, excess mortar or other contaminants.

.4 Ensure that concrete surfaces are cured and dry, smooth without large voids, spalled areas or sharp protrusions.

.5 Ensure that masonry joints are flush and completely filled with mortar, and all excess mortar sitting on masonry ties has been removed.

.6 Verify substrate is visibly dry and free of moisture.

.1 Test for capillary moisture by plastic sheet method according to ASTM D4263 and take suitable measures until substrate passes moisture test.

.7 Verify sealants used in sheathing are compatible with AVB membrane.

.1 Perform field peel-adhesion test on materials to which sealants are adhered.

.8 Do not install AVB membrane until items penetrating it are in place.

.9 Notify Departmental Representative in writing of anticipated problems using AVB membrane over substrate prior to proceeding.

3.3 SURFACE PREPARATION

.1 Clean, prepare, and treat substrate according to AVB membrane manufacturer's written instructions.

.2 Prime substrate that membrane will be applied to with an adequate number of coats to achieve required bond, with adequate drying time between coats.

.3 All surfaces to receive membrane to be primed even if manufacturer’s documentations says otherwise, this includes membrane applied over membrane.

.4 Apply primer at rate recommended by manufacturer prior to membrane installation.

.1 Allow primer to dry completely before membrane application.

.2 Apply as many coats as necessary for proper adhesion.

.3 Extend primer a minimum 50 mm past joint.

.5 Perform membrane adhesion tests over each substrate to which AVB membrane is to be installed.

.6 Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through air and vapour barrier and at protrusions.

3.4 INSTALLATION

.1 Install self-adhering AVB membrane to gypsum sheathing and wood panel surfaces.

.2 Install AVB membrane to provide continuity throughout the building envelope.

.3 Install materials in accordance with manufacturer's written recommendations and the following:

.1 When self-adhering membrane is properly positioned, press into place and roll membrane with roller immediately after placement.

.2 Overlap adjacent sheets in accordance with manufacturer's written recommendations. Roll seams with roller.

.3 Seal around all penetrations with termination mastic, sealant, or membrane tape in accordance with manufacturer’s written recommendations.

.4 Connect AVB membrane continuously to roof vapour barrier, concrete below grade structures, windows, curtain wall, storefront, louvers, exterior doors and other intersection conditions.

.5 Seal penetrations using accessory materials in accordance with the manufacturer's written recommendations.

.6 Provide transition material at changes in substrate plane under AVB membrane to eliminate sharp inside corners and to smooth transition from one plane to another.

.7 Provide mechanically fastened metal sheet to span gaps in substrate plane and to smooth transition from one plane to another.

.1 Continuously support AVB membrane at all transitions.

.8 Provide backup for AVB membrane at deflection and control joints to accommodate anticipated movement.

.9 Provide transition at expansion and seismic joints assemblies.

.4 Install Pressure Plate /Termination Bars at all termination edges of membrane.

3.5 CLEANING AND PROTECTION

.1 Protect air and vapour barrier assemblies from damage during application and remainder of construction period, according to manufacturer's written instructions.

.2 Do not allow materials to come in contact with chemically incompatible materials.

.3 Do not expose AVB membrane to sunlight longer than recommended by the manufacturer.

.4 Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer.

END OF SECTION