

PART 1 - GENERAL

1.1. GENERAL REQUIREMENTS

- .1 Comply with requirements of Division 1.

1.2. RELATED SECTIONS

- .1 Section 06 10 00: Rough Carpentry.
- .2 Section 07 42 43: Composite Metal Wall and Roof Panels.
- .3 Section 07 62 00: Metal Flashings and Trim.

1.3. REFERENCES

- .1 ASTM E2357-11, Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.
- .2 ASTM E2178-13, Standard Test Method for Air Permeance of Building Materials.
- .3 ASTM E283-04(2012), Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- .4 ASTM E330/E330M-14, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- .5 ASTM E96/E96M-16, Standard Test Methods for Water Vapor Transmission of Materials.

1.4. SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit two copies WHMIS MSDS – Material Safety Data Sheets.
- .3 Quality assurance submittals: submit following in accordance with Section 01 45 00 – Quality Control.
 - .1 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and physical properties.
 - .2 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence and cleaning procedures.
 - .3 Manufacturer's Field Reports: Submit manufacturer's written reports verifying compliance of Work.

1.4 QUALITY ASSURANCE

- .1 Qualifications:
 - 1 Applicator: company specializing in performing work of this section with experience with installation of liquid air barrier membrane systems.
 - .1 Completed installation must be approved by the material manufacturer.
- .2 Mock-up:
 - .1 Construct mock-up in accordance with Section - 01 45 00 – Testing and Quality Control.
 - .2 Locate mock-up test area 3.0 m high by 3.0 m wide, incorporating substrate attachment of transition membrane and seals at materials interface, and air barrier application details.
 - .3 Locate where directed by Departmental Representative.
 - .4 Allow 48 hours for review of mock-up by Departmental Representative before proceeding with membrane air barrier work.
 - .5 Accepted mock-up may remain as part of finished work.
- .3 Perform Work in accordance with the manufacturer's written instructions.
- .4 Maintain one copy of manufacturer's written instructions on site.
- .5 At the beginning of the Work and at all times during the execution of the Work, allow access to Work site by the air barrier membrane manufacturers' representative and Departmental Representative.
- .6 Components used in this Section shall be sourced from one manufacturer, including sheet membrane, air barrier sealants, primers, mastics and adhesives.

1.5 PRE-INSTALLATION SITE MEETING

- .1 Convene site meeting to review air barrier application, minimum one week prior to commencing Work of this Section. Air barrier product manufacturer's technical representative shall attend site meeting.

1.6 ENVIRONMENTAL REQUIREMENTS

- .1 Do not install solvent curing sealants or vapour release adhesive materials in enclosed spaces without ventilation.
- .2 Maintain temperature and humidity recommended by materials manufactures before, during and after installation.
- .3 Apply membrane during dry weather and to dry substrates only.

1.7 DELIVERY STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements.
- .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.

1.7 DELIVERY STORAGE AND HANDLING (continued)

- .3 Store air barrier, adhesives and primers at temperatures of 5° C and above to facilitate handling.
- .4 Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer and product.
- .5 Store roll materials on end in original packaging.
- .6 Protect rolls from direct sunlight until ready for use.
- .7 Keep solvent away from open flame or excessive heat.
- .8 Avoid spillage: immediately notify Departmental Representative if spillage occurs and start clean up procedures.
- .9 Clean spills in accordance with manufacturer's recommendations and leave area as it was prior to spill.

1.8 CO-ORDINATION

- .1 Ensure continuity of the air barrier membrane system throughout the scope of this section.

1.9 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 – Construction Waste Management and Disposal.
- .2 Remove from site and dispose of all packaging materials at appropriate recycling facilities.
- .3 Do not dispose of unused membrane air barrier materials into sewer system, onto ground or in other location where it will pose health or environmental hazard.
- 4 Dispose of unused membrane air barrier materials at official hazardous material collections site approved by Departmental Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Liquid Air Barrier (spray-applied): one component, liquid applied, elastomeric, vapour permeable air barrier membrane. Acceptable product, manufacturer (spray-applied type):
 - .1 Application at temperatures **above 5° C**
 - .1 Air-Bloc 17 MR, by Henry Company Canada.
 - .2 Perm-A-Barrier VP, by W.R. Grace Co.
 - .3 Air Shield LM, by W.R. Meadows.

2.1 MATERIALS (continued)

- .1 (continued)
- .2 Application at temperatures **below 5° C**
 - .1 Air-Bloc 07 by Henry Company Canada.
 - .2 Perm-A-Barrier VP Low Temp, by W.R. Grace Co.
- .2 Transition membrane and sheet membrane flashing (Self-Adhering): Modified bitumen, pressure/heat sensitive compound, self-adhering, thermofusible type or adhesive applied type, reinforced with polyethylene or glass scrim, nominal total thickness of 40 mils (1 mm).
 - .1 Acceptable manufacturer (self adhesive type):
 - .1 Bakor "Blueskin SA" by Henry Company Canada.
 - .2 Perma-A-Barrier Wall Membrane, by W.R. Grace Co.
 - .3 Sopraseal Stick 1100T, by Soprema Inc.
- .3 Penetration and termination sealants: as recommended by air barrier manufacturer.
- .4 Primer, adhesives, mastics: as recommended by air barrier manufacturer.
- .5 Substrate Cleaner and Thinner: as recommended by air barrier manufacturer.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 EXAMINATION

- .1 Verify that surfaces and conditions are ready to accept the Work of this section.
- .2 All surfaces must be sound, dry, clean, smooth, continuous, and shall be free of frost, grease, oil or other contaminants. Comply with requirements of air barrier manufacturer.
- .3 Fill voids, gaps and cracked areas in substrate to provide an even surface.
- .4 Report any unsatisfactory conditions to the Departmental Representative in writing.
- .5 Do not start work until deficiencies have been corrected. Start of work shall imply acceptance of conditions.

3.3 PREPARATION

- .1 Ensure substrates are clean of oil or excess dust and with no open joints or voids. Remove loose or foreign material which might impair adhesion of materials.
- .2 Ensure substrates are free of surface moisture prior to application of membrane, transition membrane and primer.
- .3 Clean and prime substrate surfaces to receive air barrier in accordance with manufacturer's instructions.
- .4 Remove sharp projections and repair defective areas in substrate.
- .5 Joint Treatment:
 - .1 Prime substrate surfaces to receive membrane air barrier in accordance with manufacturer's instructions.
 - .2 Seal joints between 6mm to 12 mm width with transition membrane lapped a minimum of 75 mm on both sides of the joint prior to the application of liquid membrane.
 - .3 Joints no larger than 3 mm can be sealed with open weave glass fabric.
- .6 Inside and Outside Corners: seal inside and outside corners of sheathing boards with strip of transition membrane. Extend transition membrane minimum of 75 mm on either side of corner detail.
- .7 Existing windows and louvre openings: Prepare head and jamb of existing wall openings with transition membrane as detailed. Place sill flashing membrane across sills and end dam terminations.

3.4 INSTALLATION

- .1 Install materials in accordance with manufacturer's installation instructions.
- .2 Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 75 mm overlap at all end and side laps. Promptly roll all laps and membrane with a roller to effect continuous air seal.
- .3 Tie-in self-adhering transition membrane to window frames, door frames, spandrel panels, roofing system and at the interface of dissimilar materials as indicated in drawings.
- .4 Apply liquid air barrier membrane by spray complete and continuous over entire face of exterior face of substrate and where indicated on drawings.
- .5 Apply liquid air barrier by spray to a uniform, complete and continuous unbroken wet film thickness of 3.0 mm and a cured dry thickness of 1.5 mm. Overlap transition membrane a minimum of 50 mm. Spray around all projections ensuring a complete and continuous air seal.

3.4 INSTALLATION (continued)

- .6 Apply manufacturer's recommended penetration and termination sealant to seal membrane transitions, heads of mechanical fasteners, masonry tie fasteners, around penetrations and other materials which extend through the air barrier.
- .7 Apply manufacturer's recommended termination sealant around perimeter edge of membrane terminations at window and door frames.

3.5 FIELD QUALITY CONTROL

- .1 Membrane manufacturer shall provide periodic site inspection and technical assistance to ensure work is properly executed.
- .2 Upon completion of membrane installation membrane manufacturer shall issue a report verifying that membrane installation is complete and satisfactory.
- .3 Advise the Departmental Representative upon completion of the Work in order that the Work may be reviewed by the Departmental Representative.
- .4 Do not cover work of this Section before review and acceptance by Departmental Representative, or review and correction of any identified deficiencies to satisfaction of Departmental Representative.

3.6 CLEANING

- .1 Proceed in accordance with Section 01 74 11 – Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

3.7 PROTECTION OF FINISHED WORK

- .1 Protect finished Work under provisions of Section 01 61 00 – Common Product Requirements.
- .2 Do not permit adjacent work to damage work of this Section.
- .3 Protect air barrier membrane and transition strips from exposure to sunlight and climatic conditions.

END OF SECTION