

## SECTION 07260

### SUPERGREEN LAM (LIQUID-APPLIED MEMBRANE AIR/VAPOR BARRIER SYSTEM)

#### PART 1 – GENERAL

##### 1.1 SECTION INCLUDES

This section includes the following:

1. Materials and installation methods for peel-and-stick or sheet rubberized air/vapor barrier (SRAB) membrane systems for full-coverage or transition details located in the non-accessible part of the wall.
2. Materials and installation to bridge and seal the following air leakage pathways and gaps:
  - a. Connections of the walls to the roof air barrier.
  - b. Connections of the walls to the foundations.
  - c. Seismic and expansion joints.
  - d. Openings and penetrations of window frames, store front, curtain wall.
  - e. Barrier pre-cast concrete and other envelope systems.
  - f. Door frames.
  - g. Piping, conduit, duct and similar penetrations
  - h. Masonry ties, screws, bolts and similar penetrations.
  - i. All other air leakage pathways in the building envelope.

##### 1.2 PRODUCTS INSTALLED BUT NOT SUPPLIED UNDER THIS SECTION

Sheet metal flashings to be built into masonry are furnished under Section 07620.

##### 1.3 RELATED SECTIONS

Section 07131 - Self-Adhering Sheet Waterproofing: Below grade waterproofing.  
Section 07160 - Bituminous Dampproofing: Below grade dampproofing.  
Section 07210 - Building Insulation: Insulation with integral vapor retarder facing.  
Section 07530 - Single-Ply Membrane Roofing  
Section 07620 - Sheet Metal Flashing and Trim: Sheet metal flashings.  
Section 07900 - Joint Sealers: Joint sealant materials and installation.  
Section ( ): Door frames.  
Section 08520 - Aluminum Windows.  
Section ( ) Aluminum storefronts and entrances.  
Section 08920 - Glazed Aluminum Curtain Walls.  
Section 09253 - Gypsum Sheathing: Gypsum sheathing over metal studs.  
Section ( ) Other.

##### 1.4 PERFORMANCE REQUIREMENTS

- A. Provide air/vapor barrier constructed to perform as a continuous air/vapor barrier, and as a liquid water drainage plane flashed to discharge to the exterior any incidental condensation or water penetration. Membrane shall accommodate movements of building materials by providing expansion and control joints as required, with accessory air seal materials at such locations,

changes in substrate and perimeter conditions. Material shall be minimal expanding material adequate to fill all irregularities and minor penetrations in the substrate not bridged by transition membranes and sealants.

B. Moisture Control and 1304.3 Air Leakage.

1. Code 780 CMR 1304.1.2 Moisture Control:

- a. A vapor barrier (material) having a maximum permeability of zero point one (0.1) perm or less (equivalent to a 4 mil polyethylene sheet) shall be installed on the winter warm side of walls, ceilings and floors enclosing a conditioned space.
- b. Code 780 CMR 1304.3.1 Air Barriers: “The building envelope shall be constructed with a continuous air barrier to control air leakage into, or out of the conditioned space.” “The air barrier shall have the following characteristics:
  - i. It must be continuous, with all joints made air-tight.
  - ii. It shall have an air permeability not to exceed 0.004 cubic feet per minute per square foot under a pressure differential of 0.3 in. water (1.57 psf) (0.02 L/s.m<sup>2</sup> @ 75 Pa.) when tested in accordance with ASTM E2178-01.
  - iii. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load.” “The air barrier shall be joined in an airtight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep.
- c. Connection shall be made between:
  - 1) Foundation and walls.
  - 2) Walls and windows or doors.
  - 3) Different wall systems.
  - 4) Wall and roof.
  - 5) Wall and roof 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.

2. Code 780 CMR 1304.3.2, Air Barrier Penetrations: All penetrations of the air barrier and paths of air infiltration / exfiltration shall be made air-tight.

## 1.5 SUBMITTALS

A. Provide submittals in accordance with Section **01300**.

1. Submit shop drawings showing locations and extent of air/vapor barrier and details of all typical conditions, intersections with other envelope systems and materials, membrane counter-flashings, and details showing how gaps in the construction will be bridged, how inside and outside corners are negotiated and how miscellaneous penetrations such as conduits, pipes electric boxes and the like are sealed.
2. Submit manufacturer's product data sheets for each type of membrane, including manufacturer's printed instructions for evaluating, preparing, and treating substrate, temperature and other limitations of installation conditions, technical data, and tested physical and performance properties.

3. Submit manufacturer's data showing solids content of fluid applied membranes and coverage rates and wet film thickness upon application in order to achieve minimum dry film thickness required by this specification.
4. Submit manufacturer's installation instructions.
5. Submit air/vapor barrier manufacturer's documentation of volatile organic compounds (VOC) content.
6. Certification of compatibility by air/vapor barrier manufacturer, listing all materials on the project that the air/vapor barrier may connect to or may come in contact with as indicated by the manufacturer.
7. Submit samples, 3 by 4 inch (75 by 100 mm) minimum size, of each air/vapor barrier material required for Project.
8. Test results of air permeability testing of primary air barrier material (ASTM E 2178-01).

## 1.6 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain air/vapor barrier materials from a single manufacturer regularly engaged in manufacturing the product.
- B. Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOCs).
- C. Preconstruction Meeting: Convene **(one)** week prior to commencing Work of this section, in accordance with Section 01200 - Project Meetings, and **01410** – The Air Barrier System.
  9. Field-Constructed Mock-Ups: Prior to installation of air/vapor barrier, apply air/vapor barrier as follows to verify details under shop drawing submittals and to demonstrate tie-ins with adjoining construction, and other termination conditions, as well as qualities of materials and execution:
    1. Apply air/vapor barrier in field-constructed mock-ups of assemblies specified in Section 04200 and Section 09253.
    2. Apply air/vapor barrier in field-constructed mock-ups of assemblies specified in Section **01452**, "Mock-Ups".
    3. Construct typical exterior wall panel, **8 feet long by 8 feet wide**, incorporating back-up wall, cladding, window and doorframe and sill, insulation, flashing, **(building corner condition,) (junction with roof system) (foundation wall) (and) (typical penetrations and gaps)**; illustrating materials interface and seals.
- D. Test mock-up in accordance with Section 01410 – The Air Barrier System and in accordance with ASTM E 783 and ASTM E1105 for air and water infiltration.
- E. Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover any installed air and vapor barrier membrane unless it has been inspected, tested and approved.
- F. Qualifications
  1. Manufacturer:
    - a. Shall have marketed the specified air barrier system(s) in the United States for at least **ten (10)** years.
    - b. Shall have a record of satisfactory completion of at least **twenty-five (25)** projects utilizing the specified air barrier system(s).
    - c. Shall comply with the Air Barrier Association of America standards for air barrier materials and systems, including overall building envelope air leakage performance.

- d. Shall have been approved for use by the following Model Building Code organizations in published research or compliance reports:

*Specifier's note: insert any additional code organizations or jurisdictions per project location.*

- i. BOCA Basic Building Code
- ii. International Building Code

## 2. Applicator:

- a. Contractor Firm shall have trained and manufacturer-certified personnel qualified in the installation of the approved air barrier materials and system(s).
- b. *Specifier's note: US trade organizations (including the Air Barrier Association of America (ABAA)) are currently creating standards for Air Barrier installers - include this once these are in place)* Contractor shall be a licensed Air Barrier Association of America (ABAA) company and use ABAA certified installers for this project (If ABAA specified project.). At the time of the bid, Contractor shall have a current certificate of membership and currently certified installers in an approved manufacturers' trained network of applicators.
- c. Contractor with not less than five (5) years experience in the installation of air barrier systems similar to requirements for this project and which is acceptable to manufacturer.
- d. Contractor shall be an authorized installer of the approved manufacturer.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect stored materials from direct sunlight.
- B. Avoid spillage. Immediately notify Owner, (Architect) (Consultant) if spillage occurs and start clean up procedures.
- C. Clean spills and leave the area as it was prior to spill.

## 1.8 WASTE MANAGEMENT AND DISPOSAL

- A. Separate and recycle waste materials in accordance with Section (01355 - Waste Management and Disposal), and with the Waste Reduction Work plan.
- B. Place materials defined as hazardous or toxic waste in designated containers.
- C. Ensure emptied containers are sealed and stored safely for disposal away from children.

## 1.9 PROJECT CONDITIONS

- A. Environmental Conditions: Apply air/vapor barrier within the range of ambient and substrate temperatures recommended by air/vapor barrier manufacturer. Do not apply air/vapor barrier to a damp or wet substrate, unless the manufacturer specifically permits that for the product.
  1. Do not apply air/vapor barrier in snow, rain, fog, or mist.
  2. Do not apply air/vapor barrier when the temperature of substrate surfaces and surrounding air temperatures are below those recommended by the manufacturer.

## 1.10 WARRANTY

- A. Material Warranty: Provide the manufacturer's [three] year air/vapor barrier material.

- B. System Warranty: Provide the installer's [three] year system warranty, including the primary air/vapor barrier and installed accessory sealant and membrane materials which fail to achieve air tight and watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

## PART 2 - PRODUCTS

### 2.1 MATERIALS & MANUFACTURERS

- A. SUPERGREEN LAM™ or LAM™ (Liquid-applied membrane) Air /Vapor Barrier spray-applied to a minimum total expanded dry film thickness of 0.030 inch (30 dry mils) or greater, based on manufacturer's recommendations. (As supplied by FOAM-TECH a Division of Building Envelope Solutions, Inc., N. Thetford, VT, 802-333-4333.)

### 2.2 AUXILIARY MATERIALS

- A. Furnish auxiliary air/vapor barrier materials for use in preparing/filling large substrate gaps and compatible with the air/vapor barrier membrane.
1. SRAB flashing to counterflash metal flashings: Membrane Flashing: 0.8 mm (32 mils) of self-adhesive rubberized asphalt integrally bonded to 0.2 mm (8 mil) cross-laminated, high density polyethylene film to provide a min. 1.0 mm (40 mil) thick membrane shall be interleaved with disposable silicone-coated release paper until installed:
    - a. Blueskin® TWF by Henry Company,
    - b. Perm-A-Barrier Wall Flashing by Grace Construction Products.
    - c. Air-Shield™ by W.R. Meadows, Inc.
    - d. CCW-705 TWF by Carlisle Coatings & Waterproofing
    - e. ExoAir™ TWF by Tremco, Inc.
  3. Air-Bloc 21, Trowel-applied synthetic rubber Air/Vapor Barrier and Insulation
  4. Stainless-Steel Sheet Flashing: ASTM A167, Type 304, soft annealed, with No. 2D finish; minimum, 0.0156 inch (0.4 mm) thick.
  5. Mastic, Adhesives, and Tape: Liquid mastic and adhesives, and adhesive tapes by SRAB air/vapor barrier manufacturer.
  6. Provide sealants in accordance with Section 07900 - Joint Sealers. Comply with ASTM C920 and ASTM C920 classifications for type, grade, class, and uses. Furnish sealants and joint sealers recommended by air/vapor barrier manufacturer for intended use and compatible with the air/vapor barrier membrane.
    1. Silicone Sealant [Type A]: natural cure, low modulus, to seal sheet membrane flashing to polyethylene face of sheet rubberized-asphalt barrier and to seal between and to non-bituminous sheet systems.
    2. Spectrem® 1 or equivalent by Tremco, Inc.
    3. Bondaflex™ Sil 290 by May National Associates, Inc.
    4. Butyl Sealant (Type B): butyl rubber base, single component, solvent release, non-skinning, Shore "A" Hardness Range of 10 to 30 by Tremco Inc.
    5. Polyurethane Foam Sealant: Provide one-component or two-component, foamed-in-place, polyurethane foam sealant with the following characteristics:
      - a. Density: 1.5 to 2.5 PCF.
      - b. Flame Spread (ASTM E 84): 25 or less @ the application bead diameter.

- c. Initial R-Value (at 1 inch): Not less than 3.5
- d. Air Permeance (ASTM E 283) <0.02 L/s/m @ 75 Pa

Acceptable materials:

- a. Zerodraft Foam Sealant or Zerodraft Insulating Air Sealant by Zerodraft Division of Canam Building Envelope Specialists, Inc.
- b. These one-component foam sealants by Dow Chemical: Great Stuff, Great Stuff Pro, ENERFoam, Great Stuff Pro or Window and Door Insulating Foam Sealant.
- c. These two-component foam sealants by Dow Chemical: Froth-Pak or Froth Pack <25 FS.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

A. Examine substrates, areas, and conditions under which air/vapor barrier systems will be applied, with Installer present, for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing work of this section. Do not proceed with installation until unsatisfactory conditions have been corrected.

- 1. Do not proceed with installation until after minimum concrete curing period recommended by air/vapor barrier manufacturer.
- 2. Ensure that:
  - a. surfaces are sound, dry, even, and free of oil, grease, dirt, excess mortar or other contaminants.
  - b. concrete surfaces are cured and dry, smooth without large voids, spalled areas or sharp protrusions.
  - c. masonry joints are flush and completely filled with mortar, and all excess mortar sitting on masonry ties has been removed.
- 3. Verify substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D4263.
- 4. Notify Architect in writing of anticipated problems using air/vapor barrier over substrate.

### 3.2 SURFACE PREPARATION

#### A. Substrate Preparation for LAM Air and Vapor Barrier Applications

- 1. Refer to Air and Vapor Barriers manufacturer's literature for more specific requirements of preparation of substrates.
- 2. Surfaces shall be free of contaminants such as grease, oil and wax on surfaces to receive LAM membrane.
- 3. CMU surfaces should be smooth and free from projections.
- 4. Strike all mortar joints full and flush to the face of the concrete block.
- 5. Polyurethane foam should not be UV degraded beyond the point where the surface is friable and will provide poor adhesion.
- 6. Fill all voids and holes greater than 1/2 inch.

7. All penetrations should be grouted, bridged with membrane or flashing, or filled with sealant.
8. If the surfaces cannot be made smooth to the satisfaction of the Architect, it will be the responsibility of the trade to alternatively apply a parge coat (typically one part cement to three parts sand) over the entire surface to receive the membrane.
9. Remove mortar droppings on brick ties, shelf angles, brick shelves or other horizontal obstructions.
10. Clean, prepare, and treat substrate according to manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air/vapor barrier application.
11. Fill joints greater than 1/4" between exterior gypsum sheathing panels with sealant, tape, or caulk acceptable to manufacturer.

### 3.3 INSTALLATION

#### A. LAM Liquid-Applied Air/Vapor Barrier

1. Verify condition of and/or prepare surface in accordance with manufacturer's instructions.
2. Spray LAM in a continuous and uniform coating at 40 mils cured thickness. Refer to manufacturer's instructions.
3. Inspect LAM membrane before covering. Repair any tears or holes with an additional coat of LAM over damaged area after preparing the original LAM surface with LAM Bond Preparation Primer if the original coat is more than 24 hours old.
4. Inspect detail flashings, penetration sealants, and transitions before covering. Repair any tears or holes with sealant prior to LAM installation.

### 3.4 PROTECTING AND CLEANING

- A. Protect air/vapor barrier system from damage during application and remainder of construction period, according to manufacturer's written instructions.
- B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.
- C. Remove any masking materials after installation.
- D. Clean any stains on materials that would be exposed in the completed work using procedures as recommended by manufacturer.
- E. Protect membranes to avoid damage from other trades, and construction materials during subsequent operations as recommended by manufacturer.

END OF SECTION