

**SECTION 07 27 26**  
**FLUID-APPLIED MEMBRANE AIR BARRIERS, VAPOR PERMEABLE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. Section Includes:

1. Fluid-applied vapor-permeable air barrier at exterior above grade wall assemblies.
2. Connection to adjacent air barrier components providing a durable, continuous, full building air barrier.

**1.2 RELATED REQUIREMENTS**

- A. General Quality Assurance and Quality Control Requirements: Section 01 45 29 TESTING LABORATORY SERVICES.
- B. Commissioning of building envelope components: Section 01 91 00 GENERAL COMMISSIONING REQUIREMENTS.
- C. Masonry Unit Air Barrier Substrates: Section 04 20 00 UNIT MASONRY.
- D. Flashing Components of Factory Finished Roofing and Wall Systems Requiring Air Barrier Transitions: Section 07 40 00 ROOFING AND SIDING PANELS.
- E. Metal Flashing Requiring Air Barrier Transitions: Section 07 60 00 FLASHING AND SHEET METAL.
- F. Joint Sealants: Section 07 92 00, JOINT SEALANTS.
- G. Exterior Wall Openings Requiring Air Barrier Transitions: Division 08 sections for louvers and vents.
- H. Wall Sheathings Air Barrier Substrates: Section 09 29 00 GYPSUM BOARD.

**1.3 APPLICABLE PUBLICATIONS**

- A. Comply with references to extent specified in this section.
- B. Air Barrier Association of America (ABAA):
  1. Quality Assurance Program.
- C. ASTM International (ASTM):
  1. C920-14a - Elastomeric Joint Sealants.
  2. C1193-13 - Use of Joint Sealants.
  3. D412-06a(2013) - Vulcanized Rubber and Thermoplastic Elastomers-Tension.
  4. E96/E96M-15 - Water Vapor Transmission of Materials.
  5. E162-15a - Surface Flammability of Materials Using a Radiant Heat Energy Source.

6. E783-02(2010) - Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
7. E1186-03(2009) - Air Leakage Site Detection in Building Envelopes and Air Barrier Systems.
8. E2178-13 - Air Permeance of Building Materials.
9. E2357-11 - Determining Air Leakage of Air Barrier Assemblies.

#### **1.4 SUBMITTALS**

- A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
  1. Show size, configuration, and fabrication and installation details.
- B. Manufacturer's Literature and Data:
  1. Description of each product.
  2. Installation instructions.
- C. Sustainable Construction Submittals:
  1. Low Pollutant-Emitting Materials:
    - a. Identify volatile organic compound types and quantities.
- D. Test reports:
  1. Submit field inspection and test reports.
- E. Certificates: Certify each product complies with specifications.
  1. Compatibility: Certify products are compatible with adjacent materials.
- F. Qualifications: Substantiate qualifications comply with specifications.
  1. Manufacturer with project experience list.
  2. Installer with project experience list.
    - a. Include personnel qualifications.
    - b. Field supervisor qualifications.
    - c. Certify installer approval by air barrier manufacturer.
- G. Installation Audit:
  1. Submit audit report.

#### **1.5 QUALITY ASSURANCE**

- A. Coordinate work with adjacent and related work to provide continuous, unbroken, durable air barrier system.
- B. Manufacturer Qualifications:
  1. Regularly and presently manufactures specified products.
  2. Manufactured specified products with satisfactory service on five similar installations for minimum five years.
  3. Accreditation by ABAA.

## C. Installer Qualifications:

1. Regularly and presently installs specified products.
2. Approved by manufacturer.
3. Applicators trained and certified by manufacturer of air barrier system.
4. Full time on-site field supervisor has completed three projects of similar scope within last year.

## D. Testing Agency Qualifications:

1. Accredited by International Accreditation Service, Inc. or American Association for Laboratory Accreditation.
2. Staff experienced in installation of specified system and qualified to perform observation and inspection specified and determine compliance with project requirements.

**1.6 DELIVERY**

- A. Deliver products in manufacturer's original sealed packaging.
- B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, production run number, and manufacture date.
- C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

**1.7 STORAGE AND HANDLING**

- A. Store products indoors in dry, weathertight, conditioned facility.
- B. Protect products from damage during handling and construction operations.

**1.8 FIELD CONDITIONS**

- A. Environment:
  1. Work Area Ambient Temperature Range: 4 to 32 degrees C (40 to 90 degrees F) continuously, beginning 48 hours before installation.
  2. Surface Requirements: visibly dry, and complying with manufacturer's instructions.

**1.9 WARRANTY**

- A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

**PART 2 - PRODUCTS****2.1 SYSTEM PERFORMANCE**

- A. Air-Barrier Assembly Air Leakage: Maximum 0.2 L/s/sq. m (0.04 cfm/sq. ft.) of surface area at 75 Pa (1.57 psf) differential pressure when tested according to ASTM E2357.
- B. Full Building Air Leakage: Refer to Section 01 45 29 TESTING LABORATORY SERVICES.
- C. Provide full system of compatible materials under conditions of service and application required. Compatibility based on testing by material manufacturer.
- D. Perform as continuous vapor permeable air barrier and moisture drainage plane.
- E. Transition to adjacent flashings and discharge water to building exterior.
- F. Accommodate substrate movement and seal expansion and control joints, construction material transitions, opening transitions, penetrations, and perimeter conditions without moisture deterioration and air leakage exceeding performance requirements.

**2.2 PRODUCTS - GENERAL**

- A. Provide air barrier system components from one manufacturer.

**2.3 AIR BARRIER**

- A. Fluid-Applied, Vapor-Permeable Membrane Air Barrier:
  - 1. Elastomeric, modified bituminous or synthetic polymer membrane.
  - 2. Air Permeance: ASTM E2178: 0.2 L/s/sq. m (0.04 cfm/sq. ft.) of surface area at 75 Pa (1.57 psf) differential pressure.
  - 3. Vapor Permeance: ASTM E96/E96M: Minimum 580 ng/Pa/s/sq. m (10 perms).
  - 4. Elongation: Ultimate, ASTM D412, Die C: 200 percent, minimum.
  - 5. Thickness: Minimum 1.0 mm (40 mils) dry film thickness, applied in single continuous coat.
  - 6. Surface Burning Characteristics: When tested according to ASTM E84.
    - a. Flame Spread Rating: 25 maximum.
    - b. Smoke Developed Rating: 450 maximum.

**2.4 ACCESSORIES**

- A. Primer: Waterborne primer complying with VOC requirements, recommended air barrier manufacturer to suit application.

- B. Counterflashing Sheet: Modified bituminous, minimum 1.0 mm (40 mils) thick, self-adhering composite sheet consisting of minimum 0.8 mm (33 mils) of rubberized asphalt laminated to polyethylene film.
- C. Substrate Patching Material: Manufacturer's standard trowel-grade filler material.
- D. Sprayed Polyurethane Foam Sealant: Foamed-in-place, 24 to 32 kg/cu. m (1.5 to 2.0 pcf) density, with maximum flame-spread index of 25 when tested according to ASTM E84.
- E. Flexible Opening Transition: Cured low-modulus silicone extrusion with reinforcing ribs, sized to fit opening widths, designed for adhesion to or insertion into aluminum framing extrusions, and compatible with air barrier system materials and accessories.
- F. Joint Sealant: ASTM C920, single-component, neutral-curing silicone; Class 100/50 (low modulus), Grade NS, Use NT related to exposure, approved by membrane air barrier manufacturer for adhesion and compatibility with membrane air barrier and accessories.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Examine and verify substrate suitability for product installation.
- B. Protect existing construction and completed work from damage.
- C. Correct substrate deficiencies:
  - 1. Remove projections and excess materials and fill voids with substrate patching material.
  - 2. Remove contaminants capable of affecting subsequently installed product's performance.
- D. Prepare and treat substrate joints and cracks according to ASTM C1193 and membrane air barrier manufacturer's instructions.

#### **3.2 INSTALLATION - AIR BARRIER**

- A. Install products according to manufacturer's instructions and approved submittal drawings.
  - 1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.
- B. Apply primer.
- C. Install transition strips and accessory materials.
- D. Seal air barrier to adjacent components of building air barrier system.

- E. Install flexible opening transition at each opening perimeter. Extend transition onto each substrate minimum 75 mm (3 inches).
  - 1. Fill gaps at perimeter of openings with foam sealant.
- F. At penetrations, seal transition strips around penetrating objects with termination mastic.
  - 1. Fill gaps at perimeter of penetrations with sprayed polyurethane foam sealant.
- G. At top of through-wall flashings, seal with continuous transition strip of manufacturer's recommended material to suit application.
- H. Apply air barrier in full contact with substrate to produce continuous seal with transitions.
- I. Apply fluid membrane in thickness recommended by manufacturer, and minimum specified thickness.
- J. Leave air barrier exposed until tested and inspected and approved by Contracting Officer's Representative.

### **3.3 FIELD QUALITY CONTROL**

- A. Field Inspections and Tests: Performed by testing laboratory specified in Section 01 45 29, TESTING LABORATORY SERVICES.
  - 1. Perform inspections and tests before concealing air barrier with subsequent work.
- B. Inspections:
  - 1. Compatibility of materials within air barrier system and adjacent materials.
  - 2. Suitability of substrate and support for air barrier.
  - 3. Suitability of conditions under which air barrier is applied.
  - 4. Adequacy of substrate priming.
  - 5. Application and treatment of joints and edges of transition strips, flexible opening transitions, and accessory materials.
  - 6. Continuity and gap-free installation of air barrier, transition strips, and accessory materials.
- C. Inspection and Test Frequency: Determined by installed air barrier surface area.
  - 1. Up to 900 sq. m (10,000 sq. ft.): One inspection.
- D. Submit inspection and test reports to Contracting Officer's Technical Representative within seven calendar days of completing inspection and test.
- E. Defective Work:

1. Correct deficiencies, make necessary repairs, and retest as required to demonstrate compliance with specified requirements.

**3.4 CLEANING**

- A. Remove masking materials.
- B. Clean spills and overspray using cleaning agents recommended by manufacturers of affected construction.

**3.5 PROTECTION**

- A. Protect air barrier from construction operations.
- B. Protect air barrier from exposure to UV light exposure exceeding manufacturer's recommendation.
- C. Replace overexposed materials and retest.

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