

This section includes editing notes to assist the user in editing the section to suit project requirements. These notes are included as hidden text, and can be revealed or hidden by the following method in Microsoft Word:

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SECTION 07 27 26 - FLUID-APPLIED MEMBRANE AIR BARRIERS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Liquid-applied air and water-resistive barrier system.
- B. Related Sections:
 - 1. Division 01: Administrative, procedural, and temporary work requirements.
 - 2. Section [03 30 00 - Cast-in-Place Concrete] ____ - ____]: Concrete substrate to receive air barrier.
 - 3. Section [04 22 00 - Concrete Unit Masonry] [____ - ____]: Masonry substrate to receive air barrier.
 - 4. Section [06 16 00 - Sheathing] [____ - ____]: Sheathing substrate to receive air barrier.

1.2 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data: Submit manufacturer's technical data sheets, installation instructions, SDS, and warranty.
 - 2. Samples: [12 x 12] [__ x __] inch ([300 x 300] [__ x __] mm) air barrier samples on representative substrate.
- B. Informational Submittals:
 - 1. Current ICC-ES Evaluation Report verifying fluid applied material conformance with AC 212.
 - 2. Current Clean Air Gold product certification verifying conformance to ANSI/ BIFMA e3 standard credits 7.6.1, 7.6.2 and/or credit 7.6.3, which includes California Department of Public Health (CDPH) Standard Method v1.2 01350 (2017), as well as conformance to low-emitting materials for WELL and LEED.
 - 3. Contractor qualifications.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Minimum [2] [__] years experience in work of this Section.
 - 2. [Licensed by ABAA to ABAA Quality Assurance Program.]
- B. Preconstruction Conference:
 - 1. Convene [__] weeks prior to commencing Work of this Section.
 - 2. Attendees: [Owner,] [Architect,] [Contractor,] [Construction Manager,] installer, and air barrier manufacturer's representative.
 - 3. Review air barrier requirements and installation, special details, mockups, air leakage and bond testing, air barrier protection, and work scheduling.
- C. Mockup:
 - 1. Apply air barrier to verify details under submittals and to demonstrate tie-ins with adjoining construction, other termination conditions, and method of installation.
 - 2. Size: [8] [__] feet wide x [8] [__] wide.
 - 3. Incorporate backup wall construction, exterior cladding, window and door frame and sill, insulation, flashings, [building corner condition,] [junction with roof system] [foundation wall] [and] [typical penetrations and gaps].
 - 4. Approved mockup [may] [may not] remain as part of the Work.

1.4 PROJECT CONDITIONS

- A. Environmental Requirements:
1. Do not apply air barrier at temperatures below 0 degrees F (minus 18 degrees C) or if frost or moisture is present on surfaces to be coated.

1.5 WARRANTY

- A. Provide manufactures [10] [15] [20] year material warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Contract Documents are based on products by Momentive Performance Materials, Inc., 260 Hudson River Rd., Waterford, NY 12188, 877-943-7325, www.siliconeforbuilding.com or www.gesilicones.com.

2.2 MATERIALS

- A. Fluid-Applied Air Barrier: GE Elemax 2600.
- B. Liquid Flashing (Detail Sealant/Adhesive): GE Elemax 5000 Liquid Flashing, GE SCS2000 SilPruf, GE SCS2700 SilPruf LM, GE SCS9000 SilPruf NB or GE SWS.
- C. Reinforcing Fabric: RF100; width as dictated by project conditions.
- D. Sheet Flashing: GE Elemax SS Flashing; width as dictated by project conditions.
- E. Silicone Transition Membrane: GE UST2200 UltraSpan; width as dictated by project conditions.
- F. Pre-Cured Silicone Molded Corners: GE USM UltraSpan inside and outside corners.

2.3 PERFORMANCE REQUIREMENTS

- A. UV Exposure: No limit.
- B. Application Temperature: 0 to 158 degrees F (minus 18 to 70 degrees C).
- C. Performance Properties:

| Property | Value ⁽¹⁾ | Test Method |
|---|--|---------------------------|
| Required Dry Film Thickness | 17 mils (430 μ) dry | Apply 19 mils (480 μ) wet |
| Air Permeance – tested at 1.57 psf (75 Pa) | 0.00004 cfm/ft ² (0.0002 L/s·m ²) | ASTM E2178 |
| | 0.00008 cfm/ft ² (0.0004 L/s·m ²) | CAN/ULC-741 |
| Assembly Air Leakage - tested at 1.57 psf (75 Pa) | 0.0002 cfm/ft ² (0.0009 L/s·m ²) | ASTM E2357 |
| | 0.0004 cfm/ft ² (0.0019 L/s·m ²) | CAN/ULC-742 |
| | Class A1 | |
| Water Resistance | Pass | AATCC 127 |
| Water Penetration | No water penetration observed after 15 min. @ 62.5 psf (2993 Pa) | ASTM E331 |
| Water Penetration | No water penetration after structural, racking, restrained environmental conditioning: | ASTM E331 |

| Property | Value ⁽¹⁾ | Test Method |
|---|--|---|
| Resistance to Wind-Driven Rain | Tested for 15 minutes at 2.86 psf (137 Pa) Pass: No visual leaks or moisture weight gain observed after 24 hrs @ 26 psf (1245 Pa) | ASTM D6904 |
| Water Vapor Permeance | 10.5 perms @ 17 mils (430 μ) DFT | ASTM E96 Procedure BW (Inverted Water Method) |
| Water Vapor Permeance | 10.2 perms @ 17 mils (430 μ) DFT | ASTM E96 Procedure B (Water Method) |
| UV & Weathering Resistance | 7.9 perms @ 17 mils (430 μ) DFT | ASTM E96 Procedure A (Desiccant Method) |
| Self Sealability around Nails | No degradation after 5000 hours Pass @ 17 mils (430 μ) DFT | ASTM G154 ASTM D1970 |
| Crack Bridging Ability (1/16 inch or 1.5 mm) | Pass | ASTM C1305 |
| Mildew Resistance | 0 - No Growth | ASTM D5590 |
| Service Temperature Range | Minus 40 F to plus 300 degrees F (minus 40 to plus 149 degrees C) | |
| Pull off Strength (concrete) | 126 psi (0.87 MPa) | ASTM D4541 |
| Pull off Strength (fiberglass mat faced gypsum sheathing) | 44 psi (0.30 MPa) ⁽²⁾ | ASTM D4541 |
| Tensile Strength | 204 psi (1.40 MPa) | ASTM D412 ⁽³⁾ |
| Elongation | 542 percent | ASTM D412 ⁽³⁾ |
| Multi-Story Wall Assembly Burn Test | Passed in assembly tested and acceptable for use in various wall assemblies per engineering analysis | NFPA 285 |
| Surface Burning | Flame Spread: 10 Smoke Developed: 185 NFPA Class A, UBC Class 1 | ASTM E84 |
| Sequential Testing- Weathering | | |
| UV Light Exposure | | ICC-ES AC212 |
| Accelerated Aging | | ICC-ES AC212 |
| Hydrostatic Pressure Test | No water penetration after UV exposure and accelerated aging: Tested for 5 hours with 21.7 in (55 cm) of hydrostatic head | AATCC 127 |
| Freeze-Thaw | No cracking, checking, crazing, erosion, delamination or other deleterious effects. | ICC-ES AC212 ASTM E2485 Method B |
| Water Resistance | No deleterious effects after 14 day exposure | ASTM D2247 |
| Tensile Bond | Minimum 15 psi (105 kPa) | ASTM C297 |

(1) Average value. Actual value may vary.

(2) Full strength of silicone not realized due to failure of fiberglass mat / sheathing substrate prior to coating failure.

(3) Samples were prepared per ASTM D2370 and tested in accordance to ASTM D412.

PART 3 EXECUTION

3.1 PREPARATION

- A. Condition of Surfaces:
 - 1. Clean, dry and free of contaminants that could interfere with proper bonding of materials.
 - 2. Masonry joints: Struck flush. Fill cracks greater than crack bridging ability of material, routed and filled where necessary, with trowel application of liquid flashing prior to application of liquid membrane.
 - 3. Sheathing joints: Treated per manufacturer's installation details.
- B. Remove loose mortar and other contaminations by wire brush or similar abrasion to provide stable clean surface for application.'
- C. Remove grease, oil, bitumen, form release agents, paints, curing compounds, other contaminants, and film forming coatings from concrete.
- D. Mask adjoining surfaces not to be covered by air barrier.
- E. Spot treat over and under fasteners with liquid flashing or air barrier material.

3.2 INSTALLATION

- A. Perform installation in accordance with manufacturer's instructions.
- B. Transition and Detailing Treatment:
 - 1. Install appropriate materials to treat sheathing joints, expansion joints, rough openings, transitions, terminations, penetrations, and other similar surface irregularities.
 - 2. Perform detailing before or after air barrier membrane application.
- C. Treat sheathing joints less than 1/2 inch (13 mm) in width using any of following methods:
 - 1. Liquid flashing.
 - 2. 4 inch (100 mm) reinforcing fabric embedded in air barrier material and centered on joint.
- D. Inside and Outside Corners: Extend liquid flashing or reinforcement minimum 3 inches (75 mm) onto each angle change using any of following methods:
 - 1. Liquid flashing.
 - 2. Minimum 6 inch (150 mm) reinforcing fabric embedded in air barrier material and centered on joint.
 - 3. Minimum 6 inch (150 mm) sheet flashing centered on corner.
 - 4. Silicone transition membrane set in liquid flashing and centered on corner.
- E. Rough Openings. Extend liquid flashing or reinforcement minimum 3 inches (75 mm) onto vertical wall and into rough opening using any of following methods:
 - 1. Liquid flashing.
 - 2. Minimum 6 inch (150 mm) reinforcing fabric embedded in air barrier material and Centered on joint.
 - 3. Minimum 6 inch (150 mm) sheet flashing centered on corner.
 - 4. Minimum 6 inch (150 mm) silicone transition membrane set in liquid flashing and centered on corner.
 - 5. Pre-cured silicone molded outside corners in combination with any of above methods.
- F. Pipe and Duct Penetrations: Treat using any of following methods:
 - 1. Liquid flashing.
 - 2. Reinforcing fabric embedded in air barrier material and centered on joint. Ensure that reinforcing fabric extends minimum 2 inches (50 mm) onto wall.
- G. Static Joints less than 1/2 inch (13 mm) in width and Expansion Joints:
 - 1. Treat using minimum 6 inch (150 mm) silicone transition membrane set in liquid flashing or air barrier material and centered on joint.

- 2. Ensure that transition membrane extends minimum 1 inch (25 mm) onto wall.
- H. Transitions: Treat using any of following methods:
 - 1. Liquid flashing.
 - 2. Reinforcing fabric embedded in air barrier material and centered on joint.
 - 3. Sheet flashing centered on corner.
 - 4. Silicone transition membrane set in liquid flashing.
- I. Through Wall Flashing. Install sheet flashing.
- J. Air Barrier:
 - 1. Apply by spray, power roller, roller, or brush at to minimum dry film thickness recommended by manufacturer.
 - 2. Touch up damaged areas using same procedures as initial application, at any time after application; coating may be wet or cured.

3.3 PROTECTION

- A. Protect air barrier from damage during application and for remainder of construction.
- B. If damage occurs, repair per manufacturer's instructions.

3.4 CLEANING

- A. Clean air barrier materials from surfaces that will be exposed in completed work using cleaning agents and procedures recommended by manufacturer.
- B. Remove masking materials after installation.

END OF SECTION