

SECTION 072726

FLUID-APPLIED MEMBRANE AIR BARRIER

1. GENERAL
	* + 1. SECTION INCLUDES
				1. This section includes the following:
2. Fluid-applied membrane air barrier located in the non-accessible part of the wall.
3. Materials to bridge and seal the following air leakage pathways and gaps:

Connections of the walls to the roof air barrier.

Connections of the walls to the foundation air barrier.

Seismic and expansion joints.

Openings and penetrations of window frames, storefront, curtain wall.

Barrier precast concrete and other envelope systems.

Door frames.

Piping, conduit, duct and similar penetrations.

Masonry ties, screws, bolts and similar penetrations.

All other air leakage pathways in the building envelope.

SPEC NOTE: COORDINATE RELATED WORK REQUIREMENTS WITH CONTENTS OF REFERENCED SPECIFICATION SECTIONS.

* + - * 1. Related Work in other Sections includes the following:
1. Section 014000 - Quality Requirements; coordination with Owner’s independent testing and inspection agency.
2. Section 014339 - Mock-Ups; exterior wall mock-ups.
3. Section 015000 - Temporary Facilities and Controls; requirement to schedule work to prevent sunlight and weather exposure of materials beyond limits established by manufacturer; requirement to protect materials from damage after installation and prior to installation of enclosing work.
4. Section 033000 – Cast-In-Place Concrete; requirement that backup concrete be smooth without protrusions.
5. Section 042000 – Unit Masonry; requirement that backup masonry joints are flush and completely filled with mortar and that excess mortar on brick ties will be removed; requirement for gap at deflection joints and fillers; coordination with sequencing of through-wall flashing.
6. Section 061600 – Sheathing; requirement that backup sheathing has been installed.
7. Section 075000 - Membrane Roofing; requirement for coordination with sequencing of membrane roofing; requirement to seal roof membrane to wall air barrier.
	* + 1. PERFORMANCE REQUIREMENTS
				1. Material Performance: Provide air barrier materials which have an air permeance not to exceed 0.004 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.004 cfm/ft2 @ 1.57 psf), [0.02 liters per square meter per second under a pressure differential of 75 Pa (0.02 L/(s·m2) @ 75 Pa)] when tested in accordance with ASTM E2178 (unmodified).
				2. The water vapor permeance [Desiccant method, (Procedure A) and Water method (Procedure B)] shall be determined in accordance with ASTM E96 and shall be declared by the material manufacturer.

SPEC NOTE: THE WATER VAPOR PERMEANCE IS DECLARED BY THE MANUFACTURER AND INCLUDED IN THIS DOCUMENT SO THAT THE DESIGN PROFESSIONAL HAS THIS INFORMATION READILY AVAILABLE.

* + - * 1. Assembly Performance: Provide a continuous air barrier in the form of an assembly that has an air leakage not to exceed 0.04 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.04 cfm/ft2 @ 1.57 psf) [0.2 liters per square meter per second under a pressure differential of 75 Pa (0.2 L/(s·m2) @ 75 Pa)] when tested in accordance with ASTM E2357. The assembly shall accommodate movements of building materials by providing expansion and control joints as required. Expansion / control joints, changes in substrate and perimeter conditions shall have appropriate accessory materials at such locations.

The air barrier assembly shall be capable of withstanding combined design wind, fan and stack pressures, both positive and negative on the envelope without damage or displacement, and shall transfer the load to the structure.

Fluid applied air barriers shall not displace adjacent materials in the air barrier assembly under full load.

The air barrier assembly shall be joined in an airtight and flexible manner to the air barrier materials of adjacent assemblies, allowing for the relative movement of assemblies due to thermal and moisture variations, creep, and anticipated seismic movement.

* + - * 1. Connections to Adjacent Materials: Provide connections to prevent air leakage at the following locations:

Foundation and walls, including penetrations, ties and anchors.

Walls, windows, curtain walls, storefronts, louvers and doors.

Different assemblies and fixed openings within those assemblies.

Wall and roof connections.

Floors over unconditioned space.

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

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

Seismic and expansion joints.

All other potential air leakage pathways in the building envelope.

* + - 1. SUBMITTALS
				1. Submittals: Submit in accordance with Division 1 requirements.
				2. Quality Assurance Program: Submit evidence of current Contractor accreditation and Installer certification under the Air Barrier Association of America’s (ABAA) Quality Assurance Program (QAP). Submit accreditation number of the Contractor and certification number(s) of the ABAA Certified Installer(s).
				3. Product Data: Submit material Manufacturer’s Product Data, material manufacturer's instructions for evaluating, preparing, and treating substrate, temperature and other limitations of installation conditions, Technical Data, and tested physical and performance properties.

Submit letter from primary air barrier material manufacturer indicating approval of materials that are proposed to be used that are not currently listed in the accessories section of this specification for that manufacturer’s material.

Include statement from the primary air barrier material manufacturer that the materials used in their air barrier assembly which will be used to adhere to the underlying substrate are chemically compatible to the substrate material.

* + - * 1. Samples: Submit clearly labeled samples, three (3) inch by four (4) inch [75 mm by 100 mm] minimum size of each material specified.
				2. Shop Drawings of Mock-Up: Submit Shop Drawings of proposed mock-ups showing plans, elevations, large-scale details, and air barrier transitions and terminations.
				3. Field Test Results of Mock-Up: Submit test results of air leakage test and water leakage test of mock-up in accordance with specified standards, including retesting if initial results are not satisfactory.
				4. Shop Drawings: Submit Shop Drawings showing locations and extent of air barrier assemblies and details of all typical conditions, intersections with other envelope assemblies and materials, membrane counter-flashings, and details showing how gaps in the construction will be bridged, how inside and outside corners are negotiated, how materials that cover the materials are secured with air-tight condition maintained, and how miscellaneous penetrations such as conduits, pipes, electric boxes and similar items are sealed.

Include VOC content of each material, and applicable legal limit in the jurisdiction of the project.

Include statement that materials are compatible with adjacent materials proposed for use.

Include required values for field adhesion test on each substrate in accordance with ASTM D4541 (modified), using a type II pull tester.

* + - * 1. Compatibility: Submit letter from primary material manufacturer stating that materials proposed for use are permanently chemically compatible and adhesively compatible with adjacent materials proposed for use. Submit letter from manufacturer stating that cleaning materials used during installation are chemically compatible with adjacent materials proposed for use.
				2. Air Barrier Subcontractor Qualifications: Air barrier Subcontractor(s) shall be accredited at the time of bidding and during the complete installation period by the Air Barrier Association of America (ABAA) whose Installer(s) are certified in accordance with the site Quality Assurance Program used by ABAA.

Fluid-applied membrane air barrier Installer(s) shall be certified by BPQI (Building Performance Quality Institute) for the ABAA Quality Assurance Program in accordance with the requirements outlined in the QAP program used by ABAA. Installers shall have their photo identification air barrier certification cards in their possession and available on the project site, for inspection upon request.

* + - * 1. Manufacturer: Obtain primary ABAA Evaluated Materials from a single ABAA Evaluated Manufacturer regularly engaged in manufacturing specified fluid-applied membranes. Obtain secondary materials from a source acceptable to the primary materials Manufacturer.
				2. Accredited Laboratory Testing for Materials: Laboratory accredited by International Accreditation Service Inc. (IAS), American Association for Laboratory Accreditation (A2LA), or the Standards Council of Canada (SCC).
				3. VOC Regulations: Provide products which comply with applicable regulations controlling the use of volatile organic compounds.
				4. Preconstruction Meeting: Convene a minimum of two weeks prior to commencing Work of this Section. Agenda shall include, at a minimum, construction and testing of mock-up, sequence of construction, coordination with substrate preparation, air barrier materials approved for use, compatibility of materials, coordination with installation of adjacent and covering materials, and details of construction and chemical/fire safety plans. Attendance is required by representatives of related trades including covering materials, substrate materials and adjacent materials.
				5. Field Quality Assurance: Implement the site Quality Assurance Program requirements used by ABAA. Cooperate with ABAA auditors and any independent testing and inspection agencies engaged by the Owner. Do not cover the air barrier assembly until it has been inspected, tested and accepted.
				6. Mock-Ups: Build mock-up representative of primary air barrier assemblies and glazing assemblies including backup wall and typical penetrations as acceptable to the Architect. Mock-up shall be dimensioned no less than eight (8) feet long by eight (8) feet high [2.50 meters long by 2.50 meters high] and include the air barrier materials and air barrier accessories proposed for use in the exterior wall assembly. Mock-ups shall be suitable for testing as specified in the following paragraph.

SPEC NOTE: COORDINATE TESTING WITH PROJECT REQUIREMENTS. DELETE PARAGRAPH BELOW IF NOT REQUIRED, OR IF OWNER’S INDEPENDENT TESTING AGENT WILL PERFORM TESTING.

* + - * 1. Mock-Up Tests for Air and Water Infiltration: The third party testing agency shall test the mock-up for air and water infiltration in accordance with ASTM E1186 (air leakage location), ASTM E783 (air leakage quantification) at a pressure differential of 1.57 lb/ft² (75 Pa) and ASTM E1105 (water penetration). Use smoke tracer to locate sources of air leakage. If deficiencies are found, the air barrier Contractor shall reconstruct mock-up at their cost for retesting until satisfactory results are obtained. Deficiencies include air leakage beyond values specified, uncontrolled water leakage, unsatisfactory workmanship.

Perform the air leakage test and water penetration test of mock-up prior to installation of cladding and trim but after installation of all fasteners for cladding and trim and after installation of other penetrating elements.

* + - * 1. Mock-Up Tests for Fluid-Applied Membrane Adhesion: The third party testing agency shall test the mock-up for membrane adhesion in accordance with ASTM D4541 (modified), using a type II pull tester except that the membrane shall be cut through to separate the material attached to the disc from the surrounding material. Perform test after curing period recommended by the material manufacturer. Record mode of failure and area where the material failed in accordance with ASTM D4541. When the air barrier material Manufacturer has established a minimum adhesion level for the product on the particular substrate, the inspection report shall indicate whether this requirement has been met. Where the material manufacturer has not declared a minimum adhesion value for their product/substrate combination, the value shall simply be recorded.
				2. Air Barrier Assembly Testing: Verify air barrier assembly testing by the material manufacturer by visiting the ABAA website to ensure a ASTM E2357 test has been completed and to obtain results. Visit the ABAA website for the reported air barrier assembly leakage rate and illustrations or CAD details which includes the methods in which the assembly test mock-ups shall be assembled.
			1. DELIVERY, STORAGE, AND HANDLING
				1. Deliver materials to Project site in original packages with seals unbroken, labeled with material Manufacturer's name, product, date of manufacture, and directions for storage.
				2. Store materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by material manufacturer. Protect stored materials from direct sunlight and other sources of ultra-violet light.
				3. Handle materials in accordance with material manufacturer’s recommendations.
			2. PROJECT CONDITIONS
				1. Temperature: Install fluid-applied air barrier material within range of ambient and substrate temperatures recommended by material manufacturer. Do not apply air barrier to a damp or wet substrate.
				2. Field Conditions: Do not install air barrier in snow, rain, fog, or mist. Do not install air barrier when the temperature of substrate surfaces and surrounding air temperatures are below those recommended by the manufacturer.
				3. Sequencing. Do not install air barrier material before the roof assembly has been sufficiently installed to prevent a buildup of water in the interior of the building.
				4. Compatibility. Do not allow air barrier materials to come in contact with chemically incompatible materials.
				5. Ultra-violet exposure. Do not expose air barrier materials to sunlight longer than as recommended by the material manufacturer.
			3. WARRANTY

SPEC NOTE: VERIFY WARRANTY LENGTH WITH MANUFACTURERs specified.

* + - * 1. Material Warranty: Provide material manufacturer’s standard product warranty, for a minimum three (3) years from date of Substantial Completion.
				2. Subcontractor (approved by ABAA and Manufacturer) Installation Warranty: Provide a two (2) year installation warranty from date of Substantial Completion, including all accessories and materials of the air barrier assembly, against failures including loss of air tight seal, loss of watertight seal, loss of attachment, loss of adhesion and failure to cure properly.

PART 2 - MATERIALS

2.1 AIR BARRIER MATERIALS

SPEC NOTE: RETAIN MANUFACTURERS LISTED BELOW. NOTE THAT BOTH water-based AND solvent-based primerS ARE TYPICALLY USED ON A SINGLE PROJECT BASED ON THE SUBSTRATE AND WEATHER CONDITIONS.

* + - * 1. Fluid-Applied Membrane Air Barrier: Use regular, high temperature or low-temperature formulation depending on site conditions, within temperature ranges specified by manufacturer. Subject to compliance with requirements, provide one of the following:

Material: Enershield-I, Senershield-VB, Finestop-VB by BASF Corporation - Wall Systems – thickness specified by manufacturer. [www.wallsystems.basf.com](http://www.wallsystems.basf.com/EN/Pages/default.aspx):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0000 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0000 cfm/ft2 @ 1.57 psf), [0.0001 liters per square meter per second under a pressure differential of 75 Pa (0.0001 L/(s·m2) @ 75 Pa)] at 26 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 5.53 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (5.53 ng/(Pa·s·m2)  [0.097 US perms] at 20 mils (wet) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 377 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (377 ng/(Pa·s·m2)  [6.58 US perms] at 20 mils (wet) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Fabric Reinforcement: Sheathing Fabric to be saturated with BASF

fluid-applied membrane for use at sheathing joints, penetrations and window rough openings.

1. Flashing and Transition Membrane: TF Membrane / WS Flash polyester-faced 30-mil self-adhesive membrane or TF Wrap / WS Wrap polyethylene-faced 20-mil self-adhesive membrane.
2. Water-based Primer for Self-Adhesive Membranes: WS Flashing Primer.
3. Mastics: As recommended by manufacturer

Material: Enershield HP, Finestop RA, Senershield R, Acrostop R and Sonowall FTR by BASF Corporation - thickness specified by manufacturer. [www.wallsystems.basf.com](http://www.wallsystems.basf.com/EN/Pages/default.aspx):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0000 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0000 cfm/ft2 @ 1.57 psf), [0.0002 liters per square meter per second under a pressure differential of 75 Pa (0.0002 L/(s·m2) @ 75 Pa)] at 10 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 5.81 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (5.81 ng/(Pa·s·m2)  [0.10 US perms] at 10 mils (wet) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 1004 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (1004 ng/(Pa·s·m2)  [17.6 US perms] at 10 mils (wet) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Fabric Reinforcement: Sheathing fabric to be saturated with BASF fluid-applied membrane for use at sheathing joints, penetrations and window rough openings.
2. Flashing and Transition Membrane: WS Wrap polyester-faced 30-mil self-adhesive membrane or WS Membrane 20-mil self-adhesive membrane.
3. Water-based Primer for Self-Adhesive Membranes: WS Flashing Primer.
4. Mastics: As recommended by manufacturer.

Material: Barriseal-S/R @ 40 mils thick (wet) by Carlisle Coatings and Waterproofing [www.carlisle-ccw.com](http://www.carlisle-ccw.com/):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0013 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0013 cfm/ft2 @ 1.57 psf), [0.0065 liters per square meter per second under a pressure differential of 75 Pa (0.0065 L/(s·m2) @ 75 Pa)] at 46 mils (wet), when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 9.411 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (9.411 ng/(Pa·s·m2)  [0.1647 US perms] at 46 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 48.745 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (48.745 ng/(Pa·s·m2)  [0.8530 US perms] at 46 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer:  CCW-702WB
2. Solvent-Based Primer:  CCW-702/702 LV
3. Solvent-Based Aerosol Primer:  CAV-GRIP, TRAVEL-TACK
4. Termination Mastic:  LM-800XL, CCW-703V LiquiSeal
5. Sealants:  CCW-201, Sure-Seal Lap Sealant
6. Transition Membrane for details and terminations: CCW-705/705 LT
7. Reinforcing/Joint Tape: LiquiFiber, DCH Reinforcing Fabric, CCW Barritape
8. Flashing at Transition Membrane: CCW-705/705LT, PS Elastoform Flashing
9. Counter-flashing for Masonry Through-Wall Flashings: CCW-705/705 LT, PS Elastoform Flashing
10. Through-Wall Flashings or Shelf Angle Flashings:  CCW-705 TWF
11. Solvent-Based Primer for Flashing, Transition Strip and Detail Membrane:  CCW-702/702 LV, Sure-Seal HP-250 EPDM Primer, CAV-GRIP, TRAVEL-TACK
12. Water-Based Primer for Flashing, Transition Strip and Detail Membrane:  CCW-702WB
13. Substrate Joint Treatment: CCW-705, CCW Barritape, DCH Reinforcing Fabric, CCW-201

Material: Fire-Resist Barritech VP @ 60 mils thick (wet) by Carlisle Coatings and Waterproofing [www.carlisle-ccw.com](http://www.carlisle-ccw.com/):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0002 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0002 cfm/ft2 @ 1.57 psf), [0.001 liters per square meter per second under a pressure differential of 75 Pa (0.001 L/(s·m2) @ 75 Pa)] at 65 mils (wet), when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 41.1 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (41.1 ng/(Pa·s·m2)  [0.719 US perms] at 60 mils (wet) [40 mils (dry)] when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 817 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (817 ng/(Pa·s·m2)  [14.295 US perms] at 60 mils (wet) [40 mils (dry)] when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Detail Flashing: Fire-Resist 705 FR
2. Counter-flashing for Metal Wall Flashings: Fire-Resist 705 FR
3. Water-Based Primer for Detail Flashing: CCW-702 WB
4. Solvent-Based Primer for Detail Flashing: CCW-702 or CCW-702 LV
5. Solvent-Based Aerosol Primer for Detail Flashing: CAV-GRIP
6. Reinforcing Fabric: DCH Reinforcing Fabric
7. Glass Mat: LiquiFiber-W
8. Termination Mastic: SURE-SEAL Lap Sealant
9. Fill Compound: CCW-201 or CCW-703 V

Material: Fire-Resist Barritech NP @ 60 mils thick (wet) by Carlisle Coatings and Waterproofing [www.carlisle-ccw.com](http://www.carlisle-ccw.com/):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0002 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0002 cfm/ft2 @ 1.57 psf), [0.001 liters per square meter per second under a pressure differential of 75 Pa (0.001 L/(s·m2) @ 75 Pa)] at 80 mils (wet) [40 mils (dry)], when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 2.86 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (2.86 ng/(Pa·s·m2)  [0.05 US perms] at 35 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 44 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (44 ng/(Pa·s·m2)  [0.77 US perms] at 35 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Detail Flashing: Fire-Resist 705 FR
2. Counter-flashing for Metal Wall Flashings: Fire-Resist 705 FR
3. Water-Based Primer for Detail Flashing: CCW-702 WB
4. Solvent-Based Primer for Detail flashing: CCW-702 or CCW-702 LV
5. Solvent-Based Aerosol Primer for Detail Flashing: CAV-GRIP
6. Reinforcing Fabric: DCH Reinforcing Fabric
7. Glass Mat: LiquiFiber-W
8. Termination Mastic: SURE-SEAL Lap Sealant
9. Fill Compound: CCW-201 or CCW-703 V

Material: DefendAir 200 at 15 mils thick (dry) by Dow Corning www.buildabetterbarrier.com

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0010 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0010 cfm/ft2 @ 1.57 psf), [0.0049 liters per square meter per second under a pressure differential of 75 Pa (0.0049 L/(s·m2) @ 75 Pa)] at 15 mils (dry), when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 402.11nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (402.11 ng/(Pa·s·m2)  [7.03 US perms] at 15 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 1387.7 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (1387.7 ng/(Pa·s·m2)  [24.26 US perms] at 15 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

b.           AIR BARRIER ACCESSORY MATERIALS:

 i. Solvent-Based Primer:  Dow Corning® DefendAir Primer

 ii. Sealants:  Dow Corning® 791 Silicone Weatherseal Sealant, Dow Corning® 756 SMS Silicone Sealant, Dow Corning® 795 Silicone Building Sealant, Dow Corning® 758 Silicone Weather Barrier Sealant

1. Transition Membrane for details and terminations: Dow Corning® 778, Dow Corning® Silicone Transition Strip

 iv.           Flashing at Transition Membrane: Dow Corning® Silicone Transition Strip

 v.  Counterflashing for Masonry Through-Wall Flashings: Dow Corning® Silicone Transition Strip

 vi. Through-Wall Flashings or Shelf Angle Flashings:  Dow Corning® 778

 vii.         Substrate Joint Treatment: Dow Corning® 791 Silicone Weatherseal Sealant

Material: Backstop® NT™ at 12mils thick (dry) by Dryvit Systems, Inc [www.dryvit.com](http://www.dryvit.com):

AIR BARRIER MATERIAL PROPERTIES:

Air permeance for this material has been tested and reported as being 0.000118 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.000118 cfm/ft2 @ 1.57 psf), [0.0006 liters per square meter per second under a pressure differential of 75 Pa (0.0006 L/(s·m2) @ 75 Pa)] at 12 mils (dry), when tested in accordance with ASTM E2178 (unmodified).

1. Water vapor permeance for this material has been tested and reported as being 4.3 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (4.3 ng/(Pa·s·m2)  [0.075 US perms] at 20 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
2. Water vapor permeance for this material has been tested and reported as being 1810 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (1810 ng/(Pa·s·m2)  [31.65 US perms] at 20 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).
3. AIR BARRIER ACCESSORY MATERIALS:
4. Transition Membrane for details and terminations: Dryvit AquaFlash and AquaFlash Mesh
5. Reinforcing/Joint Tape: Dryvit Grid Tape
6. Flashing at Transition Membrane: Dryvit AquaFlash
7. Substrate Joint Treatment: Dryvit Grid Tape with Backstop NT

Material: Tyvek Fluid Applied WB at 25mils thick (wet), 25 mils thick (dry) by DuPont Building Innovations [www.Weatherization.Tyvek.com](http://www.Weatherization.Tyvek.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0002 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0002 cfm/ft2 @ 1.57 psf), [0.001 liters per square meter per second under a pressure differential of 75 Pa (0.001 L/(s·m2) @ 75 Pa)] at 25 mils (dry), when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 656 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (656 ng/(Pa·s·m2)  [11.48 US perms] at 25 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 1384 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (1384 ng/(Pa·s·m2)  [24.23 US perms] at 25 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Fluid-Applied Air Barrier Membrane: DuPont™ Tyvek® Fluid Applied WB - A vapor permeable, low VOC, single-component elastomeric polymer membrane. Spray or roller applied in one coat at 25mils; low temperature, and damp surface application.
2. Solvent Based Primer for Flashing, Transition Strip and Detail Membranes: 3M High Strength 90; Denso Butyl (used with self-adhered membranes only)
3. Through-Wall Flashings or Shelf Angle Flashings: DuPont recommended through-wall flashing
4. Sealants, Mastics, Adhesives and Tapes: DuPont™ Sealant for Tyvek®
5. Fluid Applied System; DuPont™ Tyvek® Flashing and Joint Compound; fiberglass mesh tape
6. Transition, Termination, and Detailing Membrane: DuPont™ StraightFlash™, or DuPont™ Tyvek® Flashing and Joint Compound (60mil)
7. Penetrations & Termination Sealant: DuPont™ Sealant for Tyvek® Fluid Applied System
8. Window Flashing Membrane: DuPont™ Tyvek® Fluid Applied Flashing and Joint Compound, or DuPont™ Tyvek® Fluid Applied Flashing – Brush Formulation, or DuPont™ StraightFlash™ with DuPont™ FlexWrap™
9. Joint Treatment: None(≤ 1/16” gaps); (DuPont™ Tyvek® Flashing and Joint Compound(≤ 1/4” gaps); DuPont™ Tyvek® Flashing and Joint Compound w/ fiberglass mesh tape (≤ 1/2” gaps); DuPont™ StraightFlash™ (≤ 1” gaps)

Material: Perm-A-Barrier Liquid at 60 mils thick (wet), 60 mils thick (dry) by Grace Construction Products [www.na.graceconstruction.com](http://www.na.graceconstruction.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being < 0.0002 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (< 0.0002 cfm/ft2 @ 1.57 psf), [0.001 liters per square meter per second under a pressure differential of 75 Pa (< 0.001 L/(s·m2) @ 75 Pa)] at 51 mils (dry), when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 4.96 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (4.96 ng/(Pa·s·m2)  [0.09 US perms] at 60 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 1.72 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (5.15 ng/(Pa·s·m2)  [0.09 US perms] at 60 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Membrane for details and Terminations: Bituthene Liquid Membrane.
2. Water-Based Primer for Flashing, Transition Strip and Detail Membrane: Perm-A-Barrier WB Primer or Perm-A-Barrier Primer Plus.
3. Solvent-Based Primer for Flashing, Transition Strip and Detail Membrane: Bituthene Primer B-2 and Bituthene Primer B2 LVC or Bituthene Primer B2.
4. Through-Wall Flashings or Shelf Angle Flashings: Perm-A- Barrier Wall Flashing.
5. Sealants, Mastics, Adhesives and Tapes: As recommended by Grace Construction Products.
6. Transition Membrane: Perm-A-Barrier Detail Membrane, Perm-A-Barrier Aluminum Flashing and Perm-A-Barrier Wall Flashing.
7. Penetrations & Termination Sealant: Bituthene Liquid Membrane and as recommended by Grace Construction Products.
8. Window Flashing and Detail Membrane: Perm-A-Barrier Detail Membrane, Perm-A-Barrier Aluminum Flashing and Perm-A-Barrier Wall Flashing.
9. Joint Sealant: Refer to Technical Letter 1 for details on compatible waterproofing sealants.

Material: Perm-A-Barrier VP, 90 mils thick (wet), 45 mils thick (dry) by Grace Construction Products [www.na.graceconstruction.com](http://www.na.graceconstruction.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0004 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0004 cfm/ft2 @ 1.57 psf), [0.002 liters per square meter per second under a pressure differential of 75 Pa (0.002 L/(s·m2) @ 75 Pa)] at 69 mils (wet), when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 34.39 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (34.39 ng/(Pa·s·m2)  [0.60 US perms] at 40 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 741.6 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (741.6 ng/(Pa·s·m2)  [12.9 US perms] at 40 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Membrane for details and Terminations: Bituthene Liquid Membrane.
2. Water-Based Primer for Flashing, Transition Strip and Detail Membrane: Perm-A-Barrier WB Primer or Perm-A-Barrier Primer Plus.
3. Solvent-Based Primer for Flashing, Transition Strip and Detail Membrane: Bituthene Primer B-2 and Bituthene Primer B2 LVC or Bituthene Primer B2.
4. Through-Wall Flashings or Shelf Angle Flashings: Perm-A-Barrier Wall Flashing.
5. Sealants, Mastics, Adhesives and Tapes: As recommended by Grace Construction Products.
6. Transition Membrane: Perm-A-Barrier Detail Membrane, Perm-A-Barrier Aluminum Flashing and Perm-A-Barrier Wall Flashing.
7. Penetrations & Termination Sealant: Bituthene Liquid Membrane and as recommended by Grace Construction Products.
8. Window Flashing and Detail Membrane: Perm-A-Barrier Detail Membrane, Perm-A-Barrier Aluminum Flashing and Perm-A-Barrier Wall Flashing.
9. Joint Sealant: Refer to Technical Letter 1 for details on compatible waterproofing sealants.

Material: Air Bloc 31 MR by Henry at 90 mils (wet) [www.henry.com](http://www.henry.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.00024 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.00024 cfm/ft2 @ 1.57 psf), [0.0012 liters per square meter per second under a pressure differential of 75 Pa (0.0012 L/(s·m2) @ 75 Pa)] at 87 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 32.0 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (32.0 ng/(Pa·s·m2)  [0.57 US perms] at 44 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 2066 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (2066 ng/(Pa·s·m2)  [36.12 US perms] at 44 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Transition Membrane: Blueskin SA and Blueskin SALT for low-temperature applications.
2. Water-Based Primer for Transition Membrane: Aquatec Primer.
3. Solvent-Based Primer for Transition Membrane: Blueskin Adhesive.
4. Solvent-Based Aerosol Primer for Transition Membrane: Blueskin Spray Prep.
5. Counter-flashing for Masonry Through-Wall Flashing: Blueskin TWF.
6. Sealant: HE 925 BES Sealant
7. Reinforcing Tape: HE 183 Yellow Glass Fabric
8. Mastics, Adhesives and Tapes: Henry 570-05 Polybitume.

Material: Air Bloc 32 MR by Henry at 75 - 115 mils (wet) [www.henry.com](http://www.henry.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0001 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0001 cfm/ft2 @ 1.57 psf), [0.0005 liters per square meter per second under a pressure differential of 75 Pa (0.0005 L/(s·m2) @ 75 Pa)] at 118 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 13.0 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (13.0 ng/(Pa·s·m2)  [0.23 US perms] at 118 mils (wet) when tested in accordance with ASTM E96 (desiccant method – unmodified).
3. Water vapor permeance for this material has been tested and reported as being 58.0 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (58.0 ng/(Pa·s·m2)  [1.02 US perms] at 118 mils (wet) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Transition Membrane: Blueskin SA and Blueskin SALT for low-temperature applications.
2. Water-Based Primer for Transition Membrane: Aquatec Primer.
3. Solvent-Based Primer for Transition Membrane: Blueskin Adhesive.
4. Solvent-Based Aerosol Primer for Transition Membrane: Blueskin Spray Prep.
5. Counter-flashing for Masonry Through-Wall Flashing: Blueskin TWF.
6. Sealant: HE 925 BES Sealant
7. Reinforcing Tape: HE 183 Yellow Glass Fabric
8. Mastics, Adhesives and Tapes: Henry 570-05 Polybitume.

Material: Air Bloc 33 MR by Henry at 100 mils (wet), 58 mils thick (dry) [www.henry.com](http://www.henry.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0016 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0016 cfm/ft2 @ 1.57 psf), [0.0008 liters per square meter per second under a pressure differential of 75 Pa (0.0008 L/(s·m2) @ 75 Pa)] when tested in accordance with ASTM E 2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 19.0 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (19.0 ng/(Pa·s·m2)  [0.34 US perms] at 59 mils (dry) when tested in accordance with ASTM E 96 (desiccant method – unmodified).
3. Water vapor permeance for this material has been tested and reported as being 652 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (652 ng/(Pa·s·m2)  [11.4 US perms] at 59 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Transition Membrane: Blueskin SA and Blueskin SALT for low-temperature applications.
2. Water-Based Primer for Transition Membrane: Aquatec Primer.
3. Solvent-Based Primer for Transition Membrane: Blueskin Adhesive.
4. Solvent-Based Aerosol Primer for Transition Membrane: Blueskin Spray Prep.
5. Counter-flashing for Masonry Through-Wall Flashing: Blueskin TWF.
6. Sealant: HE 925 BES Sealant
7. Reinforcing Tape: HE 183 Yellow Glass Fabric
8. Mastics, Adhesives and Tapes: Henry 570-05 Polybitume.

Material: Enviro-Barier by Hohmann &Barnard, Inc at 40 mils (dry) [www.h-b.com](http://www.h-b.com)

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.00008 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.00008 cfm/ft2 @ 1.57 psf), [0.0004 liters per square meter per second under a pressure differential of 75 Pa (0.00043 L/(s·m2) @ 75 Pa)] at 40 mils (dry) when tested in accordance with ASTM E 2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 3.40 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (3.40 ng/(Pa·s·m2)  [0.060 US perms] at 40 mils (dry) when tested in accordance with ASTM E96 (desiccant method – unmodified).
3. Water vapor permeance for this material has been tested and reported as being 39.6 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (39.6 ng/(Pa·s·m2)  [0.694 US perms] at 40 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer: Hohmann & Barnard Self-Adhesive Flashing Primer
2. Sealants: Hohmann & Barnard Enviro-Barrier Mastic
3. Transition Membrane for details and terminations: Hohmann & Barnard X-Seal Transition Membrane or Hohmann & Barnard Stretch-X-Seal.
4. Flexible Flashing: Hohmann & Barnard Textroflash

Material: Air and Water Barrier by LATICRETE International, Inc. at 20 – 30 mils (dry) [www.laticrete.com](http://www.laticrete.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.000104 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.000104 cfm/ft2 @ 1.57 psf), [0.00052 liters per square meter per second under a pressure differential of 75 Pa (0.00052 L/(s·m2) @ 75 Pa)] at 38 mils (wet) [25 mils (dry)], when tested in accordance with ASTM E 2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 4.92 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (4.92 ng/(Pa·s·m2)  [0.086 US perms] at 35 mils (wet) [25 mils (dry)] when tested in accordance with ASTM E96 (desiccant method – unmodified).
3. Water vapor permeance for this material has been tested and reported as being 57.3 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (57.3 ng/(Pa·s·m2)  [1.002 US perms] at 36 mils (wet) [26 mils (dry)] when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer: LATICRETE Transition Tape Primer
2. Sealants:  LATICRETE MVIS Sealant
3. Transition Membrane for details and terminations: LATICRETE Transition Tape, LATICRETE Flexible Sealing Tape
4. Reinforcing/Joint Tape: LATICRETE Waterproofing/Anti-Fracture Fabric
5. Flashing at Transition Membrane: LATICRETE Transition Tape, LATICRETE Flexible Sealing Tape
6. Through-Wall Flashings or Shelf Angle Flashings:  LATICRETE Transition Tape, LATICRETE Flexible Sealing Tape
7. Water-Based Primer for Flashing, Transition Strip and Detail Membrane:  LATICRETE Transition Tape Primer
8. Substrate Joint Treatment: LATICRETE Waterproof Flashing Mortar

Material: GE Elemax 2600 by Momentive Performance Materials at 17 mils (dry) [www.ge.com/silicones](http://www.ge.com/silicones/):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0006 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0006 cfm/ft2 @ 1.57 psf), [0.003 liters per square meter per second under a pressure differential of 75 Pa (0.003 L/(s·m2) @ 75 Pa)] at 17 mils (dry) when tested in accordance with ASTM E 2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 453 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (453 ng/(Pa·s·m2)  [7.92 US perms] at 17 mils (dry) when tested in accordance with ASTM E96 (desiccant method – unmodified).
3. Water vapor permeance for this material has been tested and reported as being 581 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (581 ng/(Pa·s·m2)  [10.16 US perms] at 17 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Solvent-Based Primer: SS80
2. Sealants: Elemax 5000 Liquid Flashing, SilPruf SCS2000, SilPruf SCS9000, SilPruf SCS2700, SWS
3. Transition Membrane for details and terminations: Elemax 5000 Liquid Flashing, UltraSpan UST2200, UltraSpan USM pre-formed silicone molded corners parts
4. Substrate Joint Treatment: Elemax 5000 Liquid Flashing, SilPruf SCS2000, SilPruf SCS9000, SilPruf SCS2700, SWS
5. Reinforcing Fabric: RF100

Material: Air Smart VP by Masonry Foams and Coatings at 20 mils (dry) www.masonryfoams andcoatings.com

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0001 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0001 cfm/ft2 @ 1.57 psf), 0.0005 liters per square meter per second under a pressure differential of 75 Pa (0.0005 L/(s·m2) @ 75 Pa)] at 32 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 55.30 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (55.30 ng/(Pa·s·m2)  [0.96 US perms] at 22 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).

1. Water vapor permeance for this material has been tested and reported as being 660.80 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (660.80 ng/(Pa·s·m2)  [11.5 US perms] at 22 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. As per manufacturers instructions

Material: Weatherseal by Parex USA at 12 mils (wet), 6 mils (dry). [www.parexusa.com](http://www.parexusa.com/):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0023 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0023 cfm/ft2 @ 1.57 psf), 0.01149 liters per square meter per second under a pressure differential of 75 Pa (0.01149 L/(s·m2) @ 75 Pa)] at 12 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 47.3 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (47.3 ng/(Pa·s·m2)  [0.828 US perms] at 30 mils - wet when tested in accordance with ASTM E96 (desiccant method - unmodified).

1. Water vapor permeance for this material has been tested and reported as being 526 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (526 ng/(Pa·s·m2)  [9.2 US perms] at 18 mils - wet when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer:  Protecto-Wrap 6000 Primer
2. Reinforcing/Joint Tape: Parex USA Sheathing Joint Tape
3. Flashing at Transition Membrane: Parex USA Flashing Membrane

Material: Pecora XL-Perm ULTRA VP by Pecora USA at 9 – 12 mils (dry). [www.pecora.com](http://www.pecora.com):

AIR BARRIER MATERIAL PROPERTIES:

Air permeance for this material has been tested and reported as being 0.00024 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.00024 cfm/ft2 @ 1.57 psf), 0.0012 liters per square meter per second under a pressure differential of 75 Pa (0.0012 L/(s·m2) @ 75 Pa)] at 12 mils (dry) when tested in accordance with ASTM E2178 (unmodified).

1. Water vapor permeance for this material has been tested and reported as being 653.22 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential 653.22 ng/(Pa·s·m2)  [0.11.42 US perms] at 9 mils - dry when tested in accordance with ASTM E96 (desiccant method - unmodified).
2. Water vapor permeance for this material has been tested and reported as being 727.01 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (727.01 ng/(Pa·s·m2)  [12.71 US perms] at 9 mils - dry when tested in accordance with ASTM E96 (water method – unmodified).
3. AIR BARRIER ACCESSORY MATERIALS:
4. Sealants: 890NST Silicone Sealant, AVB Silicone Sealant
5. Transition Membrane for details and terminations: XL Span
6. Flashing at Transition Membranes: XL Flash Liquid Flashing & Joint Filler
7. Counter-Flashing for Masonry Through-Wall Flashings: XL Flash Liquid Flashing & Joint Filler
8. Through-Wall Flashings or Shelf Angle Flashings: XL Flash Liquid Flashing & Joint Filler
9. Substrate Joint Treatment: XL Flash Liquid Flashing & Joint Filler, 890 NST Silicone Sealant, AC-20 Latex Sealant, AVW-920 Latex Sealant, Dynatrol I-XL-345 Tru White STPU Sealant

Material: Poly-Wall AirLok Flex by Polyguard Products Inc. at 12 mils (dry) [www.poly-wall.com](file:///%5C%5CDCSERV%5CShared%5CABAA%5CAssociation%5CCommittees%5CTechnical%5COfficial%20Documents%20%26%20Specifications%5CSpecifications%5CSpecifications%20in%20Progress%5CTo%20be%20sent%20to%20Mark%20Kalin%5Cwww.poly-wall.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0039 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0039 cfm/ft2 @ 1.57 psf), 0.00195 liters per square meter per second under a pressure differential of 75 Pa (0.00195 L/(s·m2) @ 75 Pa)] at 1gal/70ft2 (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 3.32 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (3.32 ng/(Pa·s·m2)  [0.058 US perms] at 40 mils (wet) [20 mils (dry)] when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 12.5 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (12.5 ng/(Pa·s·m2)  [0.219 US perms] at 40 mils (wet) [20 mils (dry)] when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

Water-Based Primer: Polyguard Shur Tac as recommended

1. Solvent-Based Adhesives and Sealant: Polyguard 650LT Liquid Adhesive, Quick Grip Building Envelope Adhesive or California Sealant as recommended
2. Counter-flashing for Masonry Through-Wall Flashings: Polyguard Detail Sealant PW applied over or under AirLok Flex, Polyguard 300, 400 or UV 365 membrane applied and covered by AirLok Flex or applied over cured AirLok Flex. Cover exposed 300, 400 or UV365 top leading horizontal edges with AirLok Flex or Detail Sealant PW
3. Substrate Joint Treatment: Polyguard Detail Sealant PW applied over or under AirLok Flex

Material: Cat 5 by PROSOCO, Inc. at 12 - 15 mils (wet) [www.prosoco.com](http://www.prosoco.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.00018 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.00018 cfm/ft2 @ 1.57 psf), 0.0009 liters per square meter per second under a pressure differential of 75 Pa (0.0009 L/(s·m2) @ 75 Pa)] when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 859 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (859 ng/(Pa·s·m2)  [15.03 US perms] at 12 - 15 mils (wet) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 1015 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (1015 ng/(Pa·s·m2)  [17.71 US perms] at 12 - 15 mils (wet) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer:  PROSOCO R-GUARD® GypPrime for cut gyp board edged in rough openings
2. Sealants:  PROSOCO R-GUARD® AirDam for interior perimeter seal in window installations
3. Counter-flashing for Masonry Through-Wall Flashings: PROSOCO R-GUARD® Joint and Seam Filler followed by PROSOCO R-GUARD® FastFlash®
4. Through-Wall Flashings or Shelf Angle Flashings:  PROSOCO R-GUARD® Joint and Seam Filler followed by PROSOCO R-GUARD® FastFlash®
5. Substrate Joint Treatment:  PROSOCO R-GUARD® Joint & Seam Filler for sheathing seams, PROSOCO R-GUARD® Joint & Seam Filler covered by PROSOCO R-GUARD® FastFlash® in rough opening.

Material: R-GUARD Spray Wrap MVP by PROSOCO, Inc. at 26 mils thick (dry), [www.prosoco.com](file:///%5C%5CDCSERV%5CShared%5CABAA%5CAssociation%5CCommittees%5CTechnical%5COfficial%20Documents%20%26%20Specifications%5CSpecifications%5CSpecifications%20in%20Progress%5CTo%20be%20sent%20to%20Mark%20Kalin%5Cwww.prosoco.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0002 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0002 cfm/ft2 @ 1.57 psf), 0.001 liters per square meter per second under a pressure differential of 75 Pa (0.001 L/(s·m2) @ 75 Pa)] at 26 mils (dry) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 311.74 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (311.74 ng/(Pa·s·m2)  [5.45 US perms] at 5 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 1944 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (1944 ng/(Pa·s·m2)  [11.5.5 US perms] at 5 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer: PROSOCO R-Guard® PorousPrep for cut gyp board edges in rough openings
2. Sealants:  PROSOCO R-Guard® AirDam® for interior perimeter seal in window installations.
3. Transition Membrane for details and terminations: PROSOCO R-Guard® SureSpan EX®
4. Flashing at Transition Membrane: PROSOCO R-Guard® FastFlash®
5. Counter-flashing for Masonry Through-Wall Flashings: Combination of PROSOCO R-Guard® Joint & Seam Filler and PROSOCO R-Guard® FastFlash®, or FastFlash® alone as a fill product and then a flashing
6. Through-Wall Flashings or Shelf Angle Flashings:  Combination of PROSOCO R-Guard® Joint & Seam Filler and PROSOCO R-Guard® FastFlash®, or FastFlash® alone as a fill product and then a flashing
7. Substrate Joint Treatment: PROSOCO R-Guard® FastFlash® and/or PROSOCO R-Guard® Joint & Seam Filler

Material: Protecto Wall Liquid Air Barrier VP by Protecto Wrap at 10 mils (dry) [www.protectowrap.com](http://www.protectowrap.com)

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.00086 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.000864 cfm/ft2 @ 1.57 psf), 0.0043 liters per square meter per second under a pressure differential of 75 Pa (0.0043 L/(s·m2) @ 75 Pa)] at 10 mils (dry) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 55.3 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (55.3 ng/(Pa·s·m2)  [0.96 US perms] at 22 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 660.8 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (660.8 ng/(Pa·s·m2)  [11.5 US perms] at 22 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer: Universal Water Based Primer
2. Solvent-Based Primer: BT Primer
3. Solvent-Based Aerosol Primer: Protecto-Tak Spray Adhesive
4. Sealants: Protecto Wall Board to Baord Joint Sealant
5. Transition Membrane for details and terminations: Protecto Wall Transition Tape
6. Solvent-Based Primer for Flashing, Transition Strip and Detail Membrane: BT Primer
7. Water-Based Primer for Flashing, Transition Strip and Detail Membrane: Universal Water Based Primer
8. Substrate Joint Treatment: Protecto Wall Board to Board Joint Sealant

Material: Sikagard 520 Liquid Applied Vapor Permeable Air Barrier by Sika Corporation at 30 mils (dry) [www.sika.com](http://www.sika.com/):

AIR BARRIER MATERIAL PROPERTIES:

Air permeance for this material has been tested and reported as being 0.0014 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0014 cfm/ft2 @ 1.57 psf), 0.0069 liters per square meter per second under a pressure differential of 75 Pa (0.0069 L/(s·m2) @ 75 Pa)] at 30 mils (dry) when tested in accordance with ASTM E2178 (unmodified).

1. Water vapor permeance for this material has been tested and reported as being < 5.7 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (< 5.7 ng/(Pa·s·m2)  [< 0.1 US perms] at 30 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
2. Water vapor permeance for this material has been tested and reported as being 720 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (720 ng/(Pa·s·m2)  [12.6 US perms] at 30 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer:  Sikagard 530
2. Solvent-Based Primer:  Sikagard 510
3. Solvent-Based Aerosol Primer:
4. Termination Mastic:  Sikaflex 11FC
5. Sealants:  Sikaflex 11FC
6. Transition Membrane for details and terminations: SikaMultiSeal 515
7. Reinforcing/Joint Tape:  SikaMultiSeal 515
8. Counterflashing for Masonry Through-Wall Flashings: SikaMultiSeal Plus
9. Through-Wall Flashings or Shelf Angle Flashings:  SikaMultiSeal Plus
10. Substrate Joint Treatment: Sikaflex 11FC

Material: Sikagard 530 Liquid Applied Vapor Permeable Air Barrier by Sika Corporation at 30 mils (dry) [www.sika.com](http://www.sika.com/):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being < 0.0001 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (< 0.0001 cfm/ft2 @ 1.57 psf), 0.0005 liters per square meter per second under a pressure differential of 75 Pa (0.0005 L/(s·m2) @ 75 Pa)] at 20 mils (dry) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 55.3 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (55.3 ng/(Pa·s·m2)  [0.96 US perms] at 22 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 661 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (661 ng/(Pa·s·m2)  [11.5 US perms] at 22 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer:  Sikagard 530
2. Solvent-Based Primer:  Sikagard 510
3. Solvent-Based Aerosol Primer:
4. Termination Mastic:  Sikaflex 11FC
5. Sealants:  Sikaflex 11FC
6. Transition Membrane for details and terminations: SikaMultiSeal 515
7. Reinforcing/Joint Tape:  SikaMultiSeal 515
8. Counterflashing for Masonry Through-Wall Flashings: SikaMultiSeal Plus
9. Through-Wall Flashings or Shelf Angle Flashings:  SikaMultiSeal Plus
10. Substrate Joint Treatment: Sikaflex 11FC

Material: Sopraseal LM 202 VP by Soproma at 10 mils (wet) [www.soprema.us](http://www.soprema.us)

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.00004 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.00004 cfm/ft2 @ 1.57 psf), [0.0002 liters per square meter per second under a pressure differential of 75 Pa (0.0002 L/(s·m2) @ 75 Pa)] at 10 mils (wet) when tested in accordance with ASTM E 2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 5.81 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (5.81 ng/(Pa·s·m2)  [0.10 US perms] at 10 mils (wet) when tested in accordance with ASTM E96 (desiccant method – unmodified).
3. Water vapor permeance for this material has been tested and reported as being 1004 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (1004 ng/(Pa·s·m2)  [17.6 US perms] at 10 mils (wet) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water Based Primer: Soprema Elastocol Stick H20 Primer
2. Solvent-Based Primer: Soprema Sopraseal Stick primer
3. Sealants: Soprema Sopraseal sealant
4. Transition Membrane for details and terminations: Soprema Sopreseal Stick 1100T or Soprema Soprsolin HD
5. Substrate Joint Treatment: Soprema Sopreseal Mesh

Material: Sopraseal LM 203 by Soproma at 26 mils (wet) [www.soprema.us](http://www.soprema.us)

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.00002 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.00002 cfm/ft2 @ 1.57 psf), [0.0001 liters per square meter per second under a pressure differential of 75 Pa (0.0001 L/(s·m2) @ 75 Pa)] at 26 mils (wet) when tested in accordance with ASTM E 2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 5.53 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (5.53 ng/(Pa·s·m2)  [0.097 US perms] at 20 mils (wet) when tested in accordance with ASTM E96 (desiccant method – unmodified).
3. Water vapor permeance for this material has been tested and reported as being 377 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (377 ng/(Pa·s·m2)  [6.58 US perms] at 20 mils (wet) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water Based Primer: Soprema Elastocol Stick H20 Primer
2. Solvent-Based Primer: Soprema Sopraseal Stick primer
3. Sealants: Soprema Sopraseal sealant
4. Transition Membrane for details and terminations: Soprema Sopreseal Stick 1100T or Soprema Soprsolin HD
5. Substrate Joint Treatment: Soprema Sopreseal Mesh

Material: Emerald Coat by Sto Corp at 20 mils (dry) [www.stocorp.com](http://www.stocorp.com)

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.000024 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.00024 cfm/ft2 @ 1.57 psf), [0.00020 liters per square meter per second under a pressure differential of 75 Pa (0.00020 L/(s·m2) @ 75 Pa)] at 20 mils (dry) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 121.26 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (121.26 ng/(Pa·s·m2)  [2.12 US perms] at 12 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 797.94 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (797.94 ng/(Pa·s·m2)  [13.95 US perms] at 12 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Joint and Rough Opening Treatments: Sto Gold Fill with StoGuard Mesh, StoGuard Rapid Seal with StoGuard Mesh, Sto EmeraldCoat with SToGuard Fabric, StoGuard Tape
2. Joint Reinforcements: StoGuard Mesh, StoGuard Fabric, StoGuard RediCorner
3. Transition Membranes: Sto Gold Fill with StoGuard Mesh, StoGuard RapidSeal or StoGuard RapidSeal with StoGuard Mesh, Sto Emerald Cost with StoGuard Fabric, StoGuard Tape
4. Water-Based Primer for use with Flashing Transition:   StoGuard Primer

Material: Gold Coat – 265 by Sto Corp. at 10 mils (wet), 6 mils (dry) [www.stocorp.com](http://www.stocorp.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0000 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0000 cfm/ft2 @ 1.57 psf), [0.000 liters per square meter per second under a pressure differential of 75 Pa (0.000 L/(s·m2) @ 75 Pa)] at 10 - 12 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 6.86 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (6.86 ng/(Pa·s·m2)  [0.12 US perms] at 12 mils (wet) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 202 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (202 ng/(Pa·s·m2)  [3.54 US perms] at 12 mils (wet) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

Solvent-Based Aerosol Primer:   3M  Super 77 and 3M 90 (for use with StoGuard Tape or other self-adhesive rubberized asphaltic membrane tapes)

1. Transition Membrane for details and terminations: Sto Gold Fill with StoGuard Mesh, StoGuard Fabric, StoGuard Tape, StoGuard RapidSeal.
2. Reinforcing Joint Tape: StoGuard Fabric, StoGuard Mesh
3. Water-Based Primer for use with Flashing Transition:   StoGuard Primer
4. Substrate Joint Treatment: Sto Gold Fill with StoGuard Mesh and StoGuard VaporSeal with StoGuard Fabric

Material: Gold Fill – 266 by Sto Corp. at 10 mils (wet), 6 mils (dry) [www.stocorp.com](http://www.stocorp.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0002 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0002 cfm/ft2 @ 1.57 psf), [0.0014 liters per square meter per second under a pressure differential of 75 Pa (0.0014 L/(s·m2) @ 75 Pa)] when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 107 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (107 ng/(Pa·s·m2)  [1.87 US perms] at 27 mils (wet) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 480 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (480 ng/(Pa·s·m2)  [8.4 US perms] at 30 mils (wet) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Solvent-Based Aerosol Primer:   3M  Super 77 and 3M 90 (for use with StoGuard Tape or other self-adhesive rubberized asphaltic membrane tapes)
2. Transition Membrane for details and terminations: Sto Gold Fill with StoGuard Mesh, StoGuard RapidSeal.
3. Reinforcing Joint Tape: StoGuard Fabric, StoGuard Mesh
4. Water-Based Primer for use with Flashing Transition:   StoGuard Primer
5. Substrate Joint Treatment: Sto Gold Fill with StoGuard Mesh and StoGuard VaporSeal with StoGuard Fabric

Material: VaporSeal by Sto Corp. at a minimum 46 mils – 74 mils (wet) [25 – 40 mils (dry)] [www.stocorp.com](http://www.stocorp.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.004 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.004 cfm/ft2 @ 1.57 psf), [0.01623 liters per square meter per second under a pressure differential of 75 Pa (0.01623 L/(s·m2) @ 75 Pa)] at 30 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 2.52 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (2.52 ng/(Pa·s·m2)  [0.044 US perms] at 30 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 32.6 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (32.6 ng/(Pa·s·m2)  [0.57 US perms] at 26 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Solvent-Based Aerosol Primer:   3M  Super 77 and 3M 90 (for use with StoGuard Tape or other self-adhesive rubberized asphaltic membrane tapes)
2. Transition Membrane for details and terminations: Sto Gold Fill with StoGuard Mesh, StoGuard Fabric, StoGuard Tape, StoGuard RapidSeal.
3. Reinforcing Joint Tape: StoGuard Fabric, StoGuard Mesh
4. Water-Based Primer for use with Flashing Transition:   StoGuard Primer
5. Substrate Joint Treatment: Sto Gold Fill with StoGuard Mesh and StoGuard VaporSeal with StoGuard Fabric

Material: Wall Guardian FW-100 (Asphaltic-component) by STS Coatings at 60 mils (wet), 30 mils (dry) [www.wallguardian.com](http://www.wallguardian.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.001358 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.001358 cfm/ft2 @ 1.57 psf), 0.0069 liters per square meter per second under a pressure differential of 75 Pa (0.0069 L/(s·m2) @ 75 Pa)] at 30 mils (dry) [60 mils (wet)] when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being < 5.72 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (< 5.72 ng/(Pa·s·m2)  [< 0.10 US perms] at 30 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 720 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (720 ng/(Pa·s·m2)  [12.6 US perms] at 30 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer for Flashing, Transition Strip and Detail Membrane:  none
2. Solvent-Based Primer for Flashing, Transition Strip and Detail Membrane:  BP-40 Primer for use with UT-40 Universal Tape.
3. Through-Wall Flashings or Shelf Angle Flashings:  Gorilla Flash VF-1000
4. Mastics: none
5. Adhesives and Tapes:  Universal Tape UT-40, a butyl based tape and Great Seal LT-100, a low voc elastomeric sealant for deflection joints and details
6. Transition Strip:  Universal Tape, UT-40
7. Termination Mastic:  Great Seal LT-100
8. Window Flashing and Detail Membrane:   Universal Tape UT-40

Material: Wall Guardian FW-100-A (Acrylic-based component) by STS Coatings 40 mils (wet), 20 mils (dry) [www.wallguardian.com](http://www.wallguardian.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0001 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0001 cfm/ft2 @ 1.57 psf), 0.0005 liters per square meter per second under a pressure differential of 75 Pa (0.0005 L/(s·m2) @ 75 Pa)] at 20 mils (dry) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 55.3 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (55.3 ng/(Pa·s·m2)  [0.96 US perms] at 22 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 661 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (661 ng/(Pa·s·m2)  [11.5 US perms] at 22 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).
4. Passed ASTM E331 (modified), 2hr @ ∆P=6.24psf and ∆P=10psf at 3.4 L/m2·min water spray; 15min @ ∆P=15psf at 3.4 L/m2·min water spray.

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer for Flashing, Transition Strip and Detail Membrane:  none
2. Solvent-Based Primer for Flashing, Transition Strip and Detail Membrane:  BP-40 Primer for use with UT-40 Universal Tape.
3. Through-Wall Flashings or Shelf Angle Flashings:  Gorilla Flash VF-1000
4. Mastics: none
5. Adhesives and Tapes:  Universal Tape UT-40, a butyl based tape and Great Seal LT-100, a low voc elastomeric sealant for deflection joints and details
6. Transition Strip:  Universal Tape, UT-40
7. Termination Mastic:  Great Seal LT-100
8. Window Flashing and Detail Membrane:   Universal Tape UT-40

Material: TK-AirMax 2102 Non-Permeable and TK-AirMax 2102 Non-Permeable VOC by TK Products at 40-45+ mils (wet), 22-25+ mils (dry) [www.tkproducts.com](http://www.tkproducts.com/):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0004 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0004 cfm/ft2 @ 1.57 psf), 0.002 liters per square meter per second under a pressure differential of 75 Pa (0.002 L/(s·m2) @ 75 Pa)] at 40+ mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 0.751 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (0.751 ng/(Pa·s·m2)  [0.013US perms] at 20 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 6.29 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (6.29 ng/(Pa·s·m2)  [0.11 US perms] at 12 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Through-Wall Flashings or Shelf Angle Flashings:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18
2. Caulk: TK-Super Seal
3. Adhesives and Tapes: TK-AirMax 2200 All Weather Flashing (TK Products), TK Air Max 2203 Caulk, TK-AirMax 2201 Red Sheathing Facing Tape (Venture Tape, a 3M Company), 3M All-Weather Flashing Tape 8067 (3M Company), VentureStop VB 400 (Venture Tape, a 3M Company), Venture-1585 CW-2 Red Sheating Facing Tape (Venture Tape, a 3M Company)
4. Transition Membranes:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18
5. Reinforcing/Joint Tape:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18
6. Termination of Caulk: TK-AirMax Caulk 2203 (TK Products), Manus-Bond 75AM (Manus Products, Inc.)
7. Flashing (Counter) for Masonry at Through-Wall Flashings or Transition Membranes:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18

Material: TK-AirMax 2103 by TK Products at 40+ mils (wet). [www.tkproducts.com](http://www.tkproducts.com/):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.00097 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.00097 cfm/ft2 @ 1.57 psf), 0.00492 liters per square meter per second under a pressure differential of 75 Pa (0.00492 L/(s·m2) @ 75 Pa)] at 40 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 6.669 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (6.669 ng/(Pa·s·m2)  [0.117 US perms] at 19 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 857 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (857 ng/(Pa·s·m2)  [15.0 US perms] at 20 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Through-Wall Flashings or Shelf Angle Flashings:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18
2. Caulk: TK-Super Seal
3. Adhesives and Tapes: TK-AirMax 2200 All Weather Flashing (TK Products), TK Air Max 2203 Caulk, TK-AirMax 2201 Red Sheathing Facing Tape (Venture Tape, a 3M Company), 3M All-Weather Flashing Tape 8067 (3M Company), VentureStop VB 400 (Venture Tape, a 3M Company), Venture-1585 CW-2 Red Sheating Facing Tape (Venture Tape, a 3M Company)
4. Transition Membranes:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18
5. Reinforcing/Joint Tape:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18
6. Termination of Caulk: TK-AirMax Caulk 2203 (TK Products), Manus-Bond 75AM (Manus Products, Inc.)
7. Flashing (Counter) for Masonry at Through-Wall Flashings or Transition Membranes:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18

Material: TK-AirMax 2104 by TK Products at 40+ mils (wet). [www.tkproducts.com](http://www.tkproducts.com/):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0008 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0008 cfm/ft2 @ 1.57 psf), 0.004 liters per square meter per second under a pressure differential of 75 Pa (0.004 L/(s·m2) @ 75 Pa)] at 40+ mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 17.1 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (17.1 ng/(Pa·s·m2)  [0.30 US perms] at 12 mils (dry) when tested in accordance with ASTM E96 (desiccant method - unmodified).
3. Water vapor permeance for this material has been tested and reported as being 1007 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (1007 ng/(Pa·s·m2)  [17.6 US perms] at 14 mils (dry) when tested in accordance with ASTM E96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Through-Wall Flashings or Shelf Angle Flashings:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18
2. Caulk: TK-Super Seal
3. Adhesives and Tapes: TK-AirMax 2200 All Weather Flashing (TK Products), TK Air Max 2203 Caulk, TK-AirMax 2201 Red Sheathing Facing Tape (Venture Tape, a 3M Company), 3M All-Weather Flashing Tape 8067 (3M Company), VentureStop VB 400 (Venture Tape, a 3M Company), Venture-1585 CW-2 Red Sheating Facing Tape (Venture Tape, a 3M Company)
4. Transition Membranes:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18
5. Reinforcing/Joint Tape:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18
6. Termination of Caulk: TK-AirMax Caulk 2203 (TK Products), Manus-Bond 75AM (Manus Products, Inc.)
7. Flashing (Counter) for Masonry at Through-Wall Flashings or Transition Membranes:  TK-Climate Flash, TK-Butyl Bond, TK-SS Flashing, TK-TWF-18

Material: ExoAir 230, Tremco, Inc. at 40 mils (wet) [www.tremcoselants.com](http://www.tremcoselants.com)

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.0003 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.0003 cfm/ft2 @ 1.57 psf), [0.00011 liters per square meter per second under a pressure differential of 75 Pa (0.00011 L/(s·m2) @ 75 Pa)] at 40 mils (wet) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 103.72 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (103.72 ng/(Pa·s·m2)  [1.81 US perms] at 29 mils (dry) when tested in accordance with ASTM E 96 (desiccant method – unmodified).
3. Water vapor permeance for this material has been tested and reported as being 1677 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (1677 ng/(Pa·s·m2)  [29.31 US perms] at 29 mils (dry) when tested in accordance with ASTM E 96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Solvent-Based Primer: ExoAir Primer
2. Termination Mastic: ExoAir Termiantion Mastic
3. Sealants:  Tremflex 834, Dymonic 100, Spectrem 1
4. Transition Membrane for details and terminations: ExoAir 110, ExoAir 111, ExoAir TWF, Dymonic 100
5. Reinforcing/Joint Tape: Tremco 2011 mesh
6. Flashing at Transition Membrane: ExoAir 111, ExoAir TWF, Dymonic 100
7. Counter-flashing for Masonry Through-Wall Flashings: ExoAir TWF
8. Through-Wall Flashings or Shelf Angle Flashings: ExoAir TWF
9. Solvent-Based Primer for Flashing, Transition Strip and Detail Membrane: ExoAir Primer
10. Substrate Joint Treatment: Tremflex 834, Dymonic 100 depending on substrate.

Material: Air-Shield LMP, W. R. Meadows, Inc. at 90 mils (wet), 45 mils (dry) [www.wrmeadows.com](http://www.wrmeadows.com):

AIR BARRIER MATERIAL PROPERTIES:

1. Air permeance for this material has been tested and reported as being 0.000096 cubic feet per minute per square foot under a pressure differential of 1.57 pounds per square foot (0.000096 cfm/ft2 @ 1.57 psf), [0.00048 liters per square meter per second under a pressure differential of 75 Pa (0.00048 L/(s·m2) @ 75 Pa)] at 20 mils (dry) when tested in accordance with ASTM E2178 (unmodified).
2. Water vapor permeance for this material has been tested and reported as being 9.62 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (9.62 ng/(Pa·s·m2)  [0.168 US perms] at 47.6 mils (dry) when tested in accordance with ASTM E 96 (desiccant method – unmodified).
3. Water vapor permeance for this material has been tested and reported as being 598 nanograms of water vapor passing through each square meter of area per second for each Pascal of vapor pressure differential (598 ng/(Pa·s·m2)  [10.47 US perms] at 47.6 mils (dry) when tested in accordance with ASTM E 96 (water method – unmodified).

AIR BARRIER ACCESSORY MATERIALS:

1. Water-Based Primer:  none required for Air Shield LMP
2. Solvent-Based Primer:  none required for Air Shield LMP
3. Solvent-Based Aerosol Primer:  none required for Air Shield LMP
4. Termination Mastic:  Pointing Mastic or BEM
5. Transition Membrane for details and terminations: Air Shield
6. Reinforcing/Joint Tape:  Reinforcing Fabric HCR
7. Flashing at Transition Membrane: Air Shield Thru-Wall Flashing
8. Counter-flashing for Masonry Through-Wall Flashings: Air Shield Thru-Wall Flashing
9. Through-Wall Flashings or Shelf Angle Flashings:  Air Shield Thru-Wall Flashing
10. Solvent-Based Primer for Flashing, Transition Strip and Detail Membrane:  Mel-Prime VOC
11. Water-Based Primer for Flashing, Transition Strip and Detail Membrane:  Mel-Prime WB
12. Substrate Joint Treatment:  Air Shield Joint Filler

PART 3 - EXECUTION

* 1. EXAMINATION
		+ - 1. The ABAA Certified Air Barrier Contractor shall examine substrates, areas, and conditions under which the air barrier assembly will be installed, with ABAA Certified Installer present, for compliance with requirements.

Confirm site access logistics and scheduling requirements, including but not limited to use of scaffolding, lifts and staging.

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.

Ensure that the following conditions are met:

1. Surfaces are sound, dry, even, and free of excess mortar or other contaminants.
2. Inspect substrates to be smooth without large voids or sharp protrusions. Inform General Contractor if substrates are not acceptable and need to be repaired by the concrete sub-trade.
3. Inspect masonry joints to be reasonably flush and completely filled, and ensure all excess mortar sitting on masonry ties has been removed. Inform General Contractor if masonry joints are not acceptable and need to be repaired by the mason sub-trade.

Verify substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D4263 and take suitable measures until substrate passes moisture test.

Verify sealants are compatible with membrane proposed for use. Perform field peel-adhesion test on materials to which sealants are adhered.

Notify Architect in writing of anticipated problems using fluid-applied membrane over substrate prior to proceeding.

* 1. SURFACE PREPARATION
		+ - 1. Clean, prepare, and treat substrate according to material Manufacturer's written instructions. Provide clean, dust-free, and dry substrate for air barrier application.

Ensure that penetrating work by other trades is in place and complete.

Prepare surfaces by brushing, scrubbing, scraping, grinding or compressed air to remove loose mortar, dust, oil, grease, oxidation, mill scale and other contaminants which will affect adhesion of the fluid-applied membrane.

Wipe down metal surfaces to remove release agents or other non-compatible coatings using clean sponges or with a material chemically compatible with the primary air material.

* + - * 1. Prime substrate for installation of sheet membrane transition strips if recommended by material manufacturer and as follows:

Prime masonry, concrete substrates with conditioning primers.

Prime glass-fiber surfaced gypsum sheathing an adequate number of coats to achieve required bond, with adequate drying time between coats.

Prime wood, metal, and painted substrates with primer.

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

* + - * 1. Prime substrate for installation of fluid-applied air barrier if recommended by material manufacturer based on project conditions.
				2. Protection from spray-applied materials:

Mask and cover adjacent areas to protect from over-spray.

Ensure any required foam stop or back up materials are in place to prevent over-spray and achieve complete seal.

* 1. INSTALLATION
1. Fluid Applied Membrane Air Barrier: Install air barrier accessories and fluid-applied membrane air barrier material to provide continuity throughout the building envelope in a shingle fashion. Install materials in accordance with material manufacturer's instructions and the following (unless manufacturer recommends other procedures in writing based on project conditions or particular requirements of their recommended materials):

Install veneer anchors as per air barrier manufacturer installation sequencing.

Apply treatment to exterior gypsum joints and screw heads as per air barrier material manufacturer.

Apply primer for transition material at the rate instructed by the air barrier material manufacturer for 1 inch (25mm) beyond terminating edge of transition membrane. Allow primer to set/cure completely before transition strip application.

Position subsequent sheets of transition material so that membrane overlaps the membrane sheet below by a minimum of 2 inches (50 mm), unless greater overlap is recommended by the material manufacturer. Ensure transition membrane is securely sealed onto substrate with roller.

Overlap horizontally adjacent pieces of transition material a minimum of 2 inches (50 mm), unless greater overlap is recommended by the material manufacturer. Roll all areas of transition strip including seams with roller.

Seal around all penetrations with termination mastic/sealant, membrane counter-flashing or other procedure in accordance with material manufacturer’s instructions, ensuring chemical compatibility amongst adjoining materials.

Connect air barrier in exterior wall assembly continuously to the air barrier of the roof, to concrete below-grade structures, to windows, curtain wall, storefront, louvers, exterior doors, other intersection conditions and transitions from wet cavity to dry cavity and seal penetrations using accessory materials in accordance with the material manufacturer’s instructions.

Provide transition material at changes in substrate plane (with bead of sealant/mastic, membrane counter-flashing or other material recommended by material manufacturer) under membrane to eliminate all sharp 90 degree inside corners and to make a smooth transition from one plane to another.

Provide mechanically fastened non-corrosive metal sheet or other manufacturer approved transition material to span gaps greater than 1 inch (25 mm) in substrate plane and to make a smooth transition from one plane to the other. Transition membrane shall be installed continuously from air barrier material onto sheet metal maintaining 2 inch (50 mm) overlap on both edges.

For through-wall flashing and head-flashing, lap transition material over top edge of it.

Provide backup for the membrane to accommodate anticipated movement or use other manufacturer approved transition material at deflection and control joints.

Provide transition to the joint assemblies at expansion and seismic joints.

Apply a bead or trowel coat of mastic along membrane seams at reverse lapped seams, rough cuts, and as recommended by the material manufacturer.

Seal top edge of the self-adhered membrane to substrate with termination mastic at end of each working day.

Inspect installation prior to enclosing assembly and repair punctures, damaged areas and inadequately lapped seams with a patch of membrane lapped as recommended by material manufacturer.

Install primer for fluid-applied air barrier if instructed by material manufacturer.

Install fluid-applied membrane using equipment and methods recommended by manufacturer, to achieve a dry film thickness as required by the material manufacturer.

* 1. FIELD QUALITY CONTROL
1. Owner’s Inspection and Testing: Cooperate with Owner’s testing agency. Allow access to work areas and staging. Notify Owner’s testing agency in writing of schedule for Work of this Section to allow sufficient time for testing and inspection. Do not cover Work of this Section until testing and inspection is accepted.
2. Air Barrier Association of America Installer Audits: Cooperate with ABAA’s testing agency. Allow access to work areas and staging. Notify ABAA in writing of schedule for Work of this Section to allow sufficient time for testing and inspection. Do not cover Work of this Section until testing and inspection is accepted. Arrange and pay for site audits by ABAA to verify conformance with the material manufacturer’s instructions, the site Quality Assurance Program used by ABAA, and this section of the project specification.

Audits and subsequent testing shall be carried out at the following rate:

Up to 10,000 ft2 of air barrier contract requires one (1)audit.

10,001 – 35,000 ft2 of air barrier contract requires two (2)audits.

35,001 – 75,000 ft2 of air barrier contract requires three (3)audits.

75,001 - 125,000 ft2 of air barrier contract requires four (4)audits.

125,001 – 200,000 ft2 of air barrier contract requires five (5)audits.

200,001 ft2 and over of air barrier contract requires six (6)audits.

Forward written audit reports to the Architect within 10 working days of the inspection and test being performed.

If the inspections reveal any defects, promptly remove and replace defective work at no additional cost to the Owner.

* 1. PROTECTING AND CLEANING
1. Protect air barrier materials from damage during installation and the remainder of the construction period, according to material manufacturer's written instructions.

Coordinate with installation of materials which cover the air barrier assemblies, to ensure exposure period does not exceed that recommended by the air barrier manufacturer.

1. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction and acceptable to the primary material manufacturer.

END OF SECTION