SIKA SPECIFICATION NOTE: This guide specification is provided in CSI Format for use by design professionals for individual construction projects. Modify the text based on your project requirements, and delete products not required. Coordinate designations of air barriers in this specification with air barriers indicated on the Drawings. Questions? Call 800-933-SIKA.

SIKA SPECIFICATION NOTE: This guide specification includes test methods, materials and installation procedures for an air barrier assembly meeting ASTM E 2357 using Sikagard® 530 and or Sikagard® 535 Liquid Applied Acrylic Vapor Permeable Air Barrier Membrane System. Both products are low VOC, fast setting spray applied liquid membrane appropriate for use behind rain screen and pressure equalized rain screen wall cladding systems such as composite panels, metal siding, masonry veneers, stucco and EIFS. This guide specification should be adapted to suit the appropriate design objectives to allow wall assemblies to breathe or ‘dry-out’ as necessary to meet the conditions of seasonal changes for each climate zone of individual projects.

SECTION 07 27 26

FLUID-APPLIED MEMBRANE AIR BARRIERS

1. GENERAL
   * + 1. RELATED DOCUMENTS
          1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
       2. SUMMARY
          1. Provide a fluid-applied acrylic vapor-permeable air barrier membrane system as specified and as indicated on the Drawings.
          2. Related Work: The following items are not included in this Section and are specified under the designated Sections:

Section 03 30 00 – CAST-IN-PLACE CONCRETE.

Section 04 42 00 – UNIT MASONRY.

Section 06 16 00 – SHEATHING.

Section 07 21 00 – INSULATION.

Section 07 50 00 – ROOFING.

Section 07 60 00 – FLASHING AND SHEET METAL.

Section 07 92 13 – ELASTOMERIC JOINT SEALANTS

* + - 1. PERFORMANCE REQUIREMENTS
         1. Elastomeric, acrylic, water-resistive vapor permeable air barrier membrane system shall be constructed to perform as a continuous air barrier, and as a liquid water drainage plane flashed to discharge to the exterior any incidental condensation or water penetration. Membrane system shall accommodate movements of building materials by providing expansion and control joints as required, with accessory air sealant materials at such locations, changes in substrate, perimeter conditions and penetrations. Joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation.
         2. Intent is 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 foundations.

Seismic and expansion joints.

Openings and penetrations of window and door frames, store front, curtain wall.

Piping, conduit, duct and similar penetrations.

Masonry ties, screws, bolts and similar penetrations.

All other air leakage pathways in the building envelope.

* + - * 1. Water-resistive vapor permeable air barrier membrane system to be applied to the minimum uniform thickness specified and as utilized in the referenced Standard Test Methods.
      1. SUBMITTALS
         1. Submittals: Comply with project requirements for submittals as specified in Division 01.
         2. Product Data:

Materials list of items proposed to be provided under this Section.

Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

Drawings or catalog illustrations in sufficient detail to show installation and interface of the work of this Section with the work of adjacent trades.

Manufacturer's current recommended installation procedures.

* + - * 1. Installer’s Qualifications: Submit evidence that Installer is acceptable to air barrier manufacturer.
        2. ASTM E 2357 Compliance: If applicable, submit certification from an approved independent testing laboratory as well as the Air Barrier Association of America (ABAA).
        3. Sustainable Design Submittals: For projects seeking USGBC LEED certification, submit manufacturer’s printed statement of VOC content, manufacturing location relative to project site and recycled content for product used.
      1. QUALITY ASSURANCE
         1. Installer Qualifications:

Installer shall have at least three years experience in installing materials of types specified and shall have successfully completed at least three projects of similar scope and complexity.

Installer shall designate a single individual as project foreman who shall be on site at all times during installation.

* + - * 1. Applicable Regulations: Comply with local code and requirements of authorities having jurisdiction. Do not exceed VOC regulations as established by the State in which they are being installed; including total VOC content, in grams per liter, for all system components (i.e. primers, adhesives, coatings, and similar items.)
        2. Mock-Ups: Provide labor and materials for exterior wall mock-ups specified in Division 1.
        3. Access: Allow access to Work site by the air barrier membrane manufacturer’s representative.
        4. Sourcing: Components used shall be sourced from one manufacturer, including sheet membrane, water- resistive vapor permeable air barrier sealants, primers, mastics, and adhesives.
      1. PRE-INSTALLATION CONFERENCE
         1. Prior to scheduled commencement of the installation and associated work, conduct a meeting at the project site with the installer, general contractor, architect/consultant, owner, manufacturer’s representative and any other persons directly involved with the performance of the Work. The Installer shall record conference discussions and to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to the Work, including transitions to adjacent materials and materials in contact with air barrier.
      2. DELIVERY, STORAGE AND HANDLING
         1. Deliver materials to the job site in the manufacturer's unopened containers with all labels intact and legible at time of use. Handle and store materials in accordance with manufacturer's recommendations with proper precautions to ensure fitness of material when installed.
      3. WARRANTY
         1. Warranty: Provide manufacturer’s standard warranty for each type of product. Warranty shall include manufacturer’s statement that materials in contact with another have been tested and verified to be compatible. Include written testing documentation and test reports if requested by Architect.

1. PRODUCTS
   * + 1. MANUFACTURER
          1. Basis-of-Design Manufacturer: Sika Corporation, 201 Polito Avenue, Lyndhurst NJ 07071. Toll Free 800-933-SIKA (7452), www.sikausa.com. No substitutions without prior written approval by the Architect.
       2. FLUID-APPLIED MEMBRANE AIR BARRIERS
          1. Air Barrier Membrane: Sikagard® 530 Liquid Applied Acrylic Vapor Permeable Air Barrier by Sika Corp, a low VOC one component elastomeric acrylic membrane that may be trowel, brush, roller or spray applied. Membrane shall have the following physical properties:

Color: Light blue.

ASTM E 2178 Air Permeance: Less than 0.004 cfm/s\*ft2 @ 1.57 lbs/ft2.

ASTM E 2357 Air Leakage of Air Barrier Assembly: Less than 0.04 cfm/s\*ft2 @ 1.57 lbs/ft2.

ASTM E 96 Method B Water Vapor Permeance (21 mil dry thickness): 11 perms.

Nominal wet film thickness: 40 mils.

Recycled Content by weight: 25%.

VOC: < 50g/l.

ASTM D 1970 Fastener Sealability - Pass.

AATCC 127 Water Resistance - Pass.

Exposure: May be exposed for up to 6 months

ASTM E 84 Fire Performance: Flamespread Index of 20, Smoke Developed Index of 25 and Class A rating.

* + - * 1. Air Barrier Membrane: Sikagard® 535 Liquid Applied Acrylic Vapor Permeable Air Barrier by Sika Corp, a low VOC one component elastomeric acrylic membrane that may be trowel, brush, roller or spray applied. Membrane shall have the following physical properties:

Color: Beige.

ASTM E 2178 Air Permeance: Less than 0.0004 cfm/s\*ft2 @ 1.57 lbs/ft2.

ASTM E 2357 Air Leakage of Air Barrier Assembly: Less than 0.004 cfm/s\*ft2 @ 1.57 lbs/ft2.

ASTM E 96 Method B Water Vapor Permeance (20 mil dry thickness): 6 perms.

Nominal wet film thickness: 40 mils.

VOC: < 80g/l.

ASTM D 1970 Fastener Sealability - Pass.

AATCC 127 Water Resistance - Pass.

Exposure: May be exposed for up to 6 months.

ASTM E 84 Fire Performance: Flamespread Index of 5 and Smoke Developed Index of 5, and Class A rating.

* + - 1. SELF-ADHERING MEMBRANE SEAM TAPE
         1. Self-Adhering Membrane Seam Tape: SikaMultiSeal® 515 Self-Adhered Transition Seam Tape by Sika Corp, a self-adhering polyester-backed, synthetic butyl rubber based adhesive membrane for wall construction, specifically designed to be water resistant. Use for all window jambs, headers, door openings, inside and outside corners, joint treatment and other transitions. Membrane shall have the following physical properties:

Membrane Thickness: 0.0394 inches (40 mils).

Low temperature flexibility: -30 degrees F.

Elongation: 500% to ASTM D 412-modifed.

* + - * 1. Self-Adhering Membrane Seam Tape: SikaMembran® 540 Self-Adhered Transition Seam Tape by Sika Corp, a self-adhering polypropylene film, block copolymer adhesive membrane for wall construction, specifically designed to be water resistant. Use for all window jambs, headers, door openings, inside and outside corners, joint treatment and other transitions. Membrane shall have the following physical properties:

Membrane Thickness: 0.014 inches (14 mils).

Tensile strength (ASTM D 882) 2,000 psi

Elongation: 400% to ASTM D 882.

* + - 1. LIQUID SEAM AND PENETRATION SEALANTS
         1. Liquid Seam Sealant: Sikaflex® 11FC by Sika Corp, a polyurethane, elastomeric sealing compound having the following physical properties:

Compatible with air barrier, roofing and waterproofing membranes and substrate.

Set Time: 1 hour @ 72 degrees, 40% RH.

VOC < 50 g/l.

Elongation: 600% to ASTM D 412.

Joint Movement 12.5%+/- ASTM C 719.

Seals construction joints.

* + - * 1. Penetration Sealant: Sikaflex® 11FC by Sika Corp, a polyurethane, elastomeric sealing compound having the following physical properties (other Sikaflex sealants may apply):

Compatible with air barrier, roofing and waterproofing membranes and substrate.

Set Time: 1 hour @ 72 degrees, 40% RH.

VOC < 50 g/l.

Elongation: 600% to ASTM D 412.

Joint Movement 12.5%+/- ASTM C 719.

Seals construction joints.

SIKA SPECIFICATION NOTE FOR PRIMER AND SURFACE CONDITIONER: The placement of SikaMultiSeal® 515 Self- Adhered Transition Seam Tape around window openings, door openings, outside corners, joint treatment and other transitions may be applied at ambient temperatures above 40 degrees F (4 degrees C) to unprimed surfaces as detailed on the Technical Data Sheet. Substrates shall be sound, clean, dry and free of frost, dirt, dust, loose concrete, grease, oil, contaminants or other foreign matter that may adversely affect membrane adhesion. Contractor is responsible to check adhesion and suitability of applications. For best results prime surfaces with Sikagard® 510 Transition Seam Tape Primer. Allow primer to fully dry prior to applications. Alternatively to improve adhesion at application temperatures above 40 degrees F apply Sikagard® 530 and or Sikagard® 535 Liquid Applied Air Barrier Membrane at a rate of 160 sq.ft/gallon to provide a uniform wet film thickness of 10 mils. Allow membrane to fully dry prior to application of the self-adhered transition seam tape. Roll membrane after application and check bond adhesive.

* + - 1. PRIMER AND SURFACE CONDITIONER
         1. Primer: Sikagard 510® Transition Seam Tape Primer for self-adhering transition and flashing membrane at all temperatures, a high tack adhesive primer, quick setting having the following physical properties:

Color: White,

Solids by weight: 37%,

Drying time (initial set): 30 minutes.

* + - * 1. Surface Conditioner: Sikagard® 530 or 535 Liquid Air Barrier Membrane for self-adhering transition and flashing membrane at temperatures above 40 degrees F, having the following physical properties:

Color: Yellow.

Solids by weight: 64%,

Application Rate: 160 sq.ft/gallon to a uniform wet film thickness of 10 mils.

Drying time (initial set): 60 minutes.

* + - 1. SELF-ADHERED THRU WALL FLASHING
         1. Self-Adhering Thru-Wall Flashing: Sika® MultiSeal® Plus by Sika Corporation, an ethylene propylene copolymer adhesive with a UV resistant TPO membrane facer for cavity wall construction. Specifically designed to be water resistant and used as a thru-wall flashing membrane:

Thickness (Membrane): 0.032 inches (32 mils).

Elongation (ASTM D412): 600%.

Membrane Tensile Strength (ASTM D412): 3500 PSI.

Measured Flow (ASTM D5147): PASS.

Low Temperature Flexibility -22F (CGSB 37-GP-56M): PASS.

Water Vapor Permeance (ASTM E96): Impermeable.

Adhesion to Concrete (ASTM D903): 6.0 lbf/in.

Adhesion to DensGlass Gold (ASTM D903): 6.0 lbf/in.

Moisture Absorption (ASTM D570): PASS (<1g absorption).

1. EXECUTION
   * + 1. EXAMINATION
          1. Verify that surfaces and conditions are ready to accept the Work of this section. Notify Architect in writing of any discrepancies. Commencement of the Work or any parts thereof shall mean acceptance of the prepared substrates.
          2. Verify surfaces are sound, dry, clean and free of oil, grease, dirt, excess mortar or other contaminants. Fill voids, gaps and spalled areas in substrate to provide an even plane. Strike masonry joints flush.
          3. Verify curing compounds if used are clear resin based without oil, wax or pigments.
          4. Do not proceed with application of air barrier membrane when rain is expected within 24 hours.
          5. Condition materials to ambient temperature prior to application to facilitate handling.
          6. Verify new concrete has been cured for no less than 14 days prior to the application of primer and self- adhered transition seam tape.
       2. SURFACE PREPARATION
          1. Ensure preparatory Work is complete prior to applying primary air barrier membrane.
          2. Mechanical fasteners used to secure sheathing boards or penetrate sheathing boards shall be set flush with sheathing and fastened into solid backing.
          3. Mechanical penetrations such piping, conduit and vents shall be secured solid and fastened into solid backing.
       3. INSTALLATION
          1. Joint Treatment: Seal joints 1/4 inch and less between panels of sheathing (exterior grade gypsum, faced gypsum sheathing, plywood, OSB or cementitious panels) with liquid seam sealant. Fill joint between sheathing with approved liquid seam sealant ensuring contact with all edges of sheathing board.
          2. Gaps and Voids: Seal gaps and voids or irregular joints greater than 1/4 inch between panels of exterior grade gypsum, faced gypsum sheathing, plywood, OSB or cementitious panels with a strip of self-adhering transition membrane lapped a minimum of 3 inches on both sides of the joint. Prepare and prime surfaces as appropriate to achieve surface adhesion and allow to dry prior to placement of self-adhering transition membrane. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 2 inches overlap at all end and side laps.
          3. Outside Corners: Seal outside corners with a strip of self-adhering transition membrane extending a minimum of 3 inches on either side of the corner detail. Prepare and prime surfaces as appropriate to achieve surface adhesion and allow to dry prior to placement of self-adhering transition membrane. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 2 inches overlap at all end and side laps of membrane. Roll all laps and membrane with a counter top roller to ensure seal.
          4. Inside Corners: Seal inside corners with a liberal bead of seam sealant (3/8 inch x 3/8 inch).
          5. Crack Treatment for Masonry and Concrete: Seal cracks 1/4 inch and less in masonry and concrete with liquid seam sealant applied over the crack. Fill joint between sheathing with approved liquid seam sealant ensuring contact with all edges of sheathing board. Seal cracks and voids in masonry and concrete greater than 1/4 inch with a strip of self- adhering transition membrane lapped a minimum of 3 inches on both sides of the joint. Prepare and/or prime surfaces as appropriate to achieve surface adhesion and allow to dry prior to placement of self-adhering transition membrane. Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 2 inches overlap at all end and side laps of membrane. Roll all laps and membrane with a counter top roller to ensure seal.

SIKA SPECIFICATION NOTE: Sikagard 530 and 535 Liquid Applied Acrylic Vapor Permeable Air Barriers are appropriate for use at the wall to roof connection in conjunction with Sarnafil Roofing Systems. Consult with Sika Technical Services for details and Warranty Requirements.

* + - * 1. Transition Areas: Tie-in to structural beams, columns, floor slabs and intermittent floors, parapet curbs, foundation walls, roofing systems and at the interface of dissimilar materials as indicated in drawings with self-adhering transition membrane

Prime surfaces as per manufacturers’ instructions and as appropriate to achieve surface adhesion and allow to dry prior to placement of self-adhering transition membrane.

Align and position self-adhering transition membrane, remove protective film and press firmly into place. Provide minimum 3 inch lap to all substrates.

Ensure minimum 2 inch overlap at all end and side laps of membrane. Roll all laps and membrane with a counter top roller to ensure seal.

* + - * 1. Transition to Roofing: Tie-in to roofing systems as indicated on the Drawings with specified liquid acrylic air barrier membrane.

Align and position roof flashing and transition membrane over the outside face of the wall and extend a minimum 3 inch down the outside face of the wall.

Secure roofing membrane with acceptable termination bar as detailed.

Prime the roof membrane and apply a bead of the liquid seam sealer along the edge of the roof membrane.

Apply by brush, roller or spray a complete and continuous unbroken film of liquid vapor permeable air and rain barrier membrane to the top of the wall and/or roof parapet.

* + - * 1. Windows and Rough Openings:

Wrap jamb of rough openings with specified self-adhering transition membrane as detailed.

Install specified self-adhering transition membrane in a manner to ensure a continuous, airtight connection to all adjacent building elements.

Prepare and prime surfaces as appropriate to achieve surface adhesion and allow to dry prior to placement of self-adhering transition membrane.

Align and position self-adhering transition membrane, remove protective film and press firmly into place. Ensure minimum 2 inches overlap at all side laps and minimum 3 inches overlap at all end laps of membrane.

* + - * 1. Thru-Wall Flashing:

All surfaces must be dry and frost-free, as well as clean of oil, dust and excess mortar. Strike masonry joints flush.

Concrete surfaces must be smooth and without large voids, spalled areas or sharp protrusions. Concrete must be cured a minimum of 14 days and must be dry.

May be installed direct to concrete or Dens Glass Gold without the aid of primers or other surface conditioners.

Applications to wood require the use of a primer.

Verify priming requirements before the start of each project.

Cut the desired length, remove the release paper, position into place and apply positive pressure using a roller. Use care to avoid blisters or wrinkles.

Overlap all joints by 2 inches.

Keep flashing sheet back about 1/2 inch from outside face of wall or veneer.

At all laps, seams, penetrations, and along top edges of membrane apply a continuous feathered bead of sealant as termination seal. Form end dams as required with same sealant.

Apply under dry conditions when air and surface temperatures are above 25 degrees F.

Top or leading edge of flashing sheet should be sealed with a sealant to limit rainwater from migrating behind the membrane

* + - * 1. Primary Air Barrier: Apply by brush, roller, spray or flat trowel a complete and continuous unbroken film of liquid vapor permeable air and rain barrier membrane.

For temperatures above 40 degrees F and rising, apply one component acrylic water-resistive vapor permeable air barrier membrane at a rate of 40 sq.ft/gallon to a uniform wet film thickness of 40 mils.

Spray apply or brush around all projections and penetrations ensuring a complete and continuous air barrier membrane.

Allow air barrier membrane to dry as per manufacturers recommendations prior to placement of cladding materials.

Subject to porosity of substrate, recommend to back roll spray applications.

* + - 1. APPLICATION OF PENETRATION SEALANT
         1. Seal membrane terminations, heads of mechanical fasteners, masonry tie fasteners, around penetrations, duct work, electrical and other apparatus extending through the primary vapor permeable air and rain barrier membrane and around the perimeter edge of membrane terminations at window and door frames with specified penetration sealant.
         2. Seal the leading edge of membrane terminations and reverse laps.
      2. FIELD QUALITY CONTROL
         1. Make notification when sections of work are complete to allow review prior to covering water-resistive vapor permeable air barrier system.
         2. Cooperate with Owner’s independent testing agency, which will observe substrate and membrane installation prior to placement of cladding systems and provide written documentation of observations.
      3. PROTECTION
         1. Do not inhibit damp substrates from drying out. Drying time will vary depending on interior and exterior temperature, and interior and exterior relative humidity. Do not expose the backside of the substrate to moisture or rain.
         2. Cap and protect exposed back-up walls against wet weather conditions during and after application of membrane. Protect uncured air barrier Work against wet weather conditions for a minimum of 24 hours. Protect air barrier membrane from damage and inclement weather during the construction phase.

END OF SECTION

The preceding specifications are provided by Sika Corporation as a guide for informational purposes only and are not intended to replace sound engineering practice and judgment and should not be relied upon for that purpose. **Sika Corporation makes no warranty of any kind, either express or implied, as to the accuracy, completeness or the contents of these guide specifications**. Sika Corporation assumes no liability with respect to the provision or use of these guide specifications, nor shall any legal relationship be created by, or arise from, the provision of such specifications **SIKA SHALL NOT BE RESPONSIBLE UNDER ANY LEGAL THEORY TO ANY THIRD PARTY FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND ARISING FROM THE USE OF THESE GUIDE SPECIFICATIONS.** The specifier, architect, engineer or design professional or contractor for a particular project bears the sole responsibility for the preparation and approval of the specifications and determining their suitability for a particular project or application.

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