

SECTION 07 27 26

FLUID-APPLIED AIR & WATER-RESISTIVE BARRIER SYSTEM

PART 1 - GENERAL

1.1 SUMMARY:

- A. Work of this section includes window and door flashing, air and water-resistive barrier membrane system, and accessory materials for application to exterior building envelope substrates as indicated on the drawings.
- B. Related work:
 - 1. Concrete.
 - 2. Masonry.
 - 3. Sheathing.
 - 4. Exterior wall finish materials.
 - 5. Flashings.
 - 6. Joint sealants.
 - 7. Doors and frames.
 - 8. Storefronts.
 - 9. Curtain walls.
 - 10. Windows.
 - 11. Stucco.

1.2 PERFORMANCE REQUIREMENTS:

- A. Performance requirements: Comply with the specified performance requirements and characteristics as herein specified.
- B. Performance description:
 - 1. The building envelope shall be constructed with a continuous, air and water-resistive barrier to control water and air leakage into and out of the conditioned space.
 - 2. Joints, penetrations and paths of water and air infiltration shall be made watertight and airtight.
 - 3. System shall be capable of withstanding positive and negative combined wind, stack and HVAC pressures on the envelope without damage or displacement.
 - 4. System shall be installed in an airtight and flexible manner, allowing for the relative movement of systems due to thermal and moisture variations.

1.3 SUBMITTALS:

- A. Product data: Submit manufacturer's product data including membrane and accessory material types, technical and test data, composition, descriptions and properties, installation instructions and substrate preparation requirements.
- B. Shop Drawings: Provide Installation Guideline Illustrations.

1.4 QUALITY ASSURANCE:

- A. Applicable standards, as referenced herein: ASTM International (ASTM).
- B. Manufacturer's qualifications: Air and water-resistive barrier systems shall be manufactured and marketed by a firm with a minimum of five (5) years experience in the production and sales of air and water-resistive barrier system. Manufacturers proposed for use, but not named in these specifications, shall submit evidence of ability to meet all requirements specified, and include a list of projects of similar design and complexity completed within the past five years.

- C. Installer's qualifications: The installer shall demonstrate qualifications to perform the work of this section by submitting the following:
 - 1. Verification that installer has been trained by and is approved to perform work as herein specified by air and water-resistive barrier system manufacturer.
 - 2. A firm experienced in applying similar materials on similar size and scoped projects.
 - 3. Evidence of proper equipment and trained field personnel to successfully complete the project.
- D. Inspection and testing: Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover installed products or assemblies until they have been inspected, tested and approved.
- E. Sole source: Obtain materials from a single manufacturer.
- F. Regulations: Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOC).
- G. Pre-installation conference: Prior to beginning installation of air and water-resistive barrier system, hold a pre-installation conference to review work to be accomplished.
 - 1. Contractor, Architect, installing subcontractor, membrane system manufacturer's representative, and all subcontractors who have materials penetrating membrane system or finishes covering membrane system shall be present.
 - 2. Contractor shall notify Architect at least seven days prior to time for conference.
 - 3. Contractor shall record minutes of meeting and distribute to attending parties.
 - 4. Agenda: As a minimum discuss:
 - a. Surface preparation.
 - b. Substrate condition and pretreatment.
 - c. Minimum curing period.
 - d. Special details and sheet flashing.
 - e. Sequence of construction, responsibilities, and schedule for subsequent operations.
 - f. Installation procedures.
 - g. Inspection procedures.
 - h. Protection and repair procedures.
 - i. Review and approval of all glazing applications.

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver materials and products in labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from damage, weather, excessive temperatures and construction operations. Remove damaged material from site and dispose of in accordance with applicable regulations.
- B. Protect air and water-resistive barrier components from freezing and extreme heat. Store materials at temperatures of 40 degrees Fahrenheit to 100 degrees Fahrenheit.
- C. Sequence deliveries to avoid delays, and to minimize on-site storage.

1.6 PROJECT CONDITIONS:

- A. Weather conditions: Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials used.
 - 1. Apply at surface and ambient temperatures recommended by the manufacturer. See manufacturer's product data for best practices.
 - 2. Proceed with installation only when the substrate construction and preparation work are complete and in condition to receive the membrane system.

3. Exposure limitations: Schedule work to ensure that air and water-resistive barrier system is covered and protected from UV exposure within 180 days of installation. If air and water-resistive barrier membrane system cannot be covered within 180 days after installation, apply temporary UV protection as recommended by membrane manufacturer.

1.7 WARRANTY:

- A. Manufacturer's warranty requirements: Submit manufacturer's written warranty stating that installed air and water-resistive barrier materials are watertight, free from defects in material and workmanship, and agreeing to replace defective materials and components.
- B. Warranty period: Five years from Date of Substantial Completion.

PART 2 – PRODUCTS

2.1 MANUFACTURER:

- A. PROSOCO, Inc, 3741 Greenway Circle, Lawrence, KS 66046. Phone (800) 255-4255; Fax: (800) 877-2700. E-mail: CustomerCare@prosoco.com

2.2 R-GUARD GYPPRIME WATER BASED PRIMER FOR RAW GYPSUM BOARD EDGES:

- A. Acceptable product: PROSOCO, Inc. R-GUARD GypPrime
- B. Description: GypPrime consolidates and seals the cut edges of gypsum wall boards where they are exposed in rough openings for windows and doors. The sealed edge makes a compatible surface for easy application of R GUARD Joint and Seam Filler fiber-reinforced fill coat and seam treatment for through-wall components. GypPrime brushes or sprays on easily and is usually dry in 30 minutes.
- C. Characteristics:
 1. Freeze point: 32 degrees Fahrenheit.
 2. Flash point: greater than 200 degrees Fahrenheit.
 3. Active content: 18 percent.
 4. Volatile organic content (VOC): less than 100 g/L.
 5. Form: Milky blue liquid, mild odor.

2.3 R-GUARD JOINT & SEAM FILLER FIBER REINFORCED FILL COAT AND SEAM FILLER:

- A. Acceptable product: PROSOCO, Inc. R-GUARD Joint & Seam Filler
- B. Description: Joint & Seam Filler is a high modulus, gun-grade, crack and joint filler, adhesive and detailing compound that combines the best silicone and polyurethane properties. This single-component, 99% solids, fiber-reinforced, Silyl-Terminated-Poly-Ether (STPE) is easy to gun, spread and tool.
- C. Characteristics:
 1. Thickness: Apply according to manufacturer's instructions.
 2. Hardness: Shore A, 45-50 when tested in accordance with ASTM C661.
 3. Water vapor permeability: Minimum 14 perms when tested in accordance with ASTM E-96.
 4. Tensile strength: 225 psi when tested in accordance with ASTM D412.
 5. Lap shear strength: 275 psi when tested in accordance with ASTM D1002.
 6. Elongation at break: 275% when tested in accordance with ASTM D412.
 7. Peel strength: 30 pli when tested in accordance with ASTM D1781.

8. Volatile organic content (VOC): 30 g/L.
9. Shrinkage: None.
10. Form: Pale Red, Gun Grade.

2.4 R-GUARD FASTFLASH LIQUID-APPLIED FLASHING MEMBRANE

- A. Acceptable product: PROSOCO, Inc. R-GUARD FastFlash.
- B. Description: FastFlash is a gun-grade waterproofing, adhesive and detailing compound that combines the best of silicone and polyurethane properties. This single component, 99% solids, Silyl-Terminated-Poly-Ether (STPE) is easy to gun, spread and tool to produce a highly durable, seamless, elastomeric flashing membrane in rough openings of structural walls.
- C. Characteristics:
 1. Thickness: Apply according to manufacturer's instructions.
 2. Water vapor permeability: Minimum 14 perms when tested in accordance with ASTM E96.
 3. Water penetration (cyclical static air pressure difference): No uncontrolled water penetration when tested in accordance with ASTM E547.
 4. Hardness: Shore A, 40-45 when tested in accordance with ASTM C661.
 5. Tensile strength: 180 psi when tested in accordance with ASTM D412.
 6. Elongation at break: 400% when tested in accordance with ASTM D412.
 7. Peel strength: 25 pli when tested in accordance with ASTM D1781.
 8. Volatile organic content (VOC): 30 g/L.
 9. Form: Brick Red, Gun Grade Sealant.

2.5 (OPTION 1) R-GUARD SPRAY WRAP AIR AND WATER-RESISTIVE BARRIER

- A. Acceptable product: PROSOCO, Inc. R-GUARD Spray Wrap
- B. Description: Spray Wrap is a fluid-applied air and water-resistive barrier that stops air and water leakage in cavity wall, masonry veneer construction, as well as in stucco, EIFS and most other building wall assemblies. Once on the substrate, the easily applied liquid quickly dries into a rubberized, highly durable, water-resistant, vapor-permeable membrane.
- C. Characteristics:
 1. Thickness: Apply according to manufacturer's instructions.
 2. Air infiltration: Less than 0.004 cfm per square foot (0.02 L/s/sq m) when tested in accordance with ASTM E2178 or ASTM E283.
 3. Air Barrier Assembly: pass when tested in accordance with ASTM E-2357.
 4. Water vapor permeability: 10.5 perms when tested in accordance with ASTM E96.
 5. Structural performance: Air and water-resistive barrier system shall withstand positive and negative wind pressure loading when tested in accordance with ASTM E330.
 6. Water penetration (static pressure): No uncontrolled water penetration when tested in accordance with ASTM E331.
 7. Flexibility: No cracking or de-lamination using 1/8 inch mandrel at 14 degrees Fahrenheit before and after aging when tested in accordance with ASTM D522.
 8. Tensile strength: Greater than 15 psi or exceeds strength of substrate when tested in accordance with ASTM C297.
 9. Nail Sealability: pass when tested in accordance with ASTM D1970.
 10. Surface Burning: pass when tested in accordance with ASTM E84.
 11. Volatile organic content (VOC): less than 100 g/L.
 12. Color: Light Red.

2.6 (OPTION 2) R-GUARD MVP (MAXIMUM VAPOR PERMEABILITY) AIR AND WATER-RESISTIVE BARRIER

- A. Acceptable product: PROSOCO, Inc. R-GUARD MVP.
- B. Description: MVP is a fluid-applied air and water-resistive barrier that stops air and water leakage in cavity wall, masonry veneer construction, as well as in stucco, EIFS and most other building wall assemblies. Once on the substrate, the easily applied liquid quickly dries into a rubberized, highly durable, water-resistant, vapor-permeable membrane.
- C. Characteristics:
 - 1. Thickness: Apply in accordance with manufacturer's instructions.
 - 2. Air infiltration: Less than 0.004 cfm per square foot (0.02 L/s/sq m) when tested in accordance with ASTM E2178 or ASTM E283.
 - 3. Air Barrier Assembly: pass when tested in accordance with ASTM E2357.
 - 4. Water vapor permeability: Minimum 17 perms when tested in accordance with ASTM E96.
 - 5. Structural performance: Air and water-resistive barrier system shall withstand positive and negative wind pressure loading when tested in accordance with ASTM E330.
 - 6. Water penetration (static pressure): No uncontrolled water penetration when tested in accordance with ASTM E331.
 - 7. Tensile Bond: 89 psi Dow 795 to R GUARD MVP, 55 psi Dow 790 to R GUARD MVP when tested in accord with ASTM D4541.
 - 8. Tensile strength: Greater than 15 psi or exceeds strength of substrate when tested in accordance with ASTM C297.
 - 9. Nail Sealability: pass when tested in accordance with ASTM D1970.
 - 10. Flexibility: pass when tested in accordance with ASTM D522.
 - 11. Volatile organic content (VOC): less than 50 g/L.
 - 12. Color: Tan.

2.7 (OPTION 3) R-GUARD VB (VAPOR BARRIER) AIR AND WATER-RESISTIVE BARRIER

- A. Acceptable product: PROSOCO, Inc. R-GUARD VB
- B. Description: VB is a fluid-applied air and water-resistive barrier that stops air and water leakage in cavity wall, masonry veneer construction, as well as in stucco, EIFS, and most other building wall assemblies. Once on the substrate, the easily applied liquid quickly dries into a rubberized, highly durable, water-resistant, vapor-impermeable membrane.
- C. Characteristics:
 - 1. Thickness: Apply in accordance with manufacturer's instructions.
 - 2. Air infiltration: Less than 0.004 cfm per square foot (0.02 L/s/sq m) when tested in accordance with ASTM E2178 or ASTM E283.
 - 3. Water vapor permeability: Less than 0.1 perms when tested in accordance with ASTM E96.
 - 4. Surface Burning: Pass when tested in accordance with ASTM E84.
 - 5. Water penetration (static pressure): No uncontrolled water penetration when tested in accordance with ICC-ES AC 212 AATCC 127 (Water Column).
 - 6. Tensile strength: Greater than 15 psi or exceeds strength of substrate when tested in accordance with ASTM C297 modified.
 - 7. Nail Sealability: pass when tested in accordance with ASTM D1970.
 - 8. Flexibility: pass when tested in accordance with ASTM D522.
 - 9. Volatile organic content (VOC): less than 50 g/L.
 - 10. Color: Mint Green.

2.8 (OPTION 4): R-GUARD CAT 5 EXTREME WEATHER AIR AND WATER-RESISTIVE BARRIER:

- A. Acceptable product: PROSOCO, Inc. R-GUARD Cat 5

- B. Description: Cat 5 Air & Water-Resistive Barrier is a fluid applied, waterproofing and air barrier that combines the best of silicone and polyurethane properties. This single component, 98% solids Silyl-Terminated-Poly-Ether (STPE) is roller applied to produce a highly durable, seamless, elastomeric weatherproofing membrane on structural sheathing and back-up CMU walls. Cat 5 is proven to prevent water and air penetration of the building envelope in conditions ranging from everyday weather to the drenching rains and 155 mph winds of a Category 5 hurricane.
- C. Characteristics:
1. Thickness: Apply in accordance with manufacturer's instructions.
 2. Air infiltration: Less than 0.004 cfm per square foot (0.02 L/s/sq m) when tested in accordance with ASTM E2178 or ASTM E283.
 3. Water vapor permeability: Minimum 23 perms when tested in accordance with ASTM E96.
 4. Structural performance: Air and water-resistive barrier system shall withstand positive and negative wind pressure loading when tested in accordance with ASTM E330.
 5. Water penetration (static pressure): No uncontrolled water penetration when tested in accordance with ASTM E331, with differential static pressure not less than 6.24 psf.
 6. Water penetration (cyclical static air pressure difference): No uncontrolled water penetration when tested in accordance with ASTM D547.
 7. Hardness: Shore A, 20-25 when tested in accordance with ASTM C661.
 8. Tensile strength: 110 psi when tested in accordance with ASTM D412.
 9. Elongation at break: 300% when tested in accordance with ASTM D412.
 10. Peel strength: 30 pli when tested in accordance with ASTM D1781 or C794.
 11. Volatile organic content (VOC): 15 g/L.
 12. Shrinkage: None.
 13. Color: Adobe Brown

2.9 R-GUARD AIRDAM AIR AND WATERPROOF SEALANT FOR WINDOWS AND DOORS:

- A. Acceptable product: PROSOCO, Inc. AirDam
- B. Description: AirDam is a medium modulus sealant that combines the best silicone and polyurethane properties. This single component, 98% solids Silyl-Terminated-Poly-Ether (STPE) is easy to gun and tool in all weather conditions. AirDam cures quickly to produce a durable, high performance, high movement elastomeric interior air sealant
- C. Characteristics:
1. Hardness: Shore A, 20-25 when tested in accordance with ASTM C661.
 2. Tensile strength: 110 psi when tested in accordance with ASTM D412.
 3. Elongation at break: 1300% when tested in accordance with ASTM D412.
 4. Peel strength: 30 pli when tested in accordance with ASTM D1781.
 5. Type: Type S, Grade NS, Class 50 when tested in accordance with ASTM C920.
 6. Volatile organic content (VOC): 30 g/L.
 7. Shrinkage: None.
 8. Form: heavy white paste, mild odor
- D. Backer rod: Compressible, closed cell rod stock as recommended by manufacturer for compatibility with sealant. Provide size and shape of rod to control joint depth.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Verify that surfaces and conditions are ready to accept the Work of this section. Notify design professionals in writing of any discrepancies. Commencement of the Work or any parts thereof shall mean acceptance of the prepared substrates.
- B. All surfaces must be sound, dry, clean, and free of grease, dirt, excess mortar or other contaminants. Fill voids, gaps, and spalled areas with R GUARD Joint & Seam Filler in substrate to create an even plane. Masonry head joints should be fully filled and tooled.
- C. Where curing materials are used they must be clear resin based without oil, wax or pigments
- D. Condition materials to room temperature prior to application to facilitate extrusion and handling.

3.2 SURFACE PREPARATION:

- A. Air, water-resistive and waterproofing membrane and accessories may be applied to green concrete 16 hours after removal of forms.
- B. Refer to manufacturer's product data for requirements for condition of and preparation of substrates.
 - 1. Surfaces shall be sound and free of voids, spalled areas, loose aggregate and sharp protrusions.
 - 2. Remove contaminants such as grease, oil and wax from exposed surfaces.
 - 3. Remove dust, dirt, loose stone and debris.
 - 4. Use repair materials and methods that are acceptable to manufacturer of the air and water-resistive barrier system.
- C. Exterior sheathing:
 - 1. Ensure that sheathing is properly installed with ends, corners and edges properly fastened.
 - 2. Mechanical fasteners used to secure sheathing boards or penetrate sheathing boards shall be set flush with sheathing, fastened and spotted with R-GUARD Joint & Seam Filler and fastened into solid backing.
 - 3. Fill sheathing end and prime edge joints with R-GUARD GypPrime as herein specified.
- D. Masonry and concrete substrates:
 - 1. Masonry shall have smooth trowel-cut mortar joints.
 - 2. Mechanically remove loose mortar fins, snots and debris.

3.3 INSTALLATION OF JOINT TREATMENT(PREPARE):

- A. Apply R-GUARD Joint and Seam Filler for seams, joints, cracks, gaps, primed rough gypsum edges at sheathing, rough openings:
 - 1. Fill or repair cracks larger than one-half inch.
 - 2. Fill surface defects and over driven fasteners with R-GUARD Joint & Seam Filler.
 - 3. Using a dry knife, trowel or spatula, tool and spread the product. Spread one inch beyond seam at each side to manufacturer's recommended thickness.
 - 4. Allow to skin before installing other waterproofing or air barrier components.
 - 5. Apply in accordance with manufacturer's Application Guideline illustrations.

3.4 R-GUARD FASTFLASH FLASHING AT WINDOWS, DOORS, OPENINGS AND PENETRATIONS (PREPARE):

- A. Apply R-GUARD FastFlash over surfaces prepared with R-GUARD Joint & Seam Filler to seal and waterproof rough openings:

1. Apply a thick bead of R-GUARD FastFlash over any visible gaps in the prepared rough opening.
2. Immediately press and spread the wet product into gaps.
3. Allow treated surface to skin.
4. Starting at the top, apply a thick bead of R-GUARD FastFlash in a zigzag pattern to the structural wall surrounding the rough opening.
5. Spread the wet product to create an opaque, monolithic flashing membrane which surrounds the rough opening and extends 4 to 6 inches over the face of the structural wall. Apply and spread additional product as needed to create an opaque, monolithic flashing membrane free of voids and pin holes.
6. Apply additional product in a zigzag pattern over a structural framing inside the rough opening.
7. Apply R-GUARD FastFlash within temperature and weather limitations as required by manufacturer.
8. Apply R-GUARD FastFlash to perimeters, sills and adjacent sheathing and building face, in accordance with manufacturer's product data and installation instructions.
9. At sills, extend flexible flashing on building face a minimum of 4 to 6 inches beyond and 3 inches above sill-jamb intersection.
10. Install preparation products in accordance with manufacturer's Application Guideline illustrations.

3.5 R-GUARD AIR & WATER-RESISTIVE BARRIER INSTALLATION (PROTECT)

- A. Apply appropriate R-GUARD air and water-resistive barrier to a clean, dry substrate (clean, dry, and/or damp substrates – R-GUARD Cat 5), within temperature and weather limitations as required by manufacturer.
 1. Seal masonry ties and other penetrations as work progresses.
 2. Apply to recommended thickness. Proper thickness is achieved when coating is opaque.
 3. Allow product to cure and dry.
 4. Inspect membrane before covering. Repair any punctures, translucent or damaged areas by applying additional material.
 5. Specifier Note: If air or surface temperature exceed 95 degrees Fahrenheit (35 degrees Celsius), apply to shaded surfaces and before daytime air and surface temperatures reach their peak.
 6. Specifier Note: Overlapping repairs, penetration treatments, transitions, rigid flashing and other air barrier components ensures positive drainage and continuity of the air and water-resistive barrier.
 7. On CMU wall construction apply back rolling may be necessary to achieve a pinhole free surface.

3.6 R-GUARD FLASHING TRANSITIONS (TRANSITION)

- A. Apply R-GUARD Joint and Seam Filler and R GUARD FastFlash as a liquid flashing membrane to waterproof the transitions in rough opening and between dissimilar materials.
 1. Fill any voids between the top of the flashing leg and the vertical wall with R-GUARD Joint & Seam Filler. Tool to direct water from the vertical wall to the flashing.
 2. Apply a generous bead of FastFlash to the top edge of the flashing leg.
 3. Spread the wet products to create a monolithic "cap-flash" flashing membrane extending 2 inches up the vertical face of the structural wall and 1 inch over the flashing membrane extending. Apply additional product as needed to achieve a void and pinhole free surface. This "liquid termination bar" helps secure the flashing and ensures positive drainage from the wall surface to the flashing.
 4. Allow treated surfaces to skin before installing other wall assembly, waterproofing or air barrier components.

3.7 R-GUARD AIRDAM AIR AND WEATHER BARRIER SEALANT FOR WINDOWS AND DOORS INSTALLATION

- A. install R GUARD Air Dam with professional grade caulking gun in continuous beads without air gaps or air pockets.
 - 1. Apply R GUARD AirDam to a clean, dry or damp surface
 - 2. Install Backer rod: Compressible, closed cell rod stock as recommended by manufacturer for compatibility with sealant. Provide size and shape of rod to control joint depth
 - 3. Install AirDam to provide uniform, continuous ribbons without gaps or air pockets, with complete wetting of the joint bond surfaces.
 - 4. Tool sealant immediately to ensure complete wetting of joint bond surface and to produce a smooth, concave joint profile flush with the edges of the adjacent surfaces. Where horizontal and vertical surfaces meet, tool sealant to create a slight cove so as to not trap moisture or debris.
 - 5. Do not allow materials to overflow onto adjacent surfaces. Prevent staining of adjacent surfaces.
 - 6. Remove excess and misplaced materials as work progresses. Clean the adjoining surfaces to remove misplaced materials, without damage to adjacent surfaces or finishes.

End of Section