

GUIDE SPECIFICATION FOR AIR-SHIELD™ SMP – SELF-ADHESIVE, SHEET MEMBRANE VAPOR PERMEABLE AIR BARRIER

SECTION 07 27 15

NON-BITUMINOUS SELF-ADHERING SHEET AIR BARRIERS

Revision Date: October 2, 2019

Specifier Notes: This guide specification is written according to the Construction Specifications Institute (CSI) MasterFormat. The section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project. Coordinate this section with other specification sections and the drawings.

Specifier Notes: AIR-SHIELD SMP is a self-adhesive, vapor permeable, air/liquid moisture barrier that is designed to be fully bonded to the substrate without the use of an adhesive or primer. AIR-SHIELD SMP is a tough, durable membrane that exhibits excellent resistance to air leakage and liquid water intrusion, while at the same time allow vapor to readily pass through to allow the wall assembly to dry.

AIR-SHIELD SMP has been specifically formulated to act as an air and liquid moisture barrier, allowing vapor to pass through it. It may be applied to most common surfaces and integrated into various wall assemblies. AIR-SHIELD SMP is suitable for both new construction and retrofit applications and works equally well as an air barrier on precast concrete, cast-in-place concrete, masonry (concrete block), interior and exterior gypsum board, Styrofoam, primed steel, aluminum mill finish, anodized aluminum, primed galvanized metal, drywall, and plywood.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Application of a self-adhesive, vapor permeable, sheet membrane air barrier.
- C. Application of materials to provide bridge and seal air leakage pathways in
 - 1. Wall and roof connections and penetrations.
 - 2. Connections to foundation walls.
 - 3. Walls, windows, curtain walls, storefronts, louvers or doors
 - 4. Expansion and control joints.
 - 5. Masonry ties.
 - 6. All other penetrations through the wall assembly.

1.02 RELATED SECTIONS

Specifier Notes: Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.

- A. Section 04 20 00 - Unit Masonry.
- B. Section 06 16 00 – Sheathing.
- C. Section 07 21 00 - Thermal Insulation.
- D. Section 07 50 00 - Membrane Roofing.
- E. Section 07 60 00 - Flashing and Sheet Metal.

- F. Section 07 70 00 - Roof and Wall Specialties and Accessories.
- G. Section 07 80 00 - Fire and Smoke Protection.
- H. Section 07 92 00 - Joint Sealants.
- I. Section 08 10 00 - Doors and Frames.
- J. Section 08 50 00 - Windows.
- K. Section 09 20 00 - Plaster and Gypsum Board.

1.03 REFERENCES

- A. AATCC 127 - American Association of Textile Chemists and Colorists (AATCC): AATCC 127 - Test Method for Water Resistance: Hydrostatic Pressure Test. AC 38
- B. AC 38 - International Code Council Evaluation Service, Inc. (ICC-ES): ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers.
- C. ASTM D882 – Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
- D. ASTM D1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- E. ASTM D3330 – Standard Test method for Peel Adhesion of Pressure-Sensitive Tape.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- G. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- H. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.
- I. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.

1.04 SUBMITTALS

- A. Comply with Section 01 33 00 - Submittal Procedures.
- B. Submit manufacturer's product data and application instructions.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Use an experienced installer and adequate number of skilled personnel who are thoroughly trained and experienced in the application of the air barrier.
 - a. Air Barrier Installer performing Work shall be approved by air barrier membrane manufacturer.
- B. Obtain air barrier materials from a single manufacturer regularly engaged in manufacturing the product.
- C. Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOCs).

1.06 PRECONSTRUCTION MEETING

- A. Preconstruction Meeting: Convene [one] [_____] week prior to commencing Work of this section, in accordance with Section [XX XX XX] - Project Meetings, and Section [XX XX XX] – The Air Barrier System.

1.07 MOCK-UPS

- A. Prior to installation of air barrier, apply air barrier as follows to verify details under shop drawing submittals and to demonstrate tie-ins with adjoining construction, and other termination conditions, as well as qualities of materials and execution.
- B. Apply air barrier in field-constructed mock-ups of assemblies specified in Section 04 20 00 – Unit Masonry and Section 09 20 00 – Plaster and Gypsum Board.
- C. Apply air barrier in field-constructed mock-ups of assemblies specified in Section [XX XX XX], “Mock-Ups”.
- D. Construct typical exterior wall panel, 8’ (2.4 m) long by 8’ (2.4 m) wide, incorporating back-up wall, cladding, window and doorframe and sill, insulation, flashing, [building corner condition,] [junction with roof system] [foundation wall] [and] [typical penetrations and gaps]; illustrating materials interface and seals.
- E. Test mock-up in accordance with Section [XX XX XX] – The Air Barrier System and in accordance with ASTM E783 and ASTM E1105 for air and water infiltration.
- F. Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover any installed air barrier membrane unless it has been inspected, tested and approved.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean dry area in accordance with manufacturer's instructions.
- C. Store at temperatures at or above 40° F (4° C), free from contact with cold or frozen surfaces.
- D. Protect materials during handling and application to prevent damage or contamination.
- E. Protect materials from direct sunlight or inclement weather prior to installation.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Product not intended for uses subject to abuse or permanent exposure to the elements.
- B. Do not proceed with product application if rainfall is forecast or imminent within 12 hours.
- C. Apply membrane when air and surface temperatures are 14° F (-10° C) and rising.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. W. R. MEADOWS®, INC., PO Box 338, Hampshire, Illinois 60140-0338. (800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Website: www.wrmeadows.com.

2.02 MATERIALS

- A. Self-Adhesive Air Barrier Sheet Membrane: Fully adhered, sheet membrane, vapor permeable air and water resistive barrier.
 - 1. Performance Based Specification: Air barrier membrane shall be water-based, that cures to form a tough, seamless, elastomeric membrane having the following characteristics:
 - a. Air Leakage ASTM E2357: < 0.04 cfm/ft.² @ 75 Pa (1.57 lb./ft.²).
 - b. Air Permeability ASTM E2178: < 0.004 cfm/ft.² @ 75 Pa (1.57 lb./ft.²).
 - c. Flame Spread and Smoke Development, ASTM E84: Class A.
 - d. Low Temperature Flexibility, AC38: Pass
 - e. Nail Penetration, ASTM D1970: Pass
 - f. Peel Adhesion, ASTM D3330: Pass
 - g. Tensile Strength, ASTM D882: MD: 50 lbf/in (5.64 N/m).
XD: 30 lbf/in (3.39 N/m).
 - h. Water Vapor Permeance: ASTM E96 Method A: 41 perms.
ASTM E96 Method B: 54 perms.
 - d. Water Resistance, AATCC 127: Pass.
 - 2. Proprietary Based Specification: AIR-SHIELD SMP by W. R. MEADOWS.

2.03 ACCESSORIES

- A. Liquid Flashing: Fluid applied, single component, flashing membrane for rough openings and detailing.
 - 1. AIR-SHIELD LIQUID FLASHING by W. R. MEADOWS.
- B. Base of Wall Thru-Wall Flashing Membrane: Self-adhesive polymeric sheet membrane having a thickness of 40 mils (1 mm).
 - 1. AIR-SHIELD THRU-WALL FLASHING by W. R. MEADOWS.
- C. Exterior Sheathing Raw Edge Treatment:
 - 1. MEL-PRIME™ VOC Compliant Solvent-Base Adhesive or Standard Solvent-Base Adhesive by W. R. MEADOWS.
- D. Adhesive for Thru Wall Flashing Membrane:
 - 1. MEL-PRIME VOC Compliant Solvent-Base Adhesive or Standard Solvent-Base Adhesive by W. R. MEADOWS.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive membrane. Notify Architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Protect adjacent surfaces not designated to receive air barrier.
- B. Clean and prepare surfaces to receive air barrier membrane in accordance with manufacturer's instructions.
- C. Do not apply membrane to surfaces unacceptable to manufacturer.
- D. Prefill all joints, gaps and cracks that are greater than ¼" (6 mm) with a generous bead of the liquid flashing material and allow to cure fully.

- E. Exterior Sheathing Panels
 - 1. Install and fasten exterior sheathing panels according to the sheathing manufacturer's instructions.
 - 2. Install fasteners flush with the surface and into the framing.
 - 3. Remove any fasteners that are countersunk.
 - 4. Pre-treat any holes from the removal of the fasteners with liquid flashing prior to full wall membrane installation.
 - 5. Inspect all joints to ensure that all areas are clean, dry, smooth, and free from all bond-breaking contaminants.
 - 6. Remove and replace any damaged structural wall components.

- F. Concrete Masonry Units or Concrete
 - 1. Prepare concrete surfaces so that they are clean, free of standing water, ice, snow, frost, dust, dirt, oil, curing compounds or any other foreign material that could prevent proper adhesion of the membrane.
 - 2. Cure concrete a minimum of 14 days prior to full wall sheet membrane installation.
 - 3. Strike masonry joints flush.
 - 4. Patch all holes and voids and smooth out any surface misalignments.

- G. Ensure joints between dissimilar building materials are sealed with a strip of the self-adhesive membrane, 6" (150 mm) wide, centered over the joint.

3.03 APPLICATION OF AIR BARRIER SYSTEM

A. ROUGH OPENING TRANSITION MEMBRANE

Specifier Notes: There are two methods of window and door rough opening details recommended by W. R. MEADOWS for AIR-SHIELD SMP. Select (1) or (2), based on project requirements.

- 1. Self-Adhesive Transition Membrane.
 - a. Prefill inside corners of frame with liquid flashing material.
 - b. Pre-cut the self-adhesive membrane for each area of the rough opening to ensure ease of handling.
 - c. Apply membrane strips into each inside corner allowing for 3" (75 mm) coverage in all directions.
 - d. Apply the first pre-cut strip at the base of the rough opening by removing the release paper and rolling firmly into place, ensuring that there is a minimum of 3" (75 mm) of membrane extending onto the wall and a minimum of 3" (75 mm) of membrane extending into the rough opening.
 - e. Repeat this procedure for the vertical areas of the rough opening and the header portion of the opening.
 - f. Overlap all cut edges of the membrane a minimum of 3" (75 mm).
 - g. Seal all terminations with liquid flashing material.

- 2. Fluid Applied Transition Membrane using liquid flashing membrane
 - a. Apply a coat of manufacturer-approved adhesive on the raw edges of exterior gypsum board.
 - b. Apply a bead of liquid flashing in the rough opening starting at the top and continuing around the rough opening.
 - c. Spread the material using a spreader tool or putty knife across the rough opening surface.
 - d. Test the material thickness using a wet mil gauge to ensure that it has a thickness of 12 - 15 mils.
 - e. Apply a generous bead of liquid flashing material to the vertical surface around the rough opening and spread this material 4" - 6" (100 - 152 mm) onto the vertical surface with a spreader tool or putty knife.
 - f. Test the thickness to ensure the material has a thickness of 12 - 15 mils.

- g. Allow liquid flashing material to dry before installing any windows, doors, wall assembly, and full air barrier material.

B. CRACK AND JOINT TREATMENT

1. Treatment of joints or cracks larger than ¼" (6.35 mm) and less than ½" (12.7 mm).
 - a. Prefill any joints or cracks with the liquid flashing material.
 - b. Apply a generous bead of material over the joint.
 - c. Press, and spread liquid flashing into the joint.
 - d. Allow material to skin over prior to full application of liquid flashing into the rough opening.
2. Treatment of joints or cracks larger than ½" (12.7 mm)
 - a. Install backer rod into the joint to control depth of liquid flashing material.
 - b. Apply a generous bead of material over and into the joint.
 - c. Press, and spread liquid flashing into the joint.
 - d. Smooth out using a spreader tool or putty knife
 - e. Allow material to cure prior to full application of liquid flashing into the rough opening.

C. PENETRATIONS

1. Self-Adhesive Transition Membrane
 - a. Pre-cut air barrier membrane to length to fully cover the penetration.
 - b. Prepare AIR-SHIELD SMP membrane for application by cutting slits a minimum 2.5" (63.5 mm)] down the strip of membrane.
 - c. Apply air barrier membrane around penetration and apply a bead of liquid flashing at termination point on the penetration.
 - d. Apply full sheet of air barrier membrane cut around the penetration and seal the cut edge with liquid flashing.
2. Fluid Applied Liquid Flashing
 - a. Pre-treat all penetrations with a bead of liquid flashing around the penetration ensuring full coverage of the gap.
 - b. Lay sheet of air barrier membrane over sheathing and around the penetration and roll press into place.
 - c. Apply liquid flashing over penetration and onto the air barrier membrane 3" (75 mm) in all directions in a continuous installation.

D. AIR BARRIER MEMBRANE

1. Horizontal Installation
 - a. Snap chalk line for guidance.
 - b. Pre-cut material to required length.
 - c. Roll cut length of membrane with release paper outwards.
 - d. Peel back the release paper starting at the corner, by approximately 6" (152.4 mm).
 - e. Fold release paper back and using hand roller or stiff brush, lightly apply the exposed adhesive surface to the prepared substrate.
 - f. Remove release paper only as membrane is being applied.
 - g. Use hand roller or stiff brush, starting in the middle, to smooth out any air bubbles, releasing the air to each side.
 - h. Overlap subsequent courses of membrane a minimum of 2.5" (63.5 mm).
 - i. Apply liquid flashing to all reverse lap terminations.
 - j. Apply liquid flashing to any leading edge termination at the end of each working day.
2. Vertical Installation
 - a. Snap chalk line for guidance.
 - b. Pre-cut material to required length.

- c. Roll cut length of membrane with release paper outwards.
- d. Peel back the release paper starting at the corner by approximately 6" (152.4 mm).
- e. Fold release paper back and using hand roller or stiff brush, lightly apply the exposed adhesive surface to the prepared substrate.
- f. Remove release paper only as membrane is being applied.
- g. Use hand roller or stiff brush, starting in the middle, to smooth out any air bubbles, releasing the air to each side.
- h. Allow rest of rolled up material to drop down with release paper still attached and check for proper alignment.
- i. Remove remaining release paper and use hand roller or stiff brush across the entire adhered section.
- j. Smooth air bubbles with stiff brush/roller.
- k. Overlap subsequent courses of membrane a minimum of 2.5" (63.5 mm).
- l. Apply liquid flashing to all reverse lap terminations.
- m. Apply liquid flashing to any leading edge termination at the end of each working day.

D. THROUGH WALL FLASHING

1. Prime surfaces to be covered in one working day with adhesive approved by membrane manufacturer.
2. Remove release paper prior to application.
3. Apply through wall flashing at based of masonry walls as indicated on drawings.
4. Recess through wall flashing 1/2" (13 mm) from the face of the masonry.
5. Apply a bead of pointing mastic if through wall flashing is not embedded into masonry.

3.04 PROTECTION

- A. Cover air barrier membrane as soon as possible, to prevent damage due to construction activities, inclement weather and prolonged UV exposure.

END OF SECTION