

GUIDE SPECIFICATION FOR AIR-SHIELD™ ALUMINUM SHEET MEMBRANE: SELF-ADHERING AIR/VAPOR AND LIQUID MOISTURE BARRIER

SECTION 07 27 13

MODIFIED BITUMINOUS SHEET AIR BARRIERS

Creation Date: October 15, 2019

Specifier Notes: This guide specification is written according to the Construction Specifications Institute (CSI) format. 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: W. R. MEADOWS® AIR-SHIELD ALUMINUM SHEET MEMBRANE from self-adhering air/vapor and liquid moisture barrier is part of a total W. R. MEADOWS system to complete the building envelope. It is a roll-type product that is nominally 40 mils thick. The membrane's controlled thickness is fabricated from aluminum bonded to specially modified asphalt.

This unique, self-adhesive membrane, protected by a special release paper, is strong and durable. It remains flexible when surface mounted and will adhere to most primed surfaces at minimum temperatures of 40° F (4.4° C). The membrane provides excellent protection as a tough barrier that won't shrink, sag, dry out, crack, or rot. It offers excellent resistance to punctures during installation.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Application of rolled, self-adhering air/vapor barrier system.
- 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 07 21 00 - Thermal Insulation.
- C. Section 07 50 00 - Membrane Roofing.
- D. Section 07 60 00 - Flashing and Sheet Metal.
- E. Section 07 70 00 - Roof and Wall Specialties and Accessories.
- F. Section 07 80 00 - Fire and Smoke Protection.
- G. Section 07 92 00 - Joint Sealants.

- H. Section 08 10 00 - Doors and Frames.
- I. Section 08 50 00 - Windows.
- H. Section 09 20 00 - Plaster and Gypsum Board.

1.03 REFERENCES

- A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
- B. ASTM D570 - Standard Test Method for Water Absorption of Plastics.
- C. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
- D. ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.
- E. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- F. ASTM E96 (Method B) - Standard Test Methods for Water Vapor Transmission of Materials.
- G. ASTM E154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
- H. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- I. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
- J. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference.
- K. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.
- L. 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:

Specifier Notes: Select 1 or 2 based on project requirement for air barrier installer. If project requires an Air Barrier Association of America (ABAA) installer, select 1. If this is not a requirement, select 2.
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- 1. Air-barrier installer shall be currently accredited under the ABAA and ensure applicators are certified in accordance with the ABAA Quality Assurance Program.

2. 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/vapor 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/vapor barrier, apply air/vapor 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/vapor barrier in field-constructed mock-ups of assemblies specified in Section [XX XX XX], “Mock-Ups.”
- D. Construct typical exterior wall panel, 8’ by 8’ 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 Owner's inspection and testing agency. Do not cover any installed air and vapor 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 adhesives and primers at temperatures of 40° F (5° C) and above to facilitate handling.
- D. Store membrane cartons on pallets.
- E. Do not store at temperatures above 90° F (32° C) for extended periods.
- F. Keep away from sparks and flames.
- G. Completely cover when stored outside. Protect from rain.
- H. Protect materials during handling and application to prevent damage or contamination.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Product not intended for uses subject to abuse or permanent exposure to the elements.
- B. Protect rolls from direct sunlight until ready for use
- C. Do not apply membrane when air or surface temperatures are below 40° F (4° C).
- D. Do not apply to frozen surfaces.

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. Rolled, Self-Adhering Air/Vapor Barrier Membrane: Polymeric air/vapor barrier membrane protected by release paper on cross-laminated polyethylene carrier film with exposed polymeric membrane strips on both sides protected by pull-off release strips.
 - 1. Performance Based Specification: Air/Vapor barrier membrane shall have 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. Water Vapor Permeance, ASTM E96 (Method B): < 0.01 perms.
 - d. Elongation: MD, ASTM D412: 327%.
CMD, ASTM D412: 254%.
 - e. Tensile Strength: MD, film, ASTM D412: 4,255 psi (29.5 MPa).
CMD, film, ASTM D412: 5,420 psi (37.5 MPa)
 - f. Puncture Resistance, ASTM E154: 88lbf
 - g. Flexibility, ASTM D1970: Pass @ -20° F (-29° C).
 - 2. Proprietary Based Specification:
 - a. AIR-SHIELD ALUMINUM SHEET MEMBRANE by W. R. MEADOWS.

2.03 ACCESSORIES

- A. Flashing and Transition Membrane: Self-adhesive polymeric sheet membrane having a thickness of 40 mils (1 mm).
 - 1. AIR-SHIELD THRU-WALL FLASHING by W. R. MEADOWS.
- B. Liquid Flashing: Fluid applied, single component, flashing membrane for rough openings and detailing.
 - 1. AIR SHIELD LIQUID FLASHING by W. R. MEADOWS.
- C. Joint Tape: Self-adhesive polymeric membrane for joints of plywood and oriented strand board (OSB).
 - 1. AIR-SHIELD ALUMINUM SHEET MEMBRANE by W. R. MEADOWS.
- D. Membrane Adhesive:
 - 1. Temperatures above 40° F (4° C): Water-Based Adhesive
 - a. MEL-PRIME™ W/B Water-Based Adhesive by W. R. MEADOWS.
 - 2. Temperatures below 30° F (-1° C): Solvent-Based Primer.
 - a. MEL-PRIME VOC Compliant Solvent-Based Adhesive or Standard Solvent-Base Adhesive by W. R. MEADOWS.
- E. Pointing Mastic: mastic for sealing penetrations and terminations of membrane.
 - 1. POINTING MASTIC by W. R. MEADOWS.
- F. Detailing Membrane: non-slump waterproofing material for joint detailing.

1. BEM by W. R. MEADOWS.
- G. Concrete Repair Materials: general purpose patching materials.
 - .1 MEADOW-PATCH™ 5 and MEADOW-PATCH 20 Concrete Repair Mortars 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/vapor barrier system.
- B. Clean and prepare surfaces to receive air barrier in accordance with manufacturer's instructions.
- C. Do not apply air/vapor barrier to surfaces unacceptable to manufacturer.
- D. All surfaces must be clean, smooth, and dry and must be clean of oil, dust, and excess mortar.
- E. Strike masonry joints flush.
- F. Patch all holes and voids and smooth out any surface misalignments.
- G. Concrete surfaces must be cured for a minimum of 14 days.
- H. If curing compounds are used, they must be clear, resin-based, without oil, wax, or pigments.

3.03 APPLICATION OF AIR BARRIER SYSTEM

A. TRANSITION MEMBRANE

1. Prime the area to be detailed using adhesive recommended by the membrane manufacturer according to the substrate.
2. Apply transition membrane with a minimum overlap of 3" (75 mm) onto primed surface at all joints, columns, and beams as indicated in drawings.
3. Tie in to window and door openings, roofing systems, floor intersections, and dissimilar materials.
4. Roll membrane firmly into place.
5. Ensure membrane is fully adhered and remove all wrinkles and fish mouths.
6. Overlap subsequent courses of membrane a minimum of 2" (50 mm) and ensure joints are fully adhered.
7. Seal top edge of transition membrane with pointing mastic.

B. THROUGH WALL FLASHING

1. Prime the area to be detailed using adhesive recommended by the membrane manufacturer according to the substrate.
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.

C. AIR BARRIER MEMBRANE

1. Apply air barrier membrane system in accordance with manufacturer's instructions.
2. Ensure accessory materials are compatible with membrane and approved by membrane manufacturer.
3. Prime the area to be detailed using adhesive recommended by the membrane manufacturer according to the substrate. Re-apply adhesive to uncovered surfaces next day.
4. Apply membrane to primed surface by removing release paper and rolling membrane firmly into place.
5. Ensure membrane is fully adhered and remove all wrinkles and/or fish mouths.
6. Cut air barrier membrane to detail around protrusions and masonry reinforcing.
7. Overlap subsequent courses of membrane a minimum of 2" (50 mm) in a shingle fashion.
8. Inspect membrane before covering and repair as necessary. Cover tears and inadequate overlaps with membrane. Seal edges of patches with pointing mastic.
9. Seal all end laps and protrusions with pointing mastic.
10. Avoid use of products which contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with waterproofing membrane system.

3.04 PROTECTION

- A. Cover air barrier membrane as soon as possible, since it is not designed for permanent exposure.

END OF SECTION