GUIDE SPECIFICATION FOR AIR-SHIELD™ TMP ON SMOOTH SUBSTRATES – LIQUID MEMBRANE, THIN FILM, VAPOR PERMEABLE AIR BARRIER

SECTION 07 27 26

FLUID APPLIED MEMBRANE AIR BARRIERS

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: AIR-SHIELD TMP is a water-based air/liquid moisture barrier that cures to form a tough, seamless, elastomeric membrane. AIR-SHIELD TMP exhibits excellent resistance to air leakage. When properly applied as a drainage plane, AIR-SHIELD TMP prohibits liquid water intrusion into the substrate.

AIR-SHIELD TMP 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 systems. AIR-SHIELD TMP is suitable for both new construction and retrofit applications.

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Application of liquid applied vapor permeable 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 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 E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

C. ASTM E96 (Method B) - Standard Test Methods for Water Vapor Transmission of Materials.

D. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

E. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.

F. 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.

G. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.

H. 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.

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 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’ long 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 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 40º F (4º C), free from contact with cold or frozen surfaces.

D. 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. Do not proceed with product application if rainfall is forecast or imminent within 12 hours.

C. Do not apply membrane when air or surface temperatures are below 20ºF (-6.7ºC).

D. Do not apply when air, material and surface temperatures are expected to fall below 20º F (-6.7º C) within 24 hours of completed application.

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. Liquid Air Barrier System: One-component, polymer-modified, cold-applied, liquid vapor permeable air barrier membrane.
   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. Water Vapor Permeance ASTM E96 (Procedure B): >15 perms.
      d. Elongation ASTM D412: 1000 %.
      e. Flexibility at -26^o C (-15^o F), ASTM C836 2" mandrel: Pass.
      f. Flame Spread and Smoke Development, ASTM E84: Class A.

   2. Proprietary Based Specification: AIR-SHIELD TMP 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. Joint Sealant: Single component, polyurethane joint sealant for exterior sheathing panels.
   1. POURTHANE NS by W. R. MEADOWS.

C. Liquid Flashing: Fluid applied, single component, flashing membrane for rough openings and detailing.
   1. AIR SHIELD LIQUID FLASHING by W. R. MEADOWS.

D. Joint Tape: Self-adhesive polymeric membrane for joints of plywood and oriented strand board (OSB).
   1. AIR-SHIELD by W. R. MEADOWS.

E. Membrane Adhesive:
   1. Temperatures above 40^o F (4^o C): Water-Based Adhesive
      a. MEL-PRIME™ W/B Water-Base Primer by W. R. MEADOWS.
   2. Temperatures below 30^o F (-1^o C): Solvent-Based Primer.
      a. MEL-PRIME VOC Compliant Solvent-Base Adhesive or Standard Solvent-Base Adhesive by W. R. MEADOWS.

F. Pointing Mastic: mastic for sealing penetrations and terminations of membrane.
   1. POINTING MASTIC by W.R. MEADOWS.

G. 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 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 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. Patch all holes and voids and smooth out any surface misalignments.

E. Patch all cracks, protrusions, small voids, offsets, details, irregularities and small deformities with cementitious patching mortar at least two hours before application.

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

G. Exterior Sheathing Panels:
1. Install and fasten exterior sheathing panels according to the sheathing manufacturer's instructions.
2. Treat all countersunk and removed fasteners with joint filler or liquid flashing material.
3. Inspect the joint to ensure that all areas to receive joint treatment are clean, dry, smooth, and free from all bond-breaking contaminants.
4. Remove and replace any damaged structural wall components.

Specifier Notes: There are four methods of joint treatment recommended by W.R. Meadows for Air-Shield TMP. Select (5), (6), (7), or (8) based on project requirements.

5. Joint Treatment using liquid flashing
   a. Fill joint with liquid flashing creating a 1" band over the joint area.
   b. Do not strike flush with the sheathing surface.
   c. Run the spreader tool over the liquid flashing to remove and inconsistencies.
6. Joint Treatment with polyurethane joint sealant
   a. Fill joint with joint sealant and strike flush with the surface of the exterior sheathing panels.
   b. Allow joint sealant to cure for a minimum of 24 hours prior to proceeding with full application of air barrier membrane.
7. Joint Treatment with self-adhesive membrane
   a. Prime either side of the joint extending 3" from the center with adhesive recommended by the manufacturer.
   b. Install a 4" (25.4 mm) strip of self-adhesive membrane centered over the joint and roll press firmly into place.
   c. Fill all joints wider than ¼" (6.4 mm) with detailing membrane prior to application of self-adhesive membrane.
8. Joint Treatment with fluid applied membrane
   a. Fill joint area with fluid applied membrane using a spreader tool or putty knife.
   b. Apply fluid applied membrane extending beyond the joint line 3" onto face of exterior sheathing.
   c. Fully embed the reinforcing fabric 3" wide into the wet fluid applied membrane centered over the joint.
   d. Run the spreader tool or putty knife over the embedded reinforcing fabric to remove any air bubbles.

H. Plywood and Oriented Strand Board (OSB):
1. Install and fasten boards according to board manufacturer.
2. Apply membrane adhesive on either side of the joint extending 3" from the center.
3. Install a 4" (25.4 mm) strip of self-adhesive membrane centered over the joint and roll press firmly into place.
4. For joints width more than ¼" (6.4 mm), fill with detailing membrane prior to application of self-adhesive membrane.

3.03 APPLICATION OF AIR BARRIER SYSTEM

A. TRANSITION MEMBRANE

1. Prime surfaces to be covered in one working day with applicable adhesive.
2. Apply transition membrane with a minimum overlap of 3” (75 mm) onto primed surface at all joints, columns, beams and dissimilar materials.
3. Roll membrane firmly into place.
4. Ensure membrane is fully adhered and remove all wrinkles and fish mouths.
5. Overlap subsequent courses of membrane a minimum of 2” (50 mm) and ensure joints are fully adhered.
6. Seal top edge of transition membrane with pointing mastic.

B. ROUGH OPENING TRANSITION MEMBRANE

Specifier Notes: There are three methods of window and door rough opening details recommended by W. R. MEADOWS for AIR-SHIELD TMP. Select (1), (2), or (3) based on project requirements.

1. Self-Adhesive Transition Membrane.
   a. Prime the area to be detailed using adhesive recommended by the membrane manufacturer according to the substrate.
   b. Pre-cut the self-adhesive membrane for each area of the rough opening to ensure ease of handling.
   c. 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.
   d. Repeat this procedure for the vertical areas of the rough opening and the header portion of the opening.
   e. Ensure all edge overlaps are a minimum of 2” (50 mm) and end-to-end overlaps are 4” (100 mm”).
   f. Seal all terminations with mastic recommended by membrane manufacturer.

2. Fluid-Applied Transition Membrane using vapor permeable membrane
   a. Apply a coat of adhesive on the raw edges of exterior gypsum board.
   b. Apply a minimum of 30 wet mil coat of the air barrier membrane extending a minimum of 3” (75 mm) onto the wall.
   c. Apply a minimum of 30 wet mil coat of the air barrier membrane extending into the rough opening a minimum of 3” (7 5mm).
   d. Embed a layer of 6” (150 mm) reinforcing fabric into this first coat.
   e. Completely cover the glass mesh with a second coat of the air barrier membrane at 30 wet mils while the first coat is still wet, again extending 3” onto the wall and 3” into the rough opening.
   f. Follow this same procedure for concrete or concrete masonry without using the mesh tape, ensuring a 60 wet mil thickness is achieved.

3. Fluid-Applied Transition Membrane using liquid flashing membrane
   a. Apply a coat of membrane adhesive on the raw edges of exterior gypsum board.
   b. Treatment of joints or cracks larger than ¼” (6.35 mm) and less than ½” (12.7 mm).
      i. Prefill any joints or cracks with the liquid flashing material.
      ii. Apply a generous bead of material over the joint.
      iii. Press and spread liquid flashing into the joint.
      iv. Allow material to skin over prior to full application of liquid flashing into the rough opening.
   c. Treatment of joints or cracks larger than ½” (12.7 mm)
      i. Install backer rod into the joint to control depth of liquid flashing material.
      ii. Apply a generous bead of material over and into the joint.

iii. Press and spread liquid flashing into the joint.
iv. Smooth out using a spreader tool or putty knife.
v. Allow material to cure prior to full application of liquid flashing into the rough opening.

d. Apply a bead of liquid flashing in the rough opening starting at the top and continuing around the rough opening.
e. Spread the material using a spreader tool or putty knife across the rough opening surface.
f. Test the material thickness using a wet mil gauge to ensure that it has a thickness of 12-15 mils.
g. 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.
h. Test the thickness to ensure the material has a thickness of 12-15 mils.
i. Allow liquid flashing material to dry before installing any windows, doors, wall assembly, and full air barrier material.

B. THROUGH WALL FLASHING
1. Prime surfaces to be covered in one working day with applicable adhesive.
2. Remove release paper prior to application.
3. Apply though 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 in accordance with manufacturer's instructions.
2. Thoroughly mechanically mix membrane prior to application.
3. Apply membrane by spray or roller at a minimum coverage rate of 100 $ft.^2$/U.S. gal (2.45 m^2/L), providing a thickness of 10 wet mils.
4. Frequently inspect surface area with a wet mil gauge to ensure consistent thickness.
5. Work material into any fluted rib forming indentations.
6. Cured thickness of membrane should be 6 mils dry.
7. Allow 48 hours for full cure of the membrane.

3.04 PROTECTION

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

END OF SECTION