

SECTION 07270  
AIR BARRIER

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

- A. The general provisions of the Contract, including General and Supplementary Conditions and Division 1 - General Requirements, apply to work specified in this Section.

1.02 SUMMARY

- A. This Section includes fluid-applied, vapor-permeable air barrier, applied over gypsum sheathing.
- B. Alternate: If Alternate No. 7, Thin Brick System, is selected, also apply the air barrier specified in this section over the surface of the concrete before installing the support panels. Refer to Section 01230 for a description of the Alternates and administrative requirements applicable to Alternates.
- C. Related Work Specified in Other Sections:
1. Masonry through-wall flashing: Section 04810, Unit Masonry.
  2. Air- and water-barrier under exterior insulation and finish system: Section 07240.
  3. Installation of sheathing and sealing of joints between sheathing panels: Section 09255.
  4. Building thermal insulation: Section 07210.

1.03 PERFORMANCE REQUIREMENTS

- A. Design Intent: The air barrier membrane shall be located, constructed and flashed to perform as an air barrier, to control air leakage into or out of the conditioned space of the building interior, and as a water barrier to discharge to the outside any incidental condensation or water penetration. The air and water barrier membrane shall accommodate movements of building materials by providing expansion and control joints as required, with appropriate air seal materials at such locations, changes in substrate and perimeter conditions. All penetrations of the air barrier and paths of air infiltration/exfiltration, shall be made air-tight.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's product data for each materials. Include technical data on physical and performance properties of the membrane, standard details, certified test results, substrate preparation, and installation instructions.
- B. Samples: **6-by-12-inch (150-by-300-mm)** square of air barrier sheet.
- C. Shop Drawings for Installation: Show locations and extent of air barrier. Show relationship with adjacent materials; indicate sequence of installation, and materials and methods for sealing connections and penetrations. Show tie-ins with adjoining components of the air-barrier system, and other termination conditions. At a minimum, shop drawings shall include the following details, as applicable to the project:

1. Treatment and preparation of joints and cracks in the substrate.
2. Connection of air barrier to adjacent existing walls.
3. Transition between different types of wall systems.
4. Termination of air barrier at window and door jambs, heads and sills.
5. Inside and outside corners.
6. Changes of substrate.
7. Transition between wall and roof air barrier.
8. Details across construction, control and expansion joints in walls, floors and roofs.
9. Penetration of walls by utilities, pipes and ducts.
10. Penetration of walls by structural members.
11. Relationship of air-barrier membrane to masonry through-wall flexible flashing.

E. Qualifications of Installer: Submit qualifications of firm installing air and vapor barrier membrane materials, including name and qualifications of supervisor for this project, and including name and location of three projects where similar work was performed by both firm and supervisor.

F. Product Test Reports: From a qualified independent testing agency indicating and interpreting test results of air barrier for compliance with requirements, based on comprehensive testing of current formulations.

#### 1.05 QUALITY ASSURANCE

A. Installer Qualifications: A qualified and experienced installer who is acceptable to air barrier membrane manufacturer to install manufacturer's products, and who can demonstrate successful completion of at least 5 installations of in the past 3 years of air and water barrier systems similar in type, scope and complexity to this installation.

B. AABA Training and Certification: The individual or individuals supervising air barrier installation shall be a Certified as an air barrier applicator Contractor by the Air Barrier Association of America (ABAA) and shall be experienced in the installation of materials of the types being applied. Each laborer who is installing air barriers must be either a Certified Applicator, or must be an installer who is registered with ABAA and who is working under the direct supervision of a Lead Certified Applicator. Each Lead Certified Applicator can supervise a maximum of five registered installers.

C. Source Limitations: Obtain air barrier materials, including primers and sealants, through one source from a single manufacturer.

D. Mockups: Comply with Section 01400 requirements for mock-ups and with the following:

1. Apply air barrier to 100 sq. ft. of wall to demonstrate surface preparation, crack and joint treatment, corner treatment, window jamb, head and sill treatment, and execution quality.
  - a. If Architect determines that the initial mockup does not comply with requirements, reapply air barrier until mockups are approved.
  - b. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

2. Provide air barrier component for the coordinated masonry, curtain wall and glazing mock-up described in Section 04810, to demonstrate quality of materials and execution.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Section 01330, "Project Management and Coordination."
1. Require representatives of the membrane manufacturer and the membrane installer to attend.
  2. Review requirements for sequencing and scheduling of the Work to avoid damaging exposure of the membrane.
  3. Review requirements for air and vapor barrier installation, including surface preparation specified under other Sections, substrate condition and pretreatment, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original packages with seals unbroken, labeled with manufacturer's name, product brand name and type, date of manufacture.
- B. Store materials in their original undamaged packages in a clean, dry, protected location and within temperature range required by air barrier material manufacturer. Store rolls according to manufacturer's written instructions. Protect stored materials from direct sunlight.
- C. Remove and replace materials that cannot be applied within their stated shelf life.

#### 1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Apply air- and vapor barrier membrane within the range of ambient and substrate temperatures recommended by the membrane manufacturer. Do not apply self-adhering membrane to a damp or wet substrate. Do not apply self-adhering membrane in snow, rain, fog, or mist.
- B. Maintain adequate ventilation during preparation and application of air barrier materials.

#### 1.08 SCHEDULING AND SEQUENCING

- A. Exposure Limitations: The air barrier materials specified in this Section are not designed to perform under prolonged exposure to sunlight and weather. Refer to manufacturer's literature for the specific products which are to be used on this project and conform to manufacturer's recommended limits on exposure. Coordinate with installation of exterior wall skin so that this the air barrier is covered as soon as possible after installation, and in no case later than the limit recommended by the manufacturer of the air barrier or 30 days, whichever comes first.
  1. In the absence of written information to the contrary from the manufacturer, installed air barrier may not be left exposed for more than 30 days.

2. Air barrier material which is left exposed to sunlight and weather for longer than 30 days or the period recommended by the manufacturer, whichever is less, shall be considered to be not in conformance with the specifications and shall be replaced by the Contractor at the Contractor's expense.

## PART 2 - PRODUCTS

### 2.01 FLUID-APPLIED AIR BARRIER MEMBRANE

- A. Primary Membrane: One-component elastomeric bitumen liquid membrane designed to provide an air barrier when applied to construction surfaces, complying with the following:
  1. Air Permeability: Not to exceed 0.04 cfm/sq. ft. under a pressure differential of 0.3 in. water (1.57 psf), with no increase in air leakage when subjected to a sustained wind load of 20.9 lbs/sq. ft. for 1 hour, and gust wind load pressure of 10.5 lbs/sq. ft. maintained for 10 seconds with no delamination.
  2. Water Vapor Permeability: No less than 4.0 perms, per ASTM E96 Method E.
  3. Provide product which is and formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.
  4. Products: Subject to compliance with requirements, provide one of the following:
    - a. Henry Company; Air-Bloc 07
    - b. Sto Corporation "Sto Guard" system, constructed using "Gold Fill" joint treatment and reinforcing mesh and "Sto Gold Coat" coating.
- B. Transition Membrane: Self-adhering modified bitumen, 36 mils thick, laminated to 4-mils thick cross-laminated polyethylene film; 40 mils minimum overall thickness, with resistance to air leakage no less than that specified for the primary membrane.
  1. Products: Subject to compliance with requirements, provide one of the following products:
    - a. Henry Company; Blueskin SA
    - b. Sto Corp. "Sto Guard" system.

### 2.02 AUXILIARY MATERIALS

- A. General: Furnish auxiliary materials recommended by air barrier material manufacturer for intended use and compatible with the air barrier material. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.
- B. Primers: Liquid primer recommended for substrate by manufacturer of air barrier material. Use waterborne primers if ambient and substrate temperatures at time of application permits.
- C. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate by manufacturer of air barrier material.
- D. Substrate Patching Membrane: Low-viscosity, two-component, asphalt-modified coating.

- E. Joint and Crack Treatment Materials: Fillers, tapes, and self-adhering membrane of types recommended by air barrier material manufacturer for the applications indicated.
- F. Mastic and Adhesives: Liquid mastic and adhesives recommended by air barrier material manufacturer for the applications indicated.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements described below and with other conditions affecting performance.
  - 1. Concrete: Cured and aged for minimum time period recommended by membrane manufacturer, visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
  - 2. CMU: Completely dry, free of laitance/efflorescence, mortar joints struck flush.
  - 3. Gypsum Sheathing: Clean, dry, and in sound condition. Replacement of sheathing boards which have become damp or have been exposed to weather for longer than the time permitted by the Contract Documents is specified in Section 09255, "Gypsum Board Sheathing."
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 SURFACE PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.
- B. Mask off adjoining surfaces not receiving air barrier to prevent spillage and overspray affecting other construction.
- C. Sheathing Joint Treatment: Prepare, fill and treat sheathing joints, exposed edges and terminations, rough openings, and inside and outside corners per EIFS manufacturer's instructions, using joint treatment materials compatible with the air and water barrier coating. Remove dust and dirt from joints and cracks according to ASTM D 4258.
  - 1. For Henry System, fill joints and cracks up to 1/4" wide with trowel application of "Air-Bloc 07" reinforced with a strip of 2" wide glass fiber tape. Seal joints and cracks wider than 2" using the "Blueskin" transition membrane.
  - 2. For Sto system, trowel "Sto Gold Fill" over these joints, embedding detail mesh in the fill, and then trowelling smooth. Use minimum 4" wide detail mesh over sheathing joints and minimum 9" wide detail mesh at rough openings and corners. Spot fasteners and surface defects with the same compound.

- D. Concrete Surface Preparation (Alternate No. 7): In accordance with air-barrier manufacturer's recommendations, and with the following:
1. Treat spalled areas and areas with rust stains as specified in Section 07240 as preparation for application of the concrete coating, except use patching material recommended by and compatible with the air barrier coating.
  2. Cover and seal existing sealant-filled control joints with a strip of transition membrane adhered to the substrate and extended a minimum of 3" on both sides of the joint.
  3. Fill cracks up to 1/4" wide with trowel application of the air-barrier material and allow it to cure; or seal with a strip of transition membrane.
  4. Seal cracks wider than 1/4" with transition membrane adhered to the substrate and lapped a minimum of 3" on both sides of the crack.

### 3.03 FLUID-APPLIED AIR AND VAPOR BARRIER MEMBRANE

- A. Primer for Transition Membrane: Apply primer for self-adhering membrane to substrates at rate recommended by manufacturer; apply by roller or spray and allow and allow open time recommended by manufacturer. Limit priming to areas that will be covered by the air barrier membrane in same day. Reprime areas exposed for more than 24 hours.
1. When ambient and substrate temperatures range are below 45 deg F, use solvent-based primer produced for low-temperature application. Do not use solvent-based primer if ambient or substrate temperature will permit the use of water-based primer.
- B. Transition Sheet: Position self-adhering transition membrane and remove protective film. Press firmly into place. Ensure minimum 2" overlap at end and side laps. Promptly roll laps with a counter-top roller to effect seal.
1. In each continuous application area, complete installation of transition sheet at perimeter, penetrations and transitions before beginning installation of the liquid-applied membrane.
  2. After through-wall flashing is installed, seal top edge of through-wall flashing and fasteners by applying a strip of transition sheet over them.
- C. Primary Membrane: Spray or trowel applied membrane applied to a wet film thickness of 1/8 inch (120 mils to 200 mils). Overlap the transition sheet at least 1-inch. Trowel around penetrations to ensure a complete and continuous seal.
- D. Repair skips, voids, areas where specified minimum coverage has not been achieved by the primary air barrier. Repair lapped seams in transition sheet which do not comply with requirements.

### 3.04 FIELD QUALITY CONTROL

- A. Owner will engage an independent testing agency to inspect the installation and confirm that it is continuous and air tight, as intended.

3.05 CLEANING AND PROTECTION

- A. Remove spillage and overspray from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.
- B. Protect the membrane air barrier from damage and wear during remainder of construction period, including damage due to ultraviolet light, weather exposures, and physical abuse.

END OF SECTION 07270