

SECTION 072500 – WATER RESISTIVE BARRIER / AIR BARRIER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Building paper.
2. Water Resistive Barrier/Air Barrier.
3. Water Resistive Barrier/Air Barrier accessory products.

B. Related Requirements:

1. Division 06 Section "Sheathing" for sheathing joint and penetration treatment.
2. Division 07 Section "Self Adhering Sheet Waterproofing" for corner protection and flashing as detailed or required.

1.3 SUBMITTALS

A. Product Data: For each type of product.

1. For Water Resistive / Air Barrier, include data on air and water-vapor permeance based on testing according to referenced standards and criteria for air barrier performance required by the permit authorities having jurisdiction.
2. Submit installation instructions, shop drawings, and certificate letter(s) for compatibility with adjacent materials (including specified sealant products). Include all related products and accessories to be used or attached to the Water Resistive Barrier/Air Barrier.

B. Evaluation Reports: For water-resistive barrier/Air barrier and flexible flashing, from ICC-ES.

C. Manufacturer's standard warranty for product in place.

D. Manufacturer's schedule of Project installer training and field inspection of installation in progress.

#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by barrier manufacturer.
- B. Mockups: Build mockups to verify selections made under submittals and to set quality standards for installation.
  - 1. Build for each typical barrier installation including accessories to demonstrate surface preparation, corner treatment, and protection.
    - a. Size: 100 sq. ft. (9.3 sq. m) in area.
- C. Air Barrier Testing and Certification: Provide inspection and / or testing of installed air barrier systems as may be required by the permit authorities having jurisdiction and as defined by Paragraph 3.4 of this section.

#### 1.5 WARRANTY

- A. Manufacturer's Warranty: Manufacturer's standard warranty is which manufacturer agrees to furnish product in place repairs and replacement for the Water Resistive barrier / air barrier system that does not comply with requirements or that fails within specified warranty period.
  - 1. Warranty Period: Ten (10) years from date of Substantial Completion.
  - 2. Warranty is to include all products including tapes, self-adhered membranes, flexible flashings and other products approved for use by the Water Resistive barrier / air barrier product manufacturer as a component of the manufacturer's system whether or not manufactured by the Water Resistive Barrier / Air Barrier manufacturer.

### PART 2 - PRODUCTS

#### 2.1 WATER RESISTIVE BARRIER / AIR BARRIER

- A. Building Paper: ASTM D 226, Type 1 (No. 15 asphalt-saturated organic felt), unperforated.
- B. Water Resistive Barrier / Air Barrier: ASTM E 1677, Type I air barrier; flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. DuPont (E. I. du Pont de Nemours and Company); Tyvek Drainwrap for 4 floors or less.
    - b. Reemay, Inc; Typar HouseWrap.
    - c. James Hardie Building Products, Inc., Hardie Wrap.

2. Water-Vapor Permeance: Not less than 11.7g through 1 sq. m of surface in 24 hours per ASTM E 96/E 96M, (Procedure A and B).
  3. Air Permeance: Not more than 0.004 cfm/sq. ft. at 0.3-inch wg (0.02 L/s x sq. m at 75 Pa) when tested according to ASTM E 2178.
  4. Allowable UV Exposure Time: Not less than three months.
- C. Water Resistive Barrier / Air Barrier Tape: Pressure-sensitive plastic tape manufactured or approved by Water Resistive Barrier / Air Barrier manufacturer for sealing joints penetrations in water resistive barrier.
- D. Flexible Flashing: Composite, self-adhesive, flashing product manufactured by, or approved by Water Resistive Barrier / Air Barrier manufacturer as chemically compatible with wrap and wrap accessories and complying with manufacturer's warranty requirements, and consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch (0.6 mm).

## 2.2 ACCESSORIES

- A. Primer for Flexible Flashing: Product recommended by manufacturer of flexible flashing for substrate.
- B. Fasteners: Galvanized steel or stainless plastic capped nails or screws as approved by barrier product manufacturer.

## PART 3 - EXECUTION

### 3.1 WATER RESISTIVE BARRIER / AIR BARRIER INSTALLATION

- A. Cover exposed exterior surface of sheathing with water-resistive barrier securely fastened to framing immediately after sheathing installed.
- B. Water Resistive Barrier / Air Barrier: Install barrier products in full compliance with manufacturer's written instructions for water resistive and air barrier performance criteria as required by regulations adopted by the authorities having jurisdiction. Comply with manufacturer's written instructions as minimum requirements.
1. Seal seams, edges, fasteners, and penetrations with tape.
  2. Extend into jambs of openings and seal corners with tape.
  3. Repair any damage or tears as approved by manufacturer.
  4. Flash dissimilar material joints as required and detailed with Self Adhered Sheet Waterproofing, manufacturer must be approved by Water Resistive Barrier / Air Barrier manufacturer.
  5. Repair and damage prior to proceeding as recommended and approved by manufacturer.
  6. If a fastener is removed, the resultant fastener hole must be repaired prior to proceeding.

7. A complete water and air seal must be obtained at the Water Resistive Barrier / Air Barrier to seal the building completely.
8. The Building Thermal Envelope shall be durably sealed to limit infiltration with an approved Water Resistive barrier/air barrier in compliance with the governing Building Energy Conservation codes and regulations in jurisdiction. The Building envelope areas required to be properly sealed include, but not limited to, the following:
  - a. All joints, seams and penetrations.
  - b. Site-built windows, doors and skylights.
  - c. Openings between window and door assemblies and their respective jambs and framing.
  - d. Utility penetrations.
  - e. Dropped ceilings or chases adjacent to the thermal envelope.
  - f. Knee walls.
  - g. Walls and ceilings separating a garage from conditioned spaces.
  - h. Behind tubs and showers on exterior walls.
  - i. Common walls between dwelling units.
  - j. Attic access openings.
  - k. Rim joist junction.
  - l. Other sources of infiltration.
- C. Building Paper: Apply horizontally with a minimum 4-inch (100-mm) shingle coursed overlap and a minimum 6-inch (150-mm) end lap; fasten over Water Resistive Barrier / Air Barrier to sheathing with galvanized plastic cap nails. If a fastener is removed, the resultant hole must be repaired prior to proceeding. Where building felt is used behind stucco, all edges must be tapped to the Water Resistive Barrier / Air Barrier such that water will not get behind the felt between the felt and the Water Resistive Barrier / Air Barrier.
- D. Protect installed barrier layers from environmental exposure and damage according to manufacturer's instructions.
- E. The building is to be considered water and air tight after the installation of the Water Resistive barrier / air barrier before the installation of the final building applied finishes such as stucco, siding, brick or other exterior skin material.

### 3.2 FLEXIBLE FLASHING INSTALLATION

- A. Apply flexible flashing where indicated to comply with manufacturer's written instructions.
  1. Prime substrates as recommended by flashing manufacturer.
  2. Lap seams and junctures with other materials at least 4 inches (100 mm) except that at flashing flanges of other construction, laps need not exceed flange width.
  3. Lap flashing over water-resistive barrier at bottom and sides of openings.
  4. Lap water-resistive barrier over flashing at heads of openings.
  5. After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.
  6. Flash all intersections or joints within the system, at flashing or at changes of materials to provide a shingled Water Resistive tight seal.

7. The building is to be considered water and air tight after the installation of the Water Resistive barrier / air barrier before the installation of the final building such as stucco, siding, brick or other exterior skin material.

### 3.3 FIELD QUALITY CONTROL

- A. Final Installation Inspection: Arrange for manufacturer's technical personnel to inspect membrane installation on completion and provide adequate reporting to confirm warranty requirements. Provide reports of inspection findings for each inspection. Notify Architect 48 hours in advance of date and time of manufacturer inspections.
- B. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- C. Protect Water Resistive barriers from damage during remainder of construction period.

### 3.4 AIR LEAKAGE TESTING AND CERTIFICATION

- A. The Contractor shall provide blower door testing, or visual inspections by third party inspectors, if required by the permit authorities having jurisdiction and in compliance with codes and regulations adopted by the permit authorities having jurisdiction. Provide testing to determine compliance with an air leakage rate of 5ACH50 or less as a minimum standard.
- B. Visual Inspection Option: The Contractor shall provide visual inspection and reposts of findings and compliance by field verification in compliance with codes and regulations adopted by the permit authorities having jurisdiction.
- C. Testing shall be conducted in accordance with ASTM E1827, Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door including the following;
  1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended Water Resistive stripping or other infiltration control measures.
  2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
  3. Interior doors, if installed at the time of the test, shall be open.
  4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
  5. Heating and cooling systems, if installed at the time of the test, shall be fully open.
  6. Supply and return registers, if installed at the time of the test, shall be fully open.
  7. Conduct testing only after all penetrations of the building envelope are completed.
- D. Provide a written report of the test results, signed by the qualified testing agency, to the Owner's representative and the permit authorities having jurisdiction.
- E. Testing may only be performed by individuals that are certified Rating Field Inspectors by RESNET or Performance Verification Technicians certified by other entities, or hold other certifications as may be approved by the building official. The certified individuals must be

independent third-parties, and may not be employed, or have any financial interest in the company that installed the building systems

- F The Construction Documents indicate materials and methods, including sealing requirements that are intended to comply with mandated maximum air leakage rate. Test results indicating rates exceeding stipulated rates require repairs and remedy by the Contractor at no additional cost to the Owner, Architect or the Architect's Consulting Engineers. Re-testing to demonstrate compliance will be provided by the Contractor at no additional cost to the Owner, Architect or the Architect's Consulting Engineers.
- G The frequency of units to be tested shall comply with requirements of the permit authorities having jurisdiction. As a minimum requirement, 10% of the total number of dwelling units shall be tested to include 2 dwelling units of each type – one each on the ground floor and top floor levels. In the event that a tested unit fails to demonstrate compliance with the stipulated criteria, all dwelling units within that residential building where the unit test failed shall be tested to demonstrate compliance.
- H The Contractor will provide a permanent certificate posted adjacent to each dwelling unit electrical distribution panel providing certification and related data required by codes and regulations adopted by the authorities having jurisdiction.

END OF SECTION 072500