

SECTION 07 25 00

OSB WATER-RESISTIVE BARRIER (WRB) AND AIR BARRIER (AB) SYSTEM

SPECIFIER NOTE: THE FORCEFIELD® WEATHER-RESISTANT BARRIER OSB SYSTEM SPECIFIED HEREIN REPLACES ALL EXTERIOR WALL SHEATHING, PLASTIC SHEET AIR BARRIERS, SELF-ADHERING AIR BARRIERS, AND FLUID-APPLIED AIR BARRIERS. THEREFORE, DELETE ALL OTHER AIR BARRIERS / WATER-RESISTIVE BARRIER PRODUCTS FROM THE SPECIFICATIONS, AND DELETE EXTERIOR WALL SHEATHING FROM DIVISION 6.

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Work of this section includes OSB panel with integral water-resistive barrier (WRB) and air barrier (AB) features, and all accessory materials required for sealing sheathing joints, penetrations, rough openings, and material transitions, for use under exterior wall claddings

1.2 RELATED SECTIONS

- A. [Section 014000 Quality Requirements;] [Section 014529 Testing Laboratory Services;] [Section 014533 Code-Required Special Inspections and Procedures;] coordination with owners' independent testing and inspection agency
- B. Section 014339 Mock-Ups; exterior wall mock-ups.
- C. Section 054000 Cold-Formed Metal Framing
- D. Section 061000 Rough Carpentry
- E. Section 076500 Flexible (Through-Wall) Flashing
- F. Section 079200 Joint Sealants, sealant materials, and installation techniques
- G. Exterior wall claddings

1.3 DEFINITIONS

- A. Air Barrier (AB): Air-tight barrier made of material that is air impermeable but moisture vapor permeable, with sealed joints and penetrations, and with terminations sealed to adjacent surfaces.
- B. Water-Resistive Barrier (WRB): Water-shedding barrier made of material that is moisture-resistant, installed to shed water, with sealed joints and penetrations, and with terminations sealed to adjacent surfaces.
- C. Rough Openings: Openings in the wall to accommodate fenestrations.

- D. Material Transitions: Areas where the OSB WRB/AB sheathing connects to slabs, parapets, foundation walls, roofing systems, and at the interface of dissimilar materials.

1.4 REFERENCE STANDARDS

- A. ASTM International (ASTM): www.astm.org
 - 1. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials
 - 2. ASTM D3330-Standard Test Method for Peel Adhesion of Pressure-Sensitive Tape
 - 3. ASTM D5651-Standard Test Method for Surface Bond Strength of Wood-Base Fiber and Particle Panel Materials
 - 4. ASTM D2247-Standard Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity
 - 5. ASTM E331-Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
 - 6. ASTM E1233-Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential
 - 7. ASTM E72-Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
 - 8. ASTM E84- Standard Test Method for Surface Burning Characteristics of Building Materials
 - 9. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
- B. American Architectural Manufacturers Association (AAMA)
 - 1. AAMA 711 Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products
- C. Pressure Sensitive Tape Council (PSTC)
 - 1. PSTC 101 Peel Adhesion of Pressure Sensitive Tapes
 - 2. PSTC 131 Breaking Strength and Elongation of Pressure Sensitive Tapes
- D. US Department of Commerce (DOC): <http://gsi.nist.gov/global/index.cfm/L1-5/I2-44/A-355>
 - 1. DOC PS 2 - Performance Standard for Wood-Based Structural Panels
- E. International Code Council (ICC): www.iccsafe.org
 - 1. ICC IBC - International Building Code
 - 2. ICC IRC - International Residential Code for One- and Two-Family Dwellings
- F. ICC Evaluation Service, Inc. (ICC-ES): www.icc-es.org
 - 1. ICC-ES AC310 - Acceptance Criteria for Water-Resistive Membranes Factory-bonded to Wood-based Structural Sheathing, Used as Water-Resistive Barriers
- G. Sustainable Forestry Initiative (SFI): www.sfiprogram.org/
 - 1. SFI 2010 - 2014 Standard

1.5 SUBMITTALS

- A. Submittals; Submit in accordance with Division 1 requirements
- B. Product Data and Installation Instructions: Submit manufacturer's product data including sheathing and accessory material types, composition, descriptions and properties, installation instructions and substrate preparation recommendations.

- C. Shop Drawings: Submit shop drawings indicating locations and extent of WRB/AB system, including but not limited to details of typical conditions, special joint conditions, intersections, with other building envelope systems and materials: counterflashings and details showing bridging of envelope at substrate changes, details of sealing penetrations, and detailed flashing around windows and doors.
- D. Test Reports: Submit test reports indicating compliance with specific performance characteristics and requirements.
- E. Sample Warranty: Submit a sample warranty identifying the terms and conditions of the warranty as herein specified.
- F. APA Product Report PR-N136: For WRB/AB system from APA The Engineered Wood Association.
- G. Florida Product Approval APA Product Report PR-N136F.

1.6 WARRANTY

- A. Residential and commercial projects: Provide manufacturer's standard warranty that offers a ten-year transferable limited warranty to the owner of a structure using ForceField® OSB wall panels.

1.7 QUALITY ASSURANCE

- A. Install WRB/AB sheathing with sealed joints and penetrations in mock -up as specified in [Section 014339 Mock-Ups] [Section _____]

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's written instructions for protection of sheathing and accessory products from weather prior to installation
- B. Protect accessory materials from damage, weather, excessive temperatures, and construction traffic.

1.9 FIELD CONDITIONS

- C. Ensure ForceField OSB sheathing surface is clean, dry and sound before the application of tape. Do not install tape in temperatures less than 20 degrees F or if panel surface has frost or ice.
- D. Allow installed sheathing to be dry to the touch before sealing joints, penetrations, rough openings, and material transitions.

PART 2 - PRODUCTS

2.1 WATER-RESISTIVE AND AIR BARRIER ASSEMBLIES

- A. Acceptable product: ForceField Weather Resistant Barrier OSB as manufactured by Georgia-Pacific Wood Products LLC. www.gpforcefield.com
 - 1. Sheathing: ForceField Weather Resistant Barrier OSB
 - 2. Tapes and flashing materials:
 - a. GP ForceField Tape, minimum 3" wide
 - b. Georgia-Pacific Flashing Tape, minimum 4" wide.

3. Fasteners, backer rods, and accessory materials: As approved by Georgia-Pacific Wood Products LLC
- B. System description: Air and water-resistive barrier system installed at exterior stud walls under exterior cladding, consisting of the following components as herein specified:
1. Sheathing: ForceField® Weather Resistant Barrier OSB
 2. Self-adhered tape: GP ForceField Seam Tapes to seal sheathing joints, inside and outside corners, and penetrations.
 3. Self-adhered flashing tape: Georgia-Pacific ForceField Flashing Tape to seal rough openings and material transitions.
 4. Fasteners and backer-rods as required by system manufacturer's instructions.
- 2.2 WATER-RESISTIVE BARRIER (WRB) AND AIR BARRIER (AB) OSB SHEATHING
- A. Description: OSB panel with integral water-resistive barrier (WRB) and air barrier (AB) complying with applicable requirements of ICC-ES AC 310, ASTM D5651, ASTM E2357
- B. Oriented Strand Board: DOC PS 2, made with binder containing no added urea formaldehyde.
- C. Oriented Strand Board Wall Sheathing: APA Rated Exposure 1 sheathing
- D. OSB Span Rating, Panel Grade and Performance Category: Not less than 24/16 span rating; APA Rated Sheathing; 7/16 Performance Category
- E. Edge Profile: Square edge
- F. Certified Wood: Provide sheathing produced from wood obtained from forests certified by an accredited certification body.
- G. Air-Barrier performance requirement:
1. Air =Permeance of Assembly: Less than 0.04 cfm/sq. ft. at 1.57 lbf/sq. ft. (0.2 L/s x sq. m at 75 Pa), per ASTM E2357.
- H. Water-Vapor Permeance, Panel:
1. Method A: >1 perms (57.452 ng/Pa x s x sq. m), ASTM E96/E96M.
 2. Method B: >2.75 perms (157.994 ng/Pa x s x sq. m), ASTM E96/E96M.
- I. Weather Exposure: Manufacturer warranty applies for maximum allowable exposure period of 180 days.
- 2.3 TAPE/FLASHING FOR JOINTS, INSIDE AND OUTSIDE CORNERS, ROUGH OPENINGS, AND MATERIAL TRANSITIONS
- A. Seal panel joints, inside and outside corners, penetrations using self-adhering tape
1. Tape: minimum 3" sheet type self-adhering
 2. Properties
 - a. Material: acrylic
 - b. Acceptable substrate: ForceField Weather Resistant Barrier OSB
 - c. Adhesion to substrate: No delamination from face of sheathing
 - d. Tape thickness: 0.003inch
 - e. Air permeance: meets 0.004 cubic feet per minute per square foot (0.02L/s/sq m), maximum, when tested in accordance with ASTM E2178

- f. Water-Vapor Permeance: < 1 perms (ng/Pa x s x sq. m), ASTM E96/E96M.
 - g. Ultraviolet and weathering resistance: Approved for a maximum of 180 days weather exposure
 - h. Complies with applicable requirements of Pressure Sensitive Tape Council (PSTC)
- B. Seal window/door rough openings and material transitions using self-adhering flashing
- 1. Flashing material: minimum 4" sheet-type, self-adhering
 - 2. Properties:
 - a. Material: butyl based
 - b. Acceptable substrate: ForceField Weather Resistant Barrier OSB
 - c. Adhesion to substrate: No delamination from face of sheathing
 - d. Tape thickness: 0.011 inch
 - e. Air permeance: meets 0.004 cubic feet per minute per square foot (0.02L/s/sq m), maximum, when tested in accordance with ASTM E2178
 - f. Water-Vapor Permeance: < 1 perms (ng/Pa x s x sq. m), ASTM E96/E96M.
 - g. Ultraviolet and weathering resistance: Approved for a maximum of 180 days weather exposure
 - h. Complies with applicable requirements of AAMA 711

2.4 FASTENERS

- A. Fasteners, General: Corrosion-resistant, size and type complying with manufacturer's written instructions for Project conditions and requirements of authorities having jurisdiction.
- B. Nails, Brads, and Staples: ICC AC116 and ICC AC201, corrosion-resistant.
- C. Power-Driven Fasteners: ICC-ES-1539 or NER-272, corrosion-resistant.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine framing spacing and alignment to determine if work is ready to receive sheathing. Proceed with sheathing work once conditions meet requirements.
- B. Remove projections, protruding fasteners, loose or damaged sheathing material at edges of panel that might interfere with proper installation to seal joints, corners, penetrations, openings, or material transitions.
- C. Wipe down the sheathing surface to receive sealing materials with a clean cloth, dry and free of contaminants.
- D. Ensure field conditions are met as outlined in Part 1-General Requirements

3.2 INSTALLATION OF WATER-RESISTIVE BARRIER (WRB) AND AIR BARRIER (AB) SHEATHING

- A. Install sheathing panels in accordance with manufacturer's written instructions, requirements of applicable Product Report, and requirements of authorities having jurisdiction.

- B. Air and Moisture Barrier: Coordinate sheathing installation with flashing and joint sealant sequencing and installation and with adjacent building air and moisture barrier components to provide complete, continuous air- and moisture- barrier.
 - C. Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports.
 - D. Install panels with laminated facer to exterior. Stagger end joints of adjacent panel runs. Support all panel edges.
 - 1. Space square-edged panels with a 0.125 inch (3 mm) gap between board ends and edges, to allow for expansion and contraction.
 - E. Attach sheathing panels securely to substrate with manufacturer-approved fasteners in compliance with the following:
 - 1. ICC-ES ESR-1539 or ICC-NES NER-272 for power-driven fasteners.
 - 2. IBC: Table 2304.9.1 Fastening Schedule.
 - 3. IRC: Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments."
- 3.3 INSTALLATION OF SELF-ADHERED TAPE/FLASHING FOR SEALING SHEATHING JOINTS, CORNERS, PENETRATIONS, ROUGH OPENINGS, AND MATERIAL TRANSITIONS
- A. Apply minimum 3" GP ForceField® Tape at all panel seams, corners, and cracks to form continuous water and air resistant surface. Apply tape according to manufacturer's installation guide.
 - 1. Ensure the surface is free from moisture, frost, dust, dirt, and other bond inhibiting materials. Center the tape over the panel seam so that a minimum 1" of tape is applied on each side of the panel seam.
 - 2. Whenever tape splices occur, a 2" overlap should be used. Sequence tape application such that a shingle lap application is achieved. At T-joints, the tape should overlap by 2".
 - 3. Apply firm pressure on the tape surface with your hand or a J-roller to ensure that a continuous bond is achieved between the tape and the panel surface and to eliminate wrinkles and air bubbles.
 - B. Apply GP ForceField Tape to seal exterior wall penetrations. Apply tape according to manufacturer's installation guide.
 - 1. Fill gaps around penetration larger than 1/8" with a backer rod to support the tape around the penetration.
 - 2. Align and position tape on bottom side of penetration and press firmly into place.
 - 3. Align and position tape on both sides of the penetration as close to the penetration as possible and press firmly into place.
 - 4. Ensure the above taped section is overlapping the lower tape section so that all overlaps are shingle style.
 - 5. Align and position tape on top of the penetration as close to the penetration as possible and press firmly into place.
 - 6. Apply firm pressure using a J-roller to ensure that a continuous bond is achieved between the flashing tape and the panel surface and to eliminate wrinkles and air bubbles.
 - C. Apply Georgia-Pacific Flashing Tape at window/door rough openings. Apply flashing according to manufacturer's installation guide.
 - 1. Ensure the surface is free from moisture, frost, dust, dirt, and other bond inhibiting materials.

2. Measure the length of the jamb and add 2", cut two pieces of flashing tape to length and position over the jamb so that it extends past the header 2" and a minimum 2" extends onto the face of the panel surface.
 3. Align and position the tape over the sill. Remove release paper and press firmly into place. The tape should fold down approximately 2" onto the panel surface and a minimum 6" up the jambs.
 4. Apply flashing tape onto the jambs shingle lapping over the sill flashing tape a minimum 2".
 5. Apply head flashing tape to achieve minimum 2" overlap onto the panel surface overlapping the jamb flashing tape a minimum 2".
 6. Roll over all of the flashing tapes with a J-roller applying firm pressure to ensure that a continuous bond is achieved between the tape and the panel surface and to eliminate wrinkles and air bubbles.
 7. Optional for flanged windows: Install flashing tape over the jamb and head flanges in a shingle type application but do not apply flashing tape over the sill flange. Consult window manufacturer for installation requirements and guidelines.
- D. Apply Georgia-Pacific Flashing Tape at material transitions. Apply flashing according to manufacturer's installation guide.
1. Ensure the surface is free from moisture, frost, dust, dirt, and other bond inhibiting materials.
 2. If necessary, fill transition gap between the two different substrates with a backer rod if gap is over 1/8" wide to support the tape at the transition joint.
 3. Align and position flashing tape and press firmly into place. Ensure minimum 2" of flashing is on each substrate material surface.
 4. Ensure minimum 2" overlap at all end laps of flashing. For vertical transitions overlap tapes in a shingle type application
 5. Apply firm pressure using a J-roller to ensure that a continuous bond is achieved between the tape and the surface and to eliminate wrinkles and air bubbles.
- 3.4 FIELD QUALITY CONTROL
- A. Allow appropriate time for required inspections to be completed before installing a cladding over the ForceField® Weather Barrier System.
 - B. Where applicable, allow for owner's inspection and air barrier testing and reporting.
- 3.5 PROTECTION
- A. Protect WRB/AB assembly from damage during installation and during the construction period

END OF SECTION