SECTION 07 27 00

OSB WEATHER-RESISTANT BARRIER (WRB) AND AIR BARRIER (AB) SYSTEM

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\*\* NOTE TO SPECIFIER \*\* Georgia-Pacific; air barriers.
This section is based on the products of Georgia-Pacific, which is located at:
133 Peachtree Street N.E.
Atlanta, GA 30303
Toll Free Tel: 800-284-5347
Tel: 404-652-4000
Email: [request info ()](http://admin.arcat.com/users.pl?action=UserEmail&company=Georgia-Pacific&coid=51596&rep=&fax=&message=RE:%20Spec%20Question%20(07250gpw):%20%20&mf=)
Web: [https://www.buildgp.com](http://https://www.buildgp.com)
 [ [Click Here](http://www.arcat.com/arcatcos/cos51/arc51596.html) ] for additional information.
The ForceField air and water barrier system from Georgia-Pacific consists of structural engineered wood sheathing panels laminated with a proprietary air and water barrier. Once the panels are installed on a structure and the panel seams are taped with ForceField® seam tape, it creates a code-compliant, integrated system for residential or light commercial construction that eliminates the need for house wrap.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* 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 / weather-resistant barrier products from the specifications, and delete exterior wall sheathing from division 6.

* + 1. Work of this section includes OSB panels with integral weather-resistant barrier (WRB) and air barrier (AB) features, and all accessory materials required for sealing sheathing joints, penetrations, rough openings, and material transitions, for use behind exterior wall claddings.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 05 40 00 - Cold-Formed Metal Framing.
		2. Section 06 10 00 - Rough Carpentry.
		3. Section 07 65 00 - Flexible Flashing.
		4. Section 07 91 23 - Backer Rods.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
			1. ASTM D2247-Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
			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 E72-Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
			5. ASTM E84-Standard Test Method for Surface Burning Characteristics of Building Materials
			6. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials
			7. ASTM E331-Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
			8. ASTM E1233-Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Cyclic Air Pressure Differential
			9. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
		2. American Architectural Manufacturers Association (AAMA):
			1. AAMA 711 Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products.
		3. 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.
		4. US Department of Commerce (DOC):
			1. DOC PS 2 - Performance Standard for Wood-Based Structural Panels.
		5. International Code Council (ICC):
			1. ICC IBC - International Building Code
			2. ICC IRC - International Residential Code for One- and Two-Family Dwellings.
		6. ICC Evaluation Service, Inc. (ICC-ES):
			1. ICC-ES AC310 - Acceptance Criteria for Water-Resistive Membranes Factory-bonded to Wood-based Structural Sheathing, Used as Water-Resistive Barriers.
		7. Sustainable Forestry Initiative (SFI):
			1. SFI 2010 - 2014 Standard.
	1. DEFINITIONS
		1. Air Barrier(AB): Air tight barrier made of material that is relatively air impermeable but moisture vapor permeable, with sealed joints and penetrations, and with terminations sealed to adjacent surfaces
		2. Weather-Resistant 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.
		3. Rough Openings: Openings in the wall to accommodate windows and doors.
		4. Material Transitions: Areas where the OSB WRB/AB sheathing connects to slabs, parapets, foundation walls, roofing systems, and at the interface of dissimilar materials.
	2. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. 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.
			1. APA Product Report PR-N136: For WRB/AB system from APA The Engineered Wood Association.
			2. Florida Product Approval APA Product Report PR-N136F.
		3. Shop Drawings: Submit shop drawings indicating locations and extent of WRB/AB system, including 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.
		4. Test Reports: Submit test reports indicating compliance with specific performance characteristics and requirements.
		5. Sample Warranty: Submit a sample warranty identifying the terms and conditions of the warranty as herein specified.
	3. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project. Delete if not required.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
		2. Ensure ForceField OSB sheathing surface is free from moisture, dirt, and other debris before the application of tape.
		3. Do not install tape in temperatures less than 20 degrees F or if panel surface has frost or ice.
	4. SEQUENCING
		1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
	5. WARRANTY
		1. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.

\*\* NOTE TO SPECIFIER \*\* Delete warranty not required.

* + 1. Residential Projects: Provide manufacturer's standard warranty that offers a lifetime limited warranty to the original home owner of a structure using ForceField OSB wall panels.
		2. Commercial Projects: Provide manufacturer's standard two-year transferable limited warranty to the owner of a structure using ForceField OSB wall panels.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Georgia-Pacific, which is located at: 133 Peachtree Street N.E.; Atlanta, GA 30303; Toll Free Tel: 800-284-5347; Tel: 404-652-4000; Email: [request info ()](http://admin.arcat.com/users.pl?action=UserEmail&company=Georgia-Pacific&coid=51596&rep=&fax=&message=RE:%20Spec%20Question%20(07250gpw):%20%20&mf=); Web: [https://www.buildgp.com](http://https://www.buildgp.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. WEATHER BARRIER ASSEMBLlES
		1. Acceptable Product: ForceField Weather-Resistive Barrier OSB as manufactured by Georgia-Pacific Wood Products LLC.
		2. Single Source Limitations: Provide wall sheathing/weather barrier by a single manufacturer.
			1. Sheathing: ForceField Weather-Resistive Barrier OSB.
			2. Tapes and flashing materials:
				1. GP ForceField Tape, minimum 3 inches (76 mm) wide and 0.009 inch (0.23 mm) thick.
				2. Georgia-Pacific Flashing Tape, minimum 4 inches (102 mm) wide and 0.012 inch (0.30 mm) thick.
			3. Fasteners, backer rods, and accessory materials: As approved by Georgia-Pacific Wood Products LLC
		3. 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-Resistive Barrier OSB
			2. Self-adhered tape: GP ForceField Tape to seal sheathing joints, inside and outside corners, and penetrations.
			3. Self-adhered flashing tape: Georgia-Pacific Flashing Tape to seal rough openings and material transitions.
			4. Fasteners and backer-rods as required by system manufacturer's instructions.
	2. WEATHER-RESISTANT BARRIER (WRB) AND AIR BARRIER (AB) OSB SHEATHING
		1. Description: OSB panel with integral weather-resistant barrier(WRB) and air barrier (AB) complying with applicable requirements of ICC-ES AC 310, ASTM D5651, ASTM E2357
		2. Oriented Strand Board: DOC PS 2, made with binder containing no added urea formaldehyde.
		3. Oriented Strand Board Wall Sheathing: APA Rated Exposure 1 sheathing
		4. OSB Span Rating, Panel Grade and Performance Category: Not less than 24/16 span rating; APA Rated Sheathing; 7/16 Performance Category.
		5. Edge Profile: Square edge.
		6. Certified Wood: Provide sheathing produced from wood obtained from forests certified by an accredited certification body.
		7. Air-Barrier Performance Requirement: Air Leakage: 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.
		8. Water-Vapor Permeance, Panel: Minimum 1.3 perms (689 ng/Pa x s x sq. m), ASTM E96/E96M.
		9. Weather Exposure: Manufacturer warranty applies for maximum allowable exposure period of 90 days.
	3. TAPE/FLASHING FOR JOINTS, INSIDE AND OUTSIDE CORNERS, ROUGH OPENINGS, AND MATERIAL TRANSITIONS
		1. Tape/Flashing: For sealing panel joints, inside and outside corners, penetrations using self-adhering tape:
			1. Tape: 3 inches (76 mm) sheet type self-adhering
			2. Properties:
				1. Material: acrylic.
				2. Acceptable substrate: ForceField Weather-Resistive Barrier OSB.
				3. Adhesion to substrate: No delamination from face of sheathing.
				4. Tape thickness: 0.009 inch (0.23 mm).
				5. 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
				6. Water-Vapor Permeance: Less than 1 perms (ng/Pa x s x sq. m), ASTM E96/E96M.
				7. Ultraviolet and weathering resistance: Approved for a minimum of 90 days weather exposure.
				8. Complies with applicable requirements of Pressure Sensitive Tape Council (PSTC).
		2. Flashing for Sealing Openings: For sealing window/door rough openings and material transitions using self-adhering flashing:
			1. Flashing material: 4 inches (102 mm) sheet-type, self-adhering
			2. Properties:
				1. Material: butyl based.
				2. Acceptable substrate: ForceField Weather-Resistive Barrier OSB.
				3. Adhesion to substrate: No delamination from face of sheathing.
				4. Tape thickness: 0.012 inch (0.30 mm).
				5. 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
				6. Water-Vapor Permeance: Less than 1 perms (ng/Pa x s x sq. m), ASTM E96/E96M.
				7. Ultraviolet and weathering resistance: Approved for a minimum of 90 days weather exposure.
				8. Complies with applicable requirements of AAMA 711.
	4. FASTENERS
		1. Fasteners, General: Corrosion-resistant, size and type complying with manufacturer's written instructions for Project conditions and requirements of authorities having jurisdiction.
		2. Nails, Brads, and Staples: ICC AC116 and ICC AC201, corrosion-resistant.
		3. Power-Driven Fasteners: ICC-ES-1539 or NER-272, corrosion-resistant.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Examine framing spacing and alignment to determine if work is ready to receive sheathing. Proceed with sheathing work once conditions meet requirements.
		2. 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.
		3. Wipe down the sheathing surface to receive sealing materials with a clean cloth.
		4. Ensure manufacturer's recommended field conditions are met.
	3. INSTALLATION OF WEATHER RESISTANT BARRIER (WRB) AND AIR BARRIER (AB) SHEATHING
		1. Install sheathing panels in accordance with manufacturer's written instructions, requirements of applicable Product Report, and requirements of authorities having jurisdiction.
		2. 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.
		3. Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports.
		4. 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 (3.2 mm) gap between board ends and edges, to allow for expansion and contraction.
		5. Attach sheathing panels securely to framing 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."
	4. INSTALLATION OF SELF-ADHERED TAPE/FLASHING FOR SEALING SHEATHING JOINTS, CORNERS, PENETRATIONS, ROUGH OPENINGS, AND MATERIAL TRANSITIONS
		1. Apply 3 inches (76 mm) GP ForceField Tape at all panel seams, corners, and facer defects or cracks to form continuous water and air resistant surface. Apply tape according to manufacturer's written instructions.
			1. Align and position self-adhering ForceField tape over the joint. Press the tape firmly onto the joint. Ensure there is at least 1 inch (25.4 mm) tape coverage on either side of the joint.
			2. On horizontal joints or vertical splices, ensure the tape overlaps at least 2 inches (54 mm) at all ends of the tape. At T-joints, tape should overlap by at least 1 inch (25.4 mm).
			3. Ensure the above taped section is overlapping the lower tape section so that all overlaps are shingle style.
			4. Press taped joints and overlaps with your hand to ensure a tight seal.
		2. Apply 3 inches (76 mm) GP ForceField Tape to seal exterior wall penetrations. Apply tape according to manufacturer's written instructions.
			1. Fill gap around penetration 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. Press taped joints and overlaps with your hand to ensure a tight seal to the panel.
		3. Apply 4 inches (102 mm) Georgia-Pacific Flashing Tape at window/door rough openings. Apply flashing according to manufacturer's written instructions.
			1. Cut two pieces from the 4 inches (102 mm) tape and install one into each sill-jamb corner. Cut the two pieces long enough to so the tape can be folded onto the panel face approximately 2 inches (54 mm). The tape will not be smooth because of the fit into the corners and the fold onto the panel.
			2. Align and position the tape over the sill. Remove release paper and press firmly into place.
			3. Install tape over sill. The tape should fold down approximately 2 inches (54 mm) onto the sheathing. Slice tape to extend tape a minimum 3 inches (76 mm) onto the panel surface (and over tape applied in step 1) and minimum 3 inches (76 mm) up the jambs.

\*\* NOTE TO SPECIFIER \*\* Optional for flanged windows. Delete if not required.

* + - 1. Flanged Windows: For flashing the two jambs of the opening, repeat step 3 so both jambs are flashed and tape extends minimum 2 inches (54 mm) onto the panel. Slice tape so that the tape on the panel extends 1 inch (25.4 mm) above the top of the opening. Fold the 1 inch (25.4 mm) sliced piece to the bottom of the header.

\*\* NOTE TO SPECIFIER \*\* Optional for flanged windows. Delete if not required.

* + - 1. Flanged Windows: Repeat step 3 over the header portion of the opening. Slice tape so the header frame is flashed and extends minimum 2 inches (54 mm) onto the panel above the opening and 3 inches (76 mm) down the jambs or sides of the opening.
			2. Ensure the above taped section is overlapping the lower tape section so that all overlaps are shingle style.
			3. Press taped joints and overlaps with your hand ensure a tight seal to the panel and opening
		1. Apply 4 inches (102 mm) Georgia-Pacific Flashing Tape at material transitions. Apply flashing according to manufacturer's written instructions.
			1. If necessary, fill transition gap between the two different substrates with a backer rod if gap is over 1/8" wide to support the flashing at the transition joint.
			2. Align and position flashing, and press firmly into place. Ensure minimum 2 inches (54 mm) of flashing is on each substrate material surface.
			3. Ensure minimum 2 inches (54 mm) overlap at all end laps of flashing
			4. Ensure the above flashed section is overlapping the lower tape section so that all overlaps are shingle style.
			5. Press taped joints and overlaps with your hand or a J-roller to ensure a tight seal
	1. FIELD QUALITY CONTROL
		1. Do not cover installed ForceField Weather-Resistive Barrier OSB system until required inspections have been completed and installation has been accepted.
		2. Where applicable, allow for owner's inspection and air barrier testing and reporting.
	2. PROTECTION
		1. Protect WRB/AB assembly from damage during installation and during the construction period.

END OF SECTION