Specifier: The purpose of this guide specification is to assist the specifier in correctly specifying sheathing products with an integral air and moisture barrier and their installation. The specifier needs to edit the guide specifications to fit the needs of specific projects. Contact Huber Engineered Woods to assist in appropriate product selections. Throughout the guide specification, there are Specifier Notes to assist in the editing of the file. Green text relates to sustainability and red text in brackets indicates a selection needs to be made.

****

SECTION 06 16 13.53

INSULATING AIR & MOISTURE RESISTANT SHEATHING

(Huber Engineered Woods - ZIP System® R-sheathing)

1. GENERAL
	* + 1. SECTION INCLUDES

Specifier: when using ZIP System® R-sheathing, coordinate/delete air barrier/weather barrier specifications from Division 07 and wall sheathing from Division 06.

* + - * 1. Insulating wall sheathing with integral weather-resistive barrier
			1. ACTION SUBMITTALS
				1. Product Data: Product Data: For each type of sheathing product. Include manufacturer’s technical data indicating performance properties
				2. Shop Drawings: Indicating location and extent of sheathing, accessories, and assemblies. Include details of joints, corners, and penetrations.
			2. INFORMATIONAL SUBMITTALS
				1. Evaluation Reports: From ICC-ES, for wood sheathing and seam tape and flashing.
				2. Product Certifications: From manufacturer, indicating that sheathing products comply with indicated ICC-ES Acceptance Criteria.

Specifier: Retain Sustainable Design Submittal Paragraph below and edit to correspond to Project requirements. Modify based on rating system being pursued

* Laboratory Test Reports for composite wood applies to LEED v4
* Product Data applies to LEED v4, IgCC, ASHRAE 189.1, and Green Globes
	+ - * 1. Sustainable Design Submittals:

Product Data: For liquid applied flashing, indicating VOC content

Laboratory Test Reports: Indicating compliance with requirement for low emitting materials for the following:

Composite wood products

Liquid flashing

Certified Wood Certificates: Certificates indicating that manufacturer is currently certified by an SFI- or FSC- accredited certification body, and chain-of-custody certificates.

Specifier: Retain "Florida Building Code Certificate" for Florida projects or where FBC qualification is used as a standard for high wind design areas.

* + - * 1. Documentation indicating that products comply with requirements of [Florida Building Code] [Florida Residential Code]
				2. [Code Compliance recognition by Los Angeles Department of Building and Safety.]
				3. [Code Compliance with the California Building Code] [Code Compliance with the California Residential Code]
				4. Warranty: Sample unexecuted copy of manufacturer warranty.
			1. CLOSEOUT SUBMITTALS
				1. Warranty: Executed copy of manufacturer special warranties.
			2. QUALITY ASSURANCE

Specifier: Retain when pursuing a sustainable rating system requiring chain of custody

* + - * 1. Manufacturer Qualifications: Capable of demonstrating that all wood procurement operations are conducted in accordance with procedures and policies of the Sustainable Forestry Initiative (SFI) Program, and the *SFI 2022 Standards and Rules*.
				2. [Wall sheathing meeting requirements for water-resistive barrier in accordance with *ICC-ES AC310 – Water-resistive Membranes Factory-bonded to Wood-based Structural Sheathing, Used as Water-resistive Barrier*s.]

Specifier: Retain "Florida State Building Code Certificate" for Florida projects or where FSBC qualification is used as a standard. The Florida Product Approval numbers indicated are specific to ZIP System® R-sheathing.

* + - * 1. [Florida Building Code Compliance: Provide sheathing complying with *Florida Building Code* product and installation requirements for locations outside of high velocity wind zone.]

[Florida Product Approval No. 17146.1 – ZIP System® Insulated Sheathing (roof sheathing and roof underlayment)]

[Florida Product Approval No. 17147.1 – ZIP System® Insulated Sheathing (wall sheathing)]

[Florida Product Approval No. 17147.2 – ZIP System® Insulated Sheathing (wall sheathing and water resistive barrier)]

* + - 1. DELIVERY, STORAGE, AND HANDLING
				1. Comply with manufacturer's written instructions for protection of sheathing products from weather prior to installation.
			2. WARRANTY

Specifier: Verify warranty provisions for specified products. Huber Engineered Woods LLC offers warranty periods of up to 30 years for ZIP System® sheathing.

* + - * 1. Manufacturer's Warranty: Manufacturer's standard form in which sheathing manufacturer agrees to repair or replace sheathing products that demonstrate deterioration or failure under normal use due to manufacturing defects within warranty period specified, when installed according to manufacturer's instructions.

Warranty Period for Sheathing Products: [30] years from date of Substantial Completion.

1. PRODUCTS
	* + 1. MANUFACTURERS
				1. Huber Engineered Woods LLC, Charlotte NC; Phone: (800) 933-9220; Website: [www.huberwood.com](http://www.huberwood.com)
			2. PERFORMANCE REQUIREMENTS
				1. Air-Barrier Assembly 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 – Standard Test Method for Determining Air Leakage of Air Barrier Assemblies*
				2. Water-Vapor Permeance, Facer: Minimum 12 perms (689 ng/Pa x s x sq. m), when tested in accordance with *ASTM E96/E96M – Standard Test Methods for Water Vapor Transmission of Materials.*
			3. MATERIALS - GENERAL

Specifier: Retain and edit "Certified Wood" Paragraph below as appropriate to Project sustainable design requirements.

* + - * 1. Certified Wood: Provide sheathing produced from wood obtained from forests certified by an accredited certification body.
				2. Oriented Strand Board: *US Department of Commerce DOC PS 2 - Performance Standard for Wood-Based Structural Panels*

Panels made with binder containing no added urea formaldehyde.

* + - * 1. Rigid Foam Plastic Insulating Board: Rigid polyisocyanurate foam core complying with *ICC-ES AC12 – Foam Plastic Insulation*, with coated glass fiber facers on both sides:

Insulation Classifications: Type II, Class 2 in accordance with *ASTM C1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*

Nominal Density: 2.0 pcf (32 kg/cu. m).

Compressive Strength: Not less than 20 psi (150 kPa) in accordance with *ASTM D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics*

Vapor Permeance: Less than 1.0 perm in accordance with *ASTM E96/E96M – Standard Test Methods for Water Vapor Transmission of Materials*

Edge Configuration: Square finished.

* + - * 1. Panel Exposure: No damage from weather exposure for up to 180 days.
			1. COMPOSITE INSULATING WALL SHEATHING

Specifier: Huber's ZIP System® R-sheathing may be used as wall sheathing on buildings of Type V construction and construction permitted under the IRC with allowable code-compliant exterior wall coverings. When ZIP System® R-sheathing is required, moisture barriers such as building paper or housewrap are not required. In wall covering systems requiring multiple layers of water-resistive barriers, ZIP System® R-sheathing is intended to replace only the first layer.

* + - * 1. Composite Insulating Wall Sheathing: Oriented-strand-board Exposure 1 sheathing 7/16 inch (11.1 mm) thick, with factory-laminated water-resistive barrier exterior facer, and with rigid foam plastic insulating board laminated to interior face.

Basis-of-Design: Huber Engineered Woods LLC; ZIP System® R-sheathing.

Characteristics:

Span Rating and Performance Category of Sheathing Layer: Not less than 24/16; 7/16 Performance Category.

Specifier: Select option in "Thickness" paragraph below and corresponding option in "Thermal Resistivity" paragraph that follow. Thickness is total thickness of ZIP System® sheathing layer and foam insulation layer.

Thickness: [1 inch (25 mm)] [1-1/2 inch (38 mm)] [2 inch (50 mm)] [2-1/2 inch (63 mm)].

Thermal Resistivity (R Value): [3] [6] [9] [12] deg F x h x sq. ft./Btu x in. at 75 deg F ([25] [46] K x m/W at 24 deg C).

Edge Profile: Square edge.

Weather Barrier Facer: Medium-density, phenolic-impregnated polymer-modified sheet material meeting requirements for weather-resistive barrier in accordance with *ICC-ES AC38 – Water-Resistive Barriers*, with fastener spacing symbols on exterior facer for 16-inch (406 mm) and 24-inch (610 mm) on center spacing, with the following characteristics

Water Resistance of Coatings: Pass 14 day exposure test in accordance with *ASTM D2247 – Standard Practice for Testing Water Resistance of Coatings in 100 percent Relative Humidity.*

Water-Vapor Permeance, Facer: Minimum 12 perms (689 ng/Pa x s x sq. m), when tested in accordance with *ASTM E96/E96M – Standard Test Methods for Water Vapor Transmission of Materials.*

* + - 1. FASTENERS

Specifier: Review local building code requirements for fastener size and spacing. Corrosion Resistant fasteners are recommended for use in coastal environments.

* + - * 1. Fasteners, General: Size and type complying with manufacturer's written instructions for Project conditions and requirements of authorities having jurisdiction.

[Corrosion Resistant]

* + - * 1. Nails, Brads, and Staples: Conform with *ICC-ES AC116 - Acceptance Criteria for Nails and Spikes and ICC-ES AC201 Acceptance Criteria for Staples*
				2. Power-Driven Fasteners: *ICC-ES ESR-1539 - Power Driven Staples and Nails for Use in Engineered and Non-Engineered Connections* or *ICC-ES NER-272 - Power Driven Staples and Nails for Use in All Types of Building Construction*
			1. ACCESSORY PRODUCTS

Specifier: Huber's ZIP System™ tape is used to tape sheathing panel joints and may also be used as flexible flashing around window frames, door frames, wall penetrations, and transitions to other materials.

* + - * 1. Self-Adhering Seam and Flashing Tape: Pressure-sensitive, self-adhering, cold-applied, seam tape consisting of polyolefin film with acrylic adhesive, meeting *ICC-ES AC148 – Acceptance Criteria for Flexible Flashing Materials*, and tested as part of an assembly meeting performance requirements.

Basis-of-Design: Huber Engineered Woods; ZIP System™ flashing tape.

Characteristics

Adhesive type: Acrylic

Thickness: 0.012 inch (0.3 mm).

Tensile Strength: 938 psi

Elongation: 400-800 percent

Complies with *AAMA 711 – Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration* and *ICC-ES AC148 – Acceptance Criteria for Flexible Flashing Materials*,

Specifier: Huber's ZIP System™ liquid flash works in conjunction with or in place of ZIP System™ tape to permanently flash and seal building penetrations and panel seams.

* + - * 1. Liquid-Applied Flashing Membrane: Gun-grade, cold-applied, silyl-terminated polymer (STP) liquid flashing membrane compatible with sheathing/weather barrier, self-adhering seam and flashing tape, and tested as part of an assembly meeting performance requirements.

Basis-of-Design: Huber Engineered Woods; ZIP System™ liquid flash.

Characteristics

Composition: Single component silyl-terminated polymer (STP)

Application Temperature Range: Between 35 Deg F (2 Deg C) and 110 Deg F (43 Deg C) surface and ambient.

VOC Content: 30 g/L

Hardness, Shore A: 40 to 45 in accordance with *ASTM C661 – Standard Test Method for Indentation Hardness of Elastomeric Type Sealants by Means of a Durometer*

Tensile Strength: 75 psi in accordance with *ASTM D412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers*

Elongation at Break: 225 percent in accordance with *ASTM D412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers*

Specifier: Huber's ZIP System™ stretch tape may be used as flexible flashing around windows and window frames, door frames, and wall penetrations. ZIP System™ stretch tape is an innovative construction tape that stretches and forms around irregular and difficult to seal areas. It is resistant to UV radiation and has a 30-year limited system warranty when used with ZIP System® sheathing.

* + - * 1. Self-Adhering Flexible Flashing Tape: Pressure-sensitive, self-adhering, cold-applied, seam tape consisting of polyolefin film with acrylic adhesive; tested as part of an assembly meeting performance requirements.

Basis-of-Design: Huber Engineered Woods; ZIP System™ stretch tape.

Characteristics

Adhesive type: Acrylic

Thickness: 0.042 inch (1.067 mm).

Tensile Strength: 225 psi

Elongation: 800-1200 percent

Complies with *AAMA 711 – Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration* and *ICC-ES AC148 – Acceptance Criteria for Flexible Flashing Materials*

1. EXECUTION
	* + 1. EXAMINATION
				1. Examine framing spacing and alignment to determine if work is ready to receive sheathing. Proceed with sheathing work once conditions meet requirements.
			2. SHEATHING INSTALLATION
				1. General: Install sheathing panels in accordance with manufacturer's written instructions, requirements of applicable Evaluation Reports, and requirements of authorities having jurisdiction.

Do not bridge expansion joints; allow joint spacing equal to spacing of structural supports.

Install panels with laminated facer to exterior. Stagger end joints of adjacent panel runs. Support all panel edges.

Panel Edge Spacing: In accordance with sheathing panel manufacturer recommendations.

Attach sheathing panels securely to substrate with manufacturer-approved fasteners in compliance with the following:

*ICC-ES ESR-1539 - Power Driven Staples and Nails for Use in Engineered and Non-Engineered Connections* or *ICC-ES NER-272 - Power Driven Staples and Nails for Use in All Types of Building Construction*

Specifier: To meet the shear resistance proprietary nailing requirements are necessary. The indicated ICC-ESR and IAPMO ER Report numbers indicated are specific to Huber Engineered Woods – ZIP System® R-sheathing

Nailing requirements in accordance with [ICC-ES ESR-3373 ZIP System® R-sheathing] [IAPMO ER-482 – ZIP System® R-sheathing] [Evaluation Report of comparable product]

Specifier: Retain one of two subparagraphs based on applicable building code for project.

*[ICC IBC - International Building Code Table 2304.9.1 Fastening Schedule.]*

*[ICC IRC - International Residential Code for One- and Two-Family Dwellings: IRC Table R602.3(1), Fastener Schedule for Structural Members, and  R602.3(2), Alternate Attachments.]*

* + - 1. SEAM AND PENETRATION TREATMENT

Specifier: Huber proprietary names for the accessory products are included in brackets. If project allows proprietary naming, remove brackets and change color of text.

* + - * 1. Assembly continuity: 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.
				2. Tape panel seams, penetrations, and facer defects or cracks with self-adhering seam tape [ZIP System™ flashing tape] to form continuous weathertight surface. Apply tape according to manufacturer's written instructions and requirements of ICC-ES applicable to tape application.
				3. Flash penetrations, gaps, and cracks with liquid-applied flashing membrane [ZIP System™ liquid flash] to form continuous weathertight surface. Apply according to manufacturer's written instructions. Follow manufacturer’s recommendation for integration with self-adhering seam tape [ZIP System™ flashing tape].
				4. Tape window and doors openings and radius penetrations with self-adhering flexible flashing tape [ZIP System™ stretch tape] to form continuous weathertight surface. Apply tape according to manufacturer’s written instructions and requirements of ICC-AC applicable to tape application.

END OF SECTION

DISCLAIMER:

This Specification have been written as an aid to the professionally qualified Specifier and Design Professional. The use of this Guide requires the sole professional judgment and expertise of the qualified Specifier and Design Professional to adapt the information to the specific needs for the Building Owner and the Project, to coordinate with their Construction Document Process, and to meet all the applicable building codes, regulations and laws. HUBER ENGINEERED WOODS EXPRESSLY DISCLAIMS ANY WARRANTY, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE OF THIS PRODUCT FOR THE PROJECT.