SECTION 06161

INSULATING SHEATHING

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\*\* NOTE TO SPECIFIER \*\* Huber Engineered Woods; Insulating Sheathing.
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This section is based on the products of Huber Engineered Woods, which is located at:
 One Resource Sq., 10925 David Taylor Dr., Suite 300.
 Charlotte, NC 28262.
 Tel: 1-(800)-933-9920.
 Email: NEED CONTACT EMAIL.
 Web: http://www.huberwood.com.
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At Huber Engineered Woods, we seek to provide solutions which suit our customers' individual needs. We manufacture a wide range of specialty products for residential and commercial construction and industrial applications.
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We have assembled a top team of industry professionals with experience in research and development, technical services, manufacturing, marketing and sales. With our advanced adhesives and wood product technologies, combined with state-of-the-art manufacturing capabilities, we are able to produce unique products with solution-based performance characteristics. All of these factors have resulted in a solid reputation as a responsible and innovative supplier of quality products to industrial users and the building industry.
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1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Insulating Wall sheathing.
	1. RELATED SECTIONS
		1. Section 06110 - Wood Framing.
	2. REFERENCES

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

* + 1. American Society of Mechanical Engineers (ASME):
			1. ASME B18.6.1 - Wood Screws (Inch Series).
		2. ASTM International (ASTM):
			1. ASTM A153/A153M - Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
			2. ASTM C1289 - Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
			3. ASTM D779 - Test Method for Water Resistance of Paper, Paperboard, and Other Sheet Materials by the Dry Indicator Method.
			4. ASTM D1621 - Test Method for Compressive Properties Of Rigid Cellular Plastics.
			5. ASTM D2247 - Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
			6. ASTM E96/E 96M - Test Methods for Water Vapor Transmission of Materials.
			7. ASTM E331 - Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
			8. ASTM E2357 - Test Method for Determining Air Leakage of Air Barrier Assemblies.
			9. ASTM F1667 - Specification for Driven Fasteners: Nails, Spikes, and Staples.
			10. ASTM G154 - Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials.
		3. US Department of Commerce (DOC):
			1. DoC PS 2 - Performance Standard for Wood-Based Structural Panels.
		4. International Code Council (ICC):
			1. ICC IBC - International Building Code.
			2. ICC IRC - International Residential Code for One- and Two-Family Dwellings.
		5. ICC Evaluation Service, Inc. (ICC-ES):
			1. ICC-ES AC12 - Acceptance Criteria for Foam Plastic Insulation.
			2. ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers.
			3. ICC-ES AC116 - Acceptance Criteria for Nails and Spikes.
			4. ICC-ES AC148 - Acceptance Criteria for Flexible Flashing Materials.
			5. ICC-ES AC201 - Acceptance Criteria for Staples.
			6. ICC-ES AC269 - Acceptance Criteria for Racking Shear Evaluation of Proprietary Sheathing Materials attached to Light-Frame Wall Construction or Code-Complying Sheathing Attached to Light-Framed Walls with Proprietary Fasteners.
			7. ICC-ES AC310 - Acceptance Criteria for Water-Resistive Membranes Factory-bonded to Wood-based Structural Sheathing, Used as Water-Resistive Barriers.
			8. ICC-ES ESR-1539 - Power Driven Staples and Nails for Use in Engineered and Non-Engineered Connections.
			9. ICC-ES NER-272 - Power Driven Staples and Nails for Use in All Types of Building Construction.
		6. Sustainable Forestry Initiative (SFI):
			1. SFI 2010 - 2014 Standard.
		7. U.S. Green Building Council (USGBC):
			1. LEED - LEED Green Building Rating System.
	1. SUBMITTALS

\*\* NOTE TO SPECIFIER \*\* Retain only submittal documents appropriate to the project and delete all others.

* + 1. Submit under provisions of Section 01300.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
		3. Evaluation Reports: From ICC-ES, for wood sheathing products.
		4. Product Certifications: From manufacturer, indicating that sheathing products comply with specified ICC-ES Acceptance Criteria.
		5. LEED Submittals:
			1. LEED-NC Credit IEQ 4.4 Low-Emitting Materials, Composite Wood and Agrifiber: Product data for composite wood products, indicating that products contain no urea formaldehyde.
			2. LEED-NC Credit MR 5.1 or 5.2 Regional Materials: Certificates verifying that materials were harvested, processed, and manufactured within 500 miles of the Project site.
			3. LEED-H Credit MR 1.1 Material Efficient Framing: Certificates and framing order calculation indicating cost savings associated with reduced framing requirements resulting from use of structural sheathing. Coordinate with requirements for Credits 1.2 and 1.3 specified in Division 06 Section "Rough Carpentry."
			4. LEED-H Credit MR 2.2c Environmentally Preferable Products - Local Production: Certificates verifying that sheathing products were harvested, processed, and manufactured within 500 miles of the Project site.
		6. Certified Wood Certificates: Certificates indicating that manufacturer is currently certified by an SFI- or FSC- accredited certification body, and chain-of-custody certificates indicating that sheathing products comply with forest certification requirements.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
		2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.
		3. Warranty: Sample unexecuted copy of manufacturer special warranties.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten (10) years experience.
		2. Installer Qualifications: All products listed in this section are to be installed by a single installer with a minimum of five (5) years demonstrated experience in installing products of the same type and scope as specified.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
			1. Finish areas designated by Architect.
			2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
			3. Refinish mock-up area as required to produce acceptable work.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Comply with manufacturer's written instructions for protection of sheathing products from weather prior to installation.
		2. Store and dispose of hazardous materials, and materials contaminated by hazardous materials, in accordance with requirements of local authorities having jurisdiction.
	2. 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 absolute limits.
	3. WARRANTY

\*\* NOTE TO SPECIFIER \*\* Verify warranty provisions for specified products. Huber Engineered Woods LLC offers warranty periods of up to 30 years for wall sheathing.

* + 1. Special 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.
			1. Warranty Period for Sheathing Products: 30 years following date of Substantial Completion.
			2. Warranty Conditions: Special warranties exclude deterioration or failure due to structural movement resulting in stresses on sheathing products exceeding manufacturer's written specifications, or due to air or moisture infiltration resulting from cladding failure or mechanical damage.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Huber Engineered Woods, which is located at: One Resource Sq. 10925 David Taylor Dr. Suite 300; Charlotte, NC 28262; Toll Free Tel: 800-933-9220; Tel: 704-654-9546; Email: [request info (brent.flotkoetter@huber.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Huber+Engineered+Woods&coid=42106&rep=&fax=&message=RE:%20Spec%20Question%20(06161hub):%20%20&mf=); Web: [www.huberwood.com](http://www.huberwood.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 01600.
	1. 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 E2375.
		2. Water-Vapor Permeance, Facer: Minimum 12 perms (689 ng/Pa x s x sq. m), ASTM E96/E96M.
		3. Weather Exposure: Manufacturer warranty applies for maximum allowable exposure period of 180 days.
	2. MATERIALS

\*\* NOTE TO 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: DOC PS 2, made with binder containing no added urea formaldehyde.
		3. Rigid Foam Plastic Insulating Board: Rigid polyisocyanurate foam core complying with ASTM C1289 Type II, Class 2, and ICC-ES AC12, with coated glass fiber facers on both sides, with the following characteristics:
			1. Nominal Density: 2.0 pcf (32 kg/cu. m).
			2. Compressive Strength, ASTM D1621: Not less than 20 psi (150 kPa).
			3. Vapor Permeance, ASTM E96/E96M: Less than 1.0 perm.
			4. Edge Configuration: Square finished.
	1. COMPOSITE INSULATING WALL SHEATHING

\*\* NOTE TO 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: ZIP System R 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.
			1. Span Rating and Performance Category of Sheathing Layer: Not less than 24/16; 7/16 Performance Category.

\*\* NOTE TO SPECIFIER \*\* Select Sheathing Thickness. Delete one of the next two paragraphs.

* + - 1. Thickness: 1 inch (25 mm)
				1. Thermal Resistivity (R Value): 3.6 deg F x h x sq. ft./Btu x in. at 75 deg F (25 K x m/W at 24 deg C).
			2. Thickness: 1-1/2 inch (38 mm).
				1. Thermal Resistivity (R Value): 6.6 deg F x h x sq. ft./Btu x in. at 75 deg F (46 K x m/W at 24 deg C).
			3. Edge Profile: Square edge.
			4. Exterior Facer: Medium-density, phenolic-impregnated polymer-modified sheet material meeting requirements for ASTM D779 Grade D weather-resistive barrier in accordance with ICC AC38 and AC310, with fastener spacing symbols on exterior facer for 16-inch (406 mm) and 24-inch (610 mm) on center spacing, with the following characteristics
				1. Water Resistance of Coatings, ASTM D2247: Pass 14 day exposure test.
				2. Moisture Vapor Transmission, ASTM E96: Not less than 12 perms.
				3. Water Penetration, ASTM E331: Pass at 2.86 lbf/sq. ft. (137 Pa).
				4. Wind Driven Rain, TAS-100: Pass.
				5. Accelerated Weathering, ASTM G154: Pass.
	1. FASTENERS
		1. Fasteners, General: Size and type complying with manufacturer's written instructions for Project conditions and requirements of authorities having jurisdiction.

\*\* NOTE TO SPECIFIER \*\* Select fastener corrosion resistance. Delete one of the next two paragraphs.

* + - 1. Corrosion Resistance: Hot-dip zinc coating, ASTM A153/A153M
			2. Corrosion Resistance: Type 304 stainless steel.
		1. Nails, Brads, and Staples: ICC AC116 and ICC AC201.
		2. Power-Driven Fasteners: ICC-ES-1539 or NER-272.
		3. Wood Screws: ASME B18.6.1.
	1. SHEATHING JOINT-AND-PENETRATION TREATMENT MATERlAL

\*\* NOTE TO 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. ZIP System Tape: Self-Adhering Seam and Flashing Tape; 0.012 inch (0.3 mm) thick, Pressure-sensitive, self-adhering, cold-applied, seam tape consisting of polyolefin film with acrylic adhesive, meeting ICC AC148.
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. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. SHEATHING INSTALLATION
		1. Install sheathing panels in accordance with manufacturer's written instructions, requirements of applicable Evaluation Reports, and requirements of authorities having jurisdiction.
		2. Air and Moisture Barrier: Coordinate sheathing installation with flashing and joint sealant 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.
		5. 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.

\*\* NOTE TO SPECIFIER \*\* Retain one of two subparagraphs below as applicable to Project.

* + - 1. IBC: Table 2304.9.1 Fastening Schedule.
			2. IRC: Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments."
		1. Apply seam tape at all panel seams, penetrations, and facer defects or cracks to form continuous weathertight surface. Apply tape according to manufacturer's written instructions and requirements of ICC-ES applicable to tape application.
	1. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION