



**Huber Engineered Woods LLC: AdvanTech® Subflooring and Sheathing**

**Advantech Subflooring**

Huber Engineered Woods is rigorous when it comes to product testing, especially when comparing AdvanTech® engineered subflooring to the competition. From daily performance testing at each mill to periodic testing at our research and development lab to annual testing with a third-party IAS accredited facility, AdvanTech subflooring is put through the gauntlet to ensure we maintain the highest quality standards. We collect competing products from all over the country and then we compare their performance to AdvanTech subflooring by bending, breaking, pulling, soaking, drying and destroying all of these products to ensure you're getting the flat out best when you build with AdvanTech engineered subflooring.

**AdvanTech Roof and Wall Sheathing**

AdvanTech sheathing offers key advantages over plywood and commodity oriented strand board panels, while maintaining OSB's sustainable design contributions. Specifying AdvanTech roof and wall sheathing provides:

- Superior Design Strength: AdvanTech roof and wall sheathing can support higher snow and ice design loads than commodity OSB and plywood panels. Strength capacities are outlined in AdvanTech's ESR-1785.

- Structural 1 Rated: AdvanTech roof and wall sheathing is Structural 1 rated for greater resistance to wind and seismic loads

- Superior Design Stiffness: AdvanTech roof and wall sheathing offers superior stiffness over commodity OSB and plywood panels, minimizing wavy rooflines and wall finishes. Stiffness capacities are outlined in AdvanTech's ESR-1785

- Superior Moisture Resistance: AdvanTech roof and wall sheathing is made with the same resin technology as AdvanTech flooring, providing greater water resistance than commodity OSB and plywood panels, minimizing issues with warping, cupping, and delaminating.

**Making it Easy to Achieve Green Certification**

AdvanTech sheathing products are made by Huber Engineered Woods, a company that has been certified by the Sustainable Forestry Initiative (SFI) for responsible environmental behavior and for supporting prompt reforestation and education outreach efforts. AdvanTech sheathing products are made using small, fast-growing trees with essentially no part of the log going to waste, because our wood waste is used to help fuel our manufacturing facilities.

Advantech products often contribute to credit points in green certification programs including:

Earth Craft House

LEED for Homes

LEED for New Construction

ENERGY STAR

NAHB Model Green Home Building Guidelines

National Green Building Standard

Preserving Our Natural Resources

We recommend you consult with your Huber construction technical representative, who can be contacted through:
Huber Engineered Woods LLC, Charlotte NC; Phone: (800) 933-9220; Website: [www.advantechperforms.com](http://www.advantechperforms.com); [www.huberwood.com](http://www.huberwood.com).

Huber products appear in the following CSI MasterFormat specifications sections:

Section 06 16 00 SHEATHING

Section 06 16 13 INSULATING SHEATHING

Section 07 27 23 BOARD PRODUCT AIR BARRIERS

Section 07 25 00 WEATHER BARRIERS

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LEED® is a registered trademark of the U.S. Green Building Council.

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SECTION 06 16 00 - SHEATHING (AdvanTech Wall, Roof, and Floor Sheathing)

GENERAL

* + - 1. SUMMARY
				1. Section Includes

Specifier: Edit list below to correspond to Project.

Wall sheathing.

Roof sheathing.

Subflooring.

* + - 1. REFERENCES

Specifier: We have included this References Article in this short form specification for specifier information. If retaining this Article in your Project specification, edit it to correspond to references that remain in your edited Section text.

* + - * 1. American Society of Mechanical Engineers (ASME): [www.asme.org](http://www.asme.org)

ASME B18.6.1 - Wood Screws (Inch Series)

* + - * 1. APA The Engineered Wood Association (APA): [www.apawood.org/](http://www.apawood.org/)

APA Form No. 30 - Engineered Wood Construction Guide

APA AFG-01 – Adhesives for Field-Gluing Plywood to Wood Framing

* + - * 1. ASTM International (ASTM): [www.astm.org](http://www.astm.org)

ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

ASTM D3498 - Standard Specification for Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems

ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials

* + - * 1. US Department of Commerce (DOC): <http://gsi.nist.gov/global/index.cfm/L1-5/l2-44/A-355>

DoC PS 2 - Performance Standard for Wood-Based Structural Panels

* + - * 1. International Code Council (ICC): [www.iccsafe.org](http://www.iccsafe.org)

ICC IBC - International Building Code

ICC IRC - International Residential Code for One- and Two-Family Dwellings

* + - * 1. ICC Evaluation Service, Inc. (ICC-ES): [www.icc-es.org](http://www.icc-es.org)

ICC-ES AC116 - Acceptance Criteria for Nails and Spikes

ICC-ES AC182 – Acceptance Criteria for Wood Structural Panel Products

ICC-ES AC201 - Acceptance Criteria for Staples

ICC-ES ESR-1539 - Power Driven Staples and Nails for Use in Engineered and Non-Engineered Connections

ICC-ES ESR-1785 – Evaluation Report for AdvanTech Engineered Panels

ICC-ES NER-272 - Power Driven Staples and Nails for Use in All Types of Building Construction

ICC-ES VAR-1012 – Verification of Attributes Environmental Report

* + - * 1. Sustainable Forestry Initiative (SFI): [www.sfiprogram.org/](http://www.sfiprogram.org/)

SFI 2010 - 2014 Standard

* + - * 1. U.S. Green Building Council (USGBC):

LEED - LEED Green Building Rating System

* + - 1. ACTION SUBMITTALS
				1. Product Data: For each type of sheathing product specified.

Specifier: If required, retain "LEED Submittals" Paragraph below and edit to correspond to Project requirements.

* + - * 1. LEED Submittals:

[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.

[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.

[LEED-H ]Credit MR 2.2c Environmentally Preferable Products – Local Production: Certificates verifying that [floor] [, wall] [, and] [roof] sheathing products were harvested, processed, and manufactured within 500 miles of the Project site.

* + - 1. INFORMATIONAL SUBMITTALS
				1. Evaluation Reports: From ICC-ES, for wood sheathing products.
				2. Product Certifications: From manufacturer, indicating that sheathing products comply with specified ICC-ES Acceptance Criteria.

Specifier: Include "Certified Wood Certificates" statement below if required as part of Project sustainable design documentation.

* + - * 1. 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.
				2. Sustainability Attributes Verification: ICC-ES VAR-1012 for basis of design product, or verification of comparable product acceptable to Architect.

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

* + - * 1. **Florida Building Code Supplement**: Submit documentation indicating that products comply with requirements of Florida Building Code.
				2. Warranty: Sample unexecuted copy of manufacturer special warranties.
			1. CLOSEOUT SUBMITTALS
				1. Warranty: Executed copy of manufacturer special warranties.
			2. QUALITY ASSURANCE
				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.

Specifier: Retain "Florida State Building Code Certificate" for Florida projects or where FSBC qualification is used as a standard.

* + - * 1. **Florida Building Code Compliance**: Provide sheathing complying with Florida Building Code product and installation requirements for locations outside of high velocity wind zone.
			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 a Limited Lifetime Warranty for AdvanTech wall, floor, and roof 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.

Construction Period Warranty: Panels will not delaminate nor require sanding due to moisture absorption during exposure due to construction, within 500 days of purchase.

Warranty Conditions: 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.

Warranty Period for Sheathing Products: Limited Lifetime warranty

PRODUCTS

* + - 1. MANUFACTURERS
				1. Basis-of-Design Product: Provide sheathing products manufactured by Huber Engineered Woods LLC, Charlotte NC; Phone: (800) 933-9220; Website: [www.advantechperforms.com](http://www.advantechperforms.com); [www.huberwood.com](http://www.huberwood.com).
			2. PERFORMANCE REQUIREMENTS

Specifier: Retain "Fire-Resistance Ratings" Paragraph below if sheathing products are used as an approved product that is part of a fire-resistance-rated assembly indicated on the Drawings.

* + - * 1. **Fire-Resistance Ratings**: Where indicated, provide approved products that are part of fire-resistance-rated assemblies tested for fire resistance per ASTM E119.
				2. Panel Thickness: Provide thickness needed to meet specified requirements and comply with referenced performance category, but not less than thickness indicated.

Specifier: Retain and edit "Wood Panel Products" Article for all projects.

* + - 1. WOOD PANEL PRODUCTS
				1. Single Source Limitations: Provide [wall] [, floor] [, and] [roof] sheathing by a single manufacturer.

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

* + - * 1. Certified Wood: Provide sheathing products produced from wood obtained from forests certified by SFI, FSC, or comparable sustainable forestry program acceptable to Architect.
				2. Oriented Strand Board: Comply with the following Product Standards:

DOC PS 2, made with binder containing no added urea formaldehyde, with visible grade stamp and field identification.

ICC-ES AC182.

* + - * 1. Code Compliance Standard: ICC-ES ESR-1785 for basis of design product, or ICC-ESR of comparable product acceptable to Architect.
				2. Panel Exposure: Warranted by manufacturer to resist weather exposure for 500 days.
				3. Fastener Marking: On top panel surface with pre-spaced fastening symbols for 16-inches (406 mm) and 24-inches (610 mm) on center spacings

Specifier: Retain one or more of the three following "Sheathing" Articles based upon Project requirements.

* + - 1. WALL SHEATHING
				1. Oriented-Strand-Board Wall Sheathing: Exposure 1, Structural I sheathing.

Basis-of-Design Product: Provide **Huber Engineered Woods LLC; AdvanTech Sheathing**.

Select one of two options in subparagraph below. AdvanTech sheathing is applicable to 32/16 and 40/20 span ratings.

Span Rating and Performance Category: Not less than [32/16, 1/2 Performance Category] [40/20, 5/8 Performance Category].

AdvanTech sheathing is available with square edge or tongue and groove edge profiles. Tongue and groove edge profile is available only on 5/8 Performance Category AdvanTech sheathing.

Edge Profile: [Square edge] [Tongue and groove].

* + - 1. ROOF SHEATHING
				1. Oriented-Strand-Board Roof Sheathing: Exposure 1, Structural I sheathing.

Basis-of-Design Product: Provide **Huber Engineered Woods LLC; AdvanTech Sheathing**.

Select one of two options in subparagraph below. AdvanTech sheathing is applicable to 32/16 and 40/20 span ratings.

Span Rating and Performance Category: Not less than [32/16, 1/2 Performance Category] [40/20, 5/8 Performance Category]

AdvanTech sheathing is available with square edge or tongue and groove edge profiles. Tongue and groove edge profile is available only on 5/8 Performance Category AdvanTech sheathing.

Edge Profile: [Square edge] [Tongue-and-groove].

* + - 1. SUBFLOOR-UNDERLAYMENT
				1. Oriented-Strand-Board Combination Subfloor-Underlayment: Exposure 1 floor panels.

Basis-of-Design Product: Provide **Huber Engineered Woods LLC; AdvanTech Floor Panels**.

Span Rating and Performance Category: Not less than [20 oc, 19/32 Performance Category] [24 oc, Structural 1, ICC-ES ESR-1785, 23/32 Performance Category] [32 oc, 7/8 Performance Category] [32 oc, 1 Performance Category] [48 oc, 1-1/8 Performance Category].

Edge Profile: Tongue-and-groove.

Surface Finish: Fully sanded face.

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

Corrosion Resistance: [Hot-dip zinc coating, ASTM A153/A153M] [or] [Type 304 stainless steel].

* + - * 1. Nails, Brads, and Staples: ICC AC116 and ICC AC201.
				2. Power-Driven Fasteners: ICC-ES ESR-1539 or NER-272.
				3. Wood Screws: ASME B18.6.1.

Retain one of two subparagraphs below (E or F) as applicable when specifying subfloor adhesive. When determining compliance with VOC content requirements, be sure to use the correct adhesive classification. It is a common mistake to include aerosol web-spray adhesive in the general purpose category. Aerosol and cartridge adhesives have unique VOC content limitations and therefore it is imperative that the correct classification is referenced.

* + - * 1. Subflooring Panel Adhesive: Polyurethane- or solvent- based product complying with ASTM D3498 or APA AFG-01 and recommended by floor panel manufacturer and adhesive manufacturer for application.

Retain "Adhesives" Subparagraph if required for LEED-NC, LEED-CI, or LEED-CS Credit IEQc4.1. VOC content of subfloor adhesives is not addressed in LEED for Homes 2008, but limitation below may be desirable based upon general sustainable design requirements. Use maximum VOC content requirements for aerosol web-spray adhesives when using AdvanTech Subfloor Adhesive.

F. AdvanTech Subfloor Adhesive: a high performance, moisture-cured, gun-applied polyurethane aerosol web-spray construction adhesive. Formulated to adhere to wet and frozen structural subfloor panels and wood framing.

1. Acceptable Manufacturer: Huber Engineered Woods, LLC, which is located at: 10925 David Taylor Dr; Charlotte, NC 28262; Toll Free Tel: 800-933-9220; Email:request info (techquestions@huber.com); Web:[www.advantechSFA.com](http://www.advantechSFA.com)
2. Product Type: Polyurethane Aerosol Web-Spray Adhesive.
3. Application: Gun applied.
4. VOC 15% by weight (155 g/L).
5. Solids by Weight: 15% maximum.
6. Color: Blue.
7. Coverage Rate: 400 linear feet at 3/8” gel bead.
8. Adhesion Performance: 2-5 times greater than industry standard
9. Conforms with ASTM D 3498 and APA AFG-01

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. WOOD STRUCTURAL PANEL INSTALLATION
				1. Sheathing Installation, 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.

Stagger end joints of adjacent panel runs.

Continuously support panel ends.

Continuously support panel edges without tongue-and-groove edge profile where indicated.

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

ICC-ES ESR-1539 or ICC-NES NER-272 for power-driven fasteners.

Retain one of two subparagraphs below as applicable to Project.

**IBC**: Table 2304.9.1 Fastening Schedule.

**IRC**:  Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments."

Comply with applicable portions of APA Form No. E30.

Optimize joint arrangements resulting in minimum number of joints. Cut panels cleanly at penetrations.

* + - * 1. Combination Subfloor-Underlayment Fastening

**Wood Framing**: [Glue and nail] [Glue and screw]. Penetrate wood framing members at least 1 inch (25.4 mm).

**Cold-Formed Metal Framing**: Glue and screw.

Space panels 1/8 inch (3 mm) apart at supported panel ends.

Install fasteners 3/8 inch (9.5 mm) to 1/2 inch (12.7 mm) from panel edges.

Space fasteners 6 inches (152 mm) on centers on supported panel ends and 12 inches (305 mm) on centers at intermediate support locations.

Specifier: Retain subparagraph below if panels in this configuration are required for Project.

Space fasteners for 1-1/8 inch (28.6 mm) panels supported at 48 inch (1220 mm) spacing 6 inches (152 mm) on centers on supported panel edges and intermediate support locations.

* + - * 1. [Wall] [and] [Roof] Sheathing Fastening

**Wood Framing**: Nail; penetrate wood framing members at least 1 inch (25.4 mm).

**Cold-Formed Metal Framing**: Screw.

Space panels 1/8 inch (3 mm) apart at [square edges and] ends.

Install fasteners 3/8 inch (9.5 mm) to 1/2 inch (12.7 mm) from panel edges.

Space fasteners 6 inches (152 mm) on centers on supported panel edges and 12 inches (305 mm) on centers at intermediate support locations.

Specifier: Retain subparagraph below if panels in this configuration are required for Project.

Space fasteners for 1-1/8 inch (28.6 mm) panels supported at 48 inch (1220 mm) spacing 6 inches (152 mm) on centers on supported panel edges and intermediate support locations.

END OF SECTION

**Additional Specifier Notes**:

Huber Engineered Wood's AdvanTech Subflooring and Sheathing products offer key quality advantages not offered by many competing products. When reviewing proposed substitutions, consider the following:

- Higher structural strength than comparable commodity plywood and OSB panels

- Superior resistance to moisture during exposed period of construction

- Enhanced quality control procedures ensuring compliance with ESR-1785 standards

When completing project drawings, indicate the following information:

- Extent of different sheathing types and thicknesses if more than one required