



Bamboo Plywood Panels
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3-PART SPECIFICATION FOR BAMBOO PLYWOOD PANELS

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GENERAL NOTES TO SPECIFIER:

THIS SPECIFICATION SECTION HAS BEEN PREPARED TO ASSIST DESIGN PROFESSIONALS IN THE PREPARATION OF PROJECT OR OFFICE MASTER SPECIFICATIONS. IT FOLLOWS GUIDELINES ESTABLISHED BY THE CONSTRUCTION SPECIFICATIONS INSTITUTE, AND THEREFORE MAY BE USED WITH MOST MASTER SPECIFICATION SYSTEMS WITH MINOR EDITING.

EDIT CAREFULLY TO SUIT PROJECT REQUIREMENTS. MODIFY AS NECESSARY AND DELETE ITEMS THAT ARE NOT APPLICABLE. VERIFY THAT REFERENCED SECTION NUMBERS AND TITLES ARE CORRECT. (NUMBERS AND TITLES REFERENCED ARE BASED ON *MASTERFORMAT*, 2004 EDITION).

THIS SECTION ASSUMES THE PROJECT MANUAL WILL CONTAIN COMPLETE DIVISION 1 DOCUMENTS INCLUDING SECTIONS 01 25 13-PRODUCT SUBSTITUTION PROCEDURES, 01 33 00-SUBMITTAL PROCEDURES, 01 62 00-PRODUCT OPTIONS, 01 66 00-PRODUCT STORAGE AND HANDLING REQUIREMENTS, 01 74 00-CLEANING AND WASTE MANAGEMENT, 01 77 00-CLOSEOUT PROCEDURES, AND 01 78 00-CLOSEOUT SUBMITTALS. CLOSE COORDINATION WITH DIVISION 1 SECTIONS IS REQUIRED. IF THE PROJECT MANUAL DOES NOT CONTAIN THESE SECTIONS, ADDITIONAL INFORMATION SHOULD BE INCLUDED UNDER THE APPROPRIATE ARTICLES.

THIS IS A PROPRIETARY SPECIFICATION.

NOTES TO THE SPECIFIER ARE CONTAINED IN BOXES AND SHOULD BE DELETED FROM FINAL COPY.

GREY HIGHLIGHTED GREEN TEXT AND NOTES RELATE TO LEED® PROJECTS AND CAN BE DELETED IF THE PROJECT IS NOT INTENDED TO ATTAIN LEED® CERTIFICATION. CREDIT REFERENCES REFER TO LEED® FOR NEW CONSTRUCTION, V2.2.

OPTIONAL ITEMS REQUIRING SELECTION BY THE SPECIFIER ARE ENCLOSED WITHIN BRACKETS, E.G. [35] [40] [45]. MAKE APPROPRIATE SELECTIONS AND DELETE OTHERS.

ITEMS REQUIRING ADDITIONAL INFORMATION ARE UNDERLINED BLANK SPACES, E.G. _____.
BOLD FACE TYPE IDENTIFIES OPTIONAL PARAGRAPHS AND FEATURES THAT MAY BE INCLUDED OR DELETED DEPENDING ON PROJECT REQUIREMENTS. CONVERT THE BOLD FACE TYPE TO REGULAR TYPE WHEN INCLUDING THESE PARAGRAPHS OR FEATURES. WHEN DELETING A PARAGRAPH, BE CERTAIN THAT ALL SUBPARAGRAPHS ARE ALSO DELETED.

REVISE FOOTER TO SUIT PROJECT/OFFICE REQUIREMENTS.

ELECTRONIC VERSIONS OF THIS SPECIFICATION UTILIZE AUTOMATIC PARAGRAPH NUMBERING.

WHEN EDITING IS COMPLETE, DELETE ALL TEXT ON THIS PAGE, THEN REMOVE THE SECTION BREAK AT THE TOP OF THE NEXT PAGE TO REMOVE THIS PAGE FROM THE DOCUMENT.

SPECIFICATION BEGINS ON THE FOLLOWING PAGE.

SECTION 06 26 00

BAMBOO PLYWOOD PANELS

PART 1 - GENERAL

1.01 SUMMARY

HIGUERA HARDWOODS BAMBOO PLYWOOD PANELS CAN BE USED IN A VARIETY OF APPLICATIONS. SOME OF THE MORE COMMON USES ARE INDICATED BELOW. DELETE OR ADD FROM THE LISTED ITEMS BELOW AS APPLICABLE.

- A. Section Includes:
1. Bamboo Plywood Panels used as: [Decorative wainscoting,] [ceiling panels,] [furniture,] [counters,] [kitchen systems,] [wall coverings,] [other.]
- B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.02 REFERENCES

- A. Abbreviations and Acronyms:
1. ANSI: American National Standards Institute.
 2. ASTM: American Society for Testing and Materials.
 3. HPVA: Hardwood Plywood & Veneer Association.
 4. LEED®: Leadership in Energy and Environmental Design.
- B. Reference Standards: Current edition at date of Bid.
1. American Society for Testing and Materials:
 - a. [ASTM D 1037](#): Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.
 - b. [ASTM D 3043](#): Standard Test Methods for Structural Panels in Flexure.
 - c. [ASTM D 3500](#): Standard Test Methods for Structural Panels in Tension.
 - d. [ASTM D 4442](#): Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials.
 - e. [ASTM E 84](#): Standard Test Method for Surface Burning Characteristics of Building Materials.
 - f. [ASTM E 1333](#): Method for Determining Formaldehyde Concentrations in Air Emission Rates from Wood Using a Large Chamber.
 2. American National Standards Institute/Hardwood Plywood and Veneer Association:
 - a. [ANSI/HPVA HP-1](#): Standard for Hardwood and Decorative Plywood.
 3. [US Green Building Council: LEED Green Building Rating System™](#).

1.03 SUBMITTALS

- A. Reference Section 01 33 00–Submittal Procedures; submit following items:
1. Product Data: For each type of product[, including finishing materials and processes].

2. LEED® Submittals:

- a. Credit MR 4.1 – Recycled Content: Receipts for salvaged and refurbished materials used for Project, indicating sources and costs for salvaged and refurbished materials.
- b. Credit MR 6 - Rapidly Renewable Materials: Product data for products made from plants that are typically harvested within a 10-year or shorter cycle.
- c. Credit MR 7 – FSC-Certified Wood: Chain-of-custody certificates for products containing certified wood.
- d. Credit IEQ 4.1 – Low-Emitting Materials, Adhesives and Sealants: Product data for adhesives and sealants, indicating VOC content of each product used. Indicate VOC content in g/L calculated.
- e. Credit IEQ 4.4 - Low-Emitting Materials, Composite Wood & Agrifiber Products: Product data for products containing composite wood or agrifiber products or wood glues indicating that they do not contain urea-formaldehyde resin.

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer:

- a. Minimum five years experience in producing bamboo plywood panels.
- b. Maintain documentable quality control program.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Reference Section 01 66 00–Product Storage and Handling Requirements.

B. Packaging:

INCLUDE THE LEED STATEMENT BELOW FOLLOWING VERIFICATION THAT THE MATERIALS TO THIS PROJECT CAN PROVIDE THE RECYCLABLE WRAPPING AND PALLET MATERIALS AS INDICATED IN THE SUBMITTALS ARTICLE ABOVE.

1. Package panels in weatherproof bulk pallets. Weatherproof wrapping and pallet material shall be recyclable.
 2. Include following information on pallets:
 - a. Thickness and color.
 - b. Warranty information.
 - c. Manufacturer's contact information.
- C. Delivery of panels in original packaging not less than 10 days prior to start of installation.
- D. Store materials minimum [6] [] inches above ground on framework or blocking and protect unused material with weatherproof covering, providing for adequate air circulation.
- E. Do not store seasoned or treated materials in damp location.

- F. Protect edges and corners of sheet materials from damage.
- G. Maintain an ambient temperature between 50 and 82 deg F and 40-70% relative humidity during the conditioning period.

1.06 WARRANTY

- A. Provide manufacturer's [6] [___] year warranty against delamination.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Manufacturers:
 - 1. Higuera Hardwoods LLC, www.higuerahardwoods.com, 360-779-4050.

2.02 BAMBOO PLYWOOD PANELS

- A. Panel Characteristics:
 - 1. Species: Moso (*Phyllostachys Pubescens*).

3-PLY PANELS ARE AVAILABLE ONLY IN CROSS LAMINATED CORES.

- 2. Plies: [4] [3] [2] [Single]-ply.
- 3. Core: [Cross] [Straight] laminated.

STRAND IS AVAILABLE ONLY IN 3-PLY CROSS LAMINATED PANELS.

- 4. Grain: [Horizontal] [Vertical] [Strand].

CHOCOLATE IS AVAILABLE ONLY IN 3/4 INCH PANELS.

- 5. Color: [Natural] [Carbonized] [Chocolate] [Mixed-Strand].
- 6. Size: [4 feet x 8 feet] [Custom].
- 7. Thickness: [3/4] [1/2] [1/4] inch [Custom].
- 8. Edge Configuration: [Square] [Custom].
- 9. Moisture Content: Average of [13 to 14] percent.
- 10. Panel Grade: A-A (both sides) Architectural.

- B. Properties:
 - 1. Delamination, Type II Testing, Interior; ANSI/HPVA HP-1-2004: Pass.

TEST DATA BELOW IS FOR 3/4 INCH PANELS.

- 2. Mechanical and Physical Properties; ASTM D 1037.
 - a. 3/4 inch thick 1-ply vertical Grain:
 - 1) Face: 263 pounds.
 - 2) Back: 229 pounds.
 - 3) Edge 1: 511 pounds.
 - 4) Edge 2: 636 pounds.
 - 5) Linear Expansion: Parallel -0.04 percent; Perpendicular -0.10 percent

- 6) Thickness Swell: 0.12 percent
- b. 3/4 inch thick 3-ply cross laminated vertical and horizontal grain:
 - 1) Face: 1,019 pounds.
 - 2) Back: 668 pounds.
 - 3) Edge 1: 359 pounds.
 - 4) Edge 2: 652 pounds.
 - 5) Linear Expansion: Parallel -0.09 percent;
 - 6) Perpendicular: -0.07 percent
 - 7) Thickness Swell: -0.39 percent

TEST DATA BELOW IN PARAGRAPHS 3, 4 & 5 ARE FOR 3/4 INCH PANELS ONLY.

- 3. Flexural Properties of Structural Panels; ASTM D 3043.
 - a. 3/4" inch thick 1-ply vertical grain: 179 MOE/11,371 MOR.
 - b. 3/4" inch thick 3-ply cross laminated core: 148 MOE/9,109 MOR.
- 4. Tensile Properties of Structural Panels; ASTM D 3500.
 - a. 3/4 inch thick 1-ply vertical grain: Load 642 pounds, Strength 428 psi.
 - b. 3/4 inch thick 3-ply cross laminated core: Load 1,536 pounds, Strength 1024 psi.
- 5. Direct Moisture Content Measurement; ASTM D 4442.
 - a. 3/4 inch thick 1-ply Straight Grain: 4.6 percent.
 - b. 3/4 inch thick 3-ply Cross Core: 5.4 percent.
- 6. Surface Flame Spread and Smoke Density Measurements; ASTM E 84.
 - a. Flame-Spread Index: [25] [Insert requirement] or less.
 - b. Smoke-Developed Index: [450] [Insert requirement] or less.
- 7. Rapidly renewable product manufactured using low-emitting, urea formaldehyde-free binders; ASTM E 1333.
 - a. 1/4" inch thick [1-ply] [3-ply] vertical grain: 0.07 ppm.
 - b. 1/2" inch thick [1-ply] [3-ply] vertical grain: 0.02 ppm.
 - c. 1/3" inch thick 3-ply cross laminated core: 0.10 ppm
 - d. 1/3" inch thick 1-ply vertical grain: 0.10 ppm.
- 8. Certified to FSC STD-04-004.

NOTE: HIGUERA HARDWOODS DOES NOT ADVISE THE USE OF THESE BAMBOO PLYWOOD PANELS IN ANY EXTERIOR APPLICATION UNLESS PROPERLY AND TREATED. PANELS CAN BE PRESERVATIVE-TREATED FOR EXTERIOR USE OR FIRE-TREATED (BY OTHERS) TO MEET CLASS 1 REQUIREMENT.

PART 3 - EXECUTION

3.01 N/A

END OF SECTION¹

¹ This specification was prepared specifically for Higuera Hardwoods LLC. Comments or suggestions for improvement should be addressed to Higuera Hardwoods LLC, 26273 Twelve Trees Lane Suite D, Mailing: PO Box 2067, Poulsbo, Washington 98370.
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