

SECTION 06 2013

EXTERIOR FINISH CARPENTRY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes the following exterior woodwork as fabricated from modified wood:
 - 1. Wall cladding.
 - 2. Exterior trim.
 - 3. Exterior door facing.
 - 4. Exterior soffits.
- B. Related Documents and Sections: Examine Contract Documents for requirements that directly affect or are affected by Work of this Section. A list of those Documents and Sections include, but is not limited to the following:
 - 1. General provisions of the Contract, including General and Supplementary Conditions, and Division 01 General Requirements Specification Sections.
 - 2. Section 06 1000 - ROUGH CARPENTRY.
 - 3. Section 06 2023 - INTERIOR FINISH CARPENTRY
 - 4. Section 06 4000 - ARCHITECTURAL WOODWORK
 - 5. Section 07 6000 - FLASHING AND SHEET METAL.
 - 6. Section 07 9200 - JOINT SEALANTS.
 - 7. Section 09 9100 - PAINTING.

1.2 SUBMITTALS

- A. Product Data: For each type of product, process and factory fabricated product.
 - 1. Include data for wood preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
 - 2. For water-borne-treated products include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.
- B. Samples:
 - 1. Submit two 12 inch long product samples of each wood specie and cut of wood to receive transparent finish.
 - 2. Submit two 12 by 12 inch product samples of exposed plywood panels.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Experienced Installer who has completed finish carpentry similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage:
 - 1. Protect materials against weather and contact with damp or wet surfaces.
 - 2. Stack lumber, plywood, and other panels.

3. Provide for air circulation within and around stacks and under temporary coverings.

1.5 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installing exterior finish carpentry only when existing and forecasted weather conditions will permit work to be performed according to manufacturer's recommendations and warranty requirements and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.

1.6 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, reinforcements, and other related items of Work specified in other Sections to ensure that exterior woodwork can be supported and installed as indicated.

PART 2 PRODUCTS

2.1 MODIFIED WOOD / MODIFIED TIMBER

- A. At locations indicated on the Drawings as "modified wood" or "modified timber", provide wood which has been chemically modified using one of the following patented process:

1. Kebony.
2. Accoya.

- B. Kebony: A technology called furfurylation which permanently transforms sustainable wood species such as pine into Kebony wood with features that are comparable, and in some cases superior, to those of precious tropical hardwoods.

1. Acceptable Manufacturer: Kebony US, 812 S. Riverside Ave. St. Clair MI.
2. Furfurylated Modification Of Wood: Impregnation shall be a water-based furfuryl alcohol solution in a full-cell impregnation procedure. After impregnation the furfuryl alcohol is polymerized inside the wood cell walls by heating the material to between 160 and 250 deg. F. which permanently alters the cell walls into a more rigid structure. The Modified wood is harder and denser than non-modified wood.
3. Radiata Pine Treated wood shall have the following properties:
 - a. Grade: Clear.
 - b. Wood Quality: J10 or better for 25 mm (1") and below according to EN 942. For thickness from 25 mm (1"): J10 or better on 3 sides, J30 or better on one side.
 - c. Moisture Content: 7.0% at 68 deg. F. and 65 % RH.
 - d. Density at 68 deg. F., 65% RH: 37 – 42 lb. per cubic foot.
 - e. Equilibrium moisture content (EMC) at 68 deg. F., 65 % RH: 5.5-6.5 % determined by oven dry/ weighing method (EN13183-1).
 - f. % swelling from dry to 95% RH, Radial: 0.7 – 2.1.
 - g. % swelling from dry to 95% RH, Tangential: 2.0 – 3.7.
 - h. % swelling from dry to 95% RH, Longitudinal: 0.2.
 - i. Fire Class NFPA/IBC Class B, Flame Spread 45, Smoke developed 250 per ASTM E 84.
 - j. R-value, 1" thickness: 0.96 h sq. ft deg. F/Btu.
 - k. U-value, 1" Thickness: 1.04 Btu.h sq ft. deg. F.
 - l. Stiffness E-Module: 1,800,000 psi (mean) 1,368,000 – 2,232,000 psi.
 - m. Bending strength: 9,900 psi (mean), 6,900 – 12,900 psi range.
 - n. Surface Hardness: Janka Hardness 1619 lbf (ASTM D1037).
 - o. Slip Resistance, Wet: R11, assessment group A, DIN 51097.
 - p. Machining of treated wood is similar to untreated wood. No special treatment is required

- for disposal of or burning of waste or discarded wood.
- q. Fasteners: Stainless steel. Do not use zinc or galvanized steel fasteners.
- r. Sizes: As shown on Drawings.
- 4. Finish: As selected by the Architect from the following, as standard with the manufacturer:
 - a. Standard finish: Dark brown in initial appearance, gradually changes to silver patina with UV exposure.
 - b. Shou Sugi Ban: Surface of wood has permanently blackened and charred surface color and texture.
- C. Accoya: Accoya created a patented process to acetylate radiata pine to create a dimensionally stable wood product with features that are comparable, and in some cases superior, to those of precious tropical hardwoods.
 - 1. Manufacturer: Accys Technologies PLC, 500 Quorum Drive, Suite 620, Dallas, Texas
 - 2. Acetylation: A process that essentially alters the actual cell structure of wood by transforming free hydroxyl groups into acetyl groups, improving the technical properties (durability and dimensional stability) of wood.
 - 3. Characteristics:
 - a. Wood Species: Radiata Pine (also known as Monterey Pine).
 - b. Moisture Content: Less than or equal to 8%.
 - c. Acetylated Wood Properties:
 - 1). Fire Rating, ASTM E 84: Class "C".
 - 2). Dimensional Stability:
 - a). Tangential Shrink/Swell, 1.5%
 - b). Radial Shrink/Swell, 0.8%
 - c). Volumetric Shrink/Swell, 2.3%.
 - d). Water Repellent Effectiveness: WDMA T.M. 2: >70%
 - 3). Durability, BS EN 350-1 Testing: Class 1 (very durable).
 - 4). Fungal Decay, AWPA E10: < 0.30% weight loss.
 - 5). Fungal Decay, WDMA T.M. 1: < 0.25% weight loss.
 - 6). Termites, AWPA E1: ≤ 5% weight loss with Formosan termites.
 - 7). Hardness, ASTM D143: 922 lbf side, 1,484 lbf end2.
 - 8). Bending Strength, ASTM D143: 13,144 psi (small clear specimens).
 - 9). Bending Stiffness, ASTM D143: 1,297,492 psi (small clear specimens).
 - 10). Density: 27-37 lb/cu ft (65% relative humidity, 20 degrees C).
 - 11). Equilibrium Moisture Content: 3-5% (65% relative humidity, 20 degrees C).
 - 4. Finish: As selected by the Architect.

2.2 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Provide nails of the following materials, in sufficient length to penetrate minimum of 1-1/2 inches into substrate, unless otherwise recommended by manufacturer.
 - 1. Stainless steel.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage.
 - 1. Provide nonferrous metal or hot-dip galvanized anchors and inserts, unless otherwise indicated.
 - 2. Provide toothed steel or lead expansion sleeves for drilled-in-place anchors.
- C. Flashing: Comply with requirements of Section 07 6000 - FLASHING AND SHEET METAL for flashing materials installed in finish carpentry.

- D. Sealant: Comply with requirements of Section 07 9200 - JOINT SEALANTS for materials required for sealing exterior woodwork.

2.3 FINISHES

- A. General: Finish as specified in Section 09 9100 - PAINTING for exterior wood.
- B. Apply one coat of sealer to concealed surfaces of exterior finish carpentry. Apply two coats to end-grain surfaces.
 - 1. Apply sealer or primer in shop or in the field.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting installation and performance of finish carpentry.
 - 1. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Before installation, condition finish carpentry to average prevailing humidity conditions in installation areas.
- B. Prime and backprime lumber for painted finish exposed on the exterior. Comply with requirements for surface preparation and application in Section 09 9100, "Painting."
- C. Lumber for Transparent Finish:

3.3 INSTALLATION, GENERAL

- A. Do not use finish carpentry materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install finish carpentry plumb, level, true, and aligned with adjacent materials. Use concealed shims where required for alignment.
 - 1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 2. Countersink nails, fill surface flush, and sand where face nailing is unavoidable.
 - 3. Provide flat steel washers at nuts and bolt heads bearing on wood.
 - 4. Install to tolerance of 1/8 inch in 96 inches for plumb and level. Install adjoining finish carpentry with 1/32 inch maximum offset for flush installation and 1/16 inch maximum offset for reveal installation.
 - 5. Coordinate finish carpentry with materials and systems in or adjacent to standing and running trim. Provide cutouts for mechanical and electrical items that penetrate exposed surfaces of finish carpentry components.
 - 6. Provide cutouts for mechanical and electrical items that penetrate exposed surfaces of finish carpentry components.
- C. Preservative Treated Wood: Where cut or drilled in field, treat cut ends and drilled holes according to AWWA M4.

- D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk concealed fasteners and blind nailing. Use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork.
- E. Finish: Finish according to specified requirements.

3.4 ADJUSTING AND CLEANING

- A. Repair damaged or defective finish carpentry where possible to eliminate functional or visual defects. Where not possible to repair, replace finish carpentry. Adjust joinery for uniform appearance.
- B. Clean finish carpentry on exposed and semi-exposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.5 PROTECTION

- A. Provide final protection and maintain conditions that ensure finish carpentry is without damage or deterioration at the time of Substantial Completion.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK