

## SECTION 06100 - ROUGH CARPENTRY

### PART 1 - GENERAL

- A. The Conditions of the Contract apply to this section.

#### 1.1 SCOPE

- A. Furnish all labor, material and related items necessary to complete the work indicated on the drawings and/or specified. These items of work to be performed shall include, but are not limited to the following:
1. Nailing strips and grounds.
  2. Hardware for securing rough carpentry materials.
  3. Lay work out accurately to lines indicated.
  4. Select materials to suit the required function of the part.
  5. Furnish shop drawings for work which will be made in any shop of factory.

#### 1.2 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
  3. For fire-retardant treatments specified to be High-Temperature (HT) type, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
  4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
  5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- B. Fastener Patterns: Full-size templates for fasteners in exposed framing.
- C. LEED Submittals:

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1. Product Data for Credit EQ 4.1: For adhesives, including printed statement of VOC content.
  2. Product Data for Credit EQ 4.4: For composite-wood products, documentation indicating that product contains no urea formaldehyde.
  3. Certificates for Credit MR 7: Chain-of-custody certificates certifying that products specified to be made from certified wood comply with forest certification requirements. Include evidence that mill is certified for chain of custody by an FSC-accredited certification body.
    - a. Include statement indicating costs for each certified wood product.
- D. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- E. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
1. Wood-preservative-treated wood.
  2. Fire-retardant-treated wood.
  3. Engineered wood products.
  4. Power-driven fasteners.
  5. Powder-actuated fasteners.
  6. Expansion anchors.
  7. Metal framing anchors.

**1.3 QUALITY ASSURANCE**

- A. Qualifications of Workmen: Provide sufficient workmen and supervisors of who shall be present at all times during execution of this portion of the work, and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.
- B. Rejection: In acceptance or rejection of rough carpentry, the Architect will make no allowance for lack of skill on the part of the workman.
- C. Forest Certification: For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship":
1. Dimension lumber framing.
  2. Miscellaneous lumber.
- D. Product Handling
1. Protection

- a. Store all materials in such a manner as to ensure proper ventilation and drainage, and to protect against damage and the weather.
  - b. Keep all materials clearly identified with all grade marks legible. Keep all damaged material clearly identified as damaged, and store separately to prevent its inadvertent use.
  - c. Do not allow installation of damaged or otherwise non-complying material.
  - d. Use all means necessary to protect the installed work and materials of all other trades.
2. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

## **PART 2 - EXECUTION**

### **2.1 INSPECTION**

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

### **2.2 WORKMANSHIP**

- A. General: All rough carpentry shall produce joints true, tight and well-nailed, with all members assembled in accordance with the drawings and with all pertinent codes and regulations.
- B. Selection of Lumber Pieces: Carefully select all members. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making connections.
- C. Cut out and discard all defects which will render a piece unable to serve its intended function. Lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, rook, mildew, fungus, or mold, as well as for improper cutting and fitting.
- D. Shimming: Do not shim joists, short studs, trimmers, headers, lintels, or other framing components.

### **2.3 PRESSURE TREATED LUMBER**

1. General: Use only pressure treated lumber for all sills, nailing grounds in, or in contact with, concrete.
2. Treatment: Pressure treat all wood, as indicated on drawings and Section 06100. All pressure treated lumber for use on site shall have cut ends saturated with same preservative used on the material originally.
3. Perform all treatment in strict accordance with the published recommendations of the manufacturer of the treatment preservative.

## **PART 3 - GENERAL FRAMING**

### **3.1 GENERAL**

- A. In addition to all framing operations normal to fabrication and erection indicated on the drawings, install all backing required for work of other trades.
- B. Set all horizontal or sloped members with crown up.
- C. Do not notch, bore, or cut members for pipes, ducts, conduits, or other reasons except as shown on the drawings or as specifically approved in advance by the Architect.

### **3.2 BEARINGS**

- A. Make all bearings full unless otherwise indicated on the drawings.
- B. Finish all bearing surfaces on which structural members are to rest so as to give sure and even support. Where framing members slope, cut or notch the ends as required to give uniform bearing surface.

### **3.3 BLOCKING AND BRIDGING**

- A. Blocking: Install all blocking required to support all items of finish and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor areas.
  1. Fire-blocks, when wood, shall be two inches (nominal) in thickness by the full width of the opening being blocked.
  2. The distance between a line of bridging and a bearing shall not exceed eight feet.
  3. Install solid blocking between joists at all points of support and wherever sheathing or flooring is discontinuous.

### **3.4 BUILT-UP BEAMS**

- A. Use no less than two joists spiked together to support partitions running parallel to the joists, provided however that where necessary to permit passage of pipes such joists may be separated by solid blocking spaced at no more than four feet on centers.

### **3.5 FASTENING**

- A. Nailing: Use only common wire nails or spikes of the dimension shown on the Nailing Schedule, except where otherwise called for on the drawings. All nails shall be hot dipped galvanized.
- B. For conditions not covered in the Nailing Schedule, provide penetration into the piece receiving the point of not less than  $\frac{1}{2}$  the length of the nail or spike provided, however, that 16d nails may be used to connect two pieces of two-inch nominal thickness.
- C. Do all nailing without splitting wood. Pre-bore as required. Replace all split members.
- D. Bolting: drill holes  $\frac{1}{16}$  inch larger in diameter than the bolts being used. Drill straight and true from one side only. Bolt threads shall not bear on wood. Use washers under head and nut where both bear on wood; use washers under all nuts. No counter boring of bolts will be allowed unless shown on drawing.
- E. Screws: For lag screws and wood screws, pre-bore holes same diameter as root of thread; enlarge holes to shank diameter for length of shank. Screw, do not drive, all lag screws and wood screws.
- F. Nailing Schedule: Unless otherwise indicated on the drawings or required by pertinent codes and regulations, provide at least the following nailing:
  - 1. Blocking to joist bearing: Two 10d toe nailed each side
  - 2. Blocking to joist or stud: Two 10d toe nailed each side
  - 3. One inch brace to stud: Two 8d face nailed
  - 4. Two inch brace to stud: Two 16d face nailed
  - 5. Bridging to joist: Two 8d toenailed
  - 6. Built-up beams eight inches or less in depth: 16d @ twelve inches on-centers, staggered
  - 7. Joist and rafter to support: Two 10d toenailed each side at laps (twelve inches minimum): four 16d face nailed
  - 8. Multiple joists: 16d @ twelve inches on centers, staggered
  - 9. Joist to sill or girder: Two 8d (one straight, one slanted)
  - 10. One inch furring to underside of joists: Two 16d (one straight, one slanted)

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11. Studs toenailed to plate: Two 10d each side
12. Studs end nailed to plate: Two 20d
13. Studs nailed together: 16d @ twelve inches on centers, staggered
14. Upper to lower: 16d @ twelve inches on centers, staggered
15. At splices: Two 16d face nailed

**PART 4 – WORKMANSHIP**

**4.1 WORKMANSHIP**

- A. Work shall be performed in conformance with good trade practice, recommendations of manufacturer's building codes, and these specifications unless specifically indicated otherwise on the drawings.

**END OF SECTION 06100**

## **SECTION 06402 - INTERIOR ARCHITECTURAL WOODWORK**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Interior standing and running trim.
  - 2. Interior frames and jambs.
  - 3. Bamboo wood paneling.
  - 4. Bamboo-faced wood cabinets.
  - 5. Plastic-laminate cabinets.
  - 6. Plastic-laminate countertops.
  - 7. Quartz-surfacing-material countertops.
  - 8. Closet and utility shelving.
- B. Related Sections include the following:
  - 1. Division 1 Section "LEED Requirements".
  - 2. Division 1 Section "Construction Waste Management".
  - 3. Division 6 Section "Rough Carpentry".
  - 4. Division 6 Section "Bamboo Paneling".
  - 5. Division 7 Section "Joint Sealers".
  - 6. Division 8 Section "Door Hardware".

#### **1.3 DEFINITIONS**

- A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

#### **1.4 SUBMITTALS**

- A. Product Data: For panel products, quartz-surfacing material, cabinet hardware and accessories and finishing materials and processes.

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- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
  2. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets and other items installed in architectural woodwork.
  3. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.
  4. Apply WI-certified compliance label to first page of Shop Drawings.
- C. Samples for Initial Selection:
1. Shop-applied transparent finishes.
  2. Shop-applied opaque finishes.
  3. Plastic laminates.
  4. PVC edge material.
  5. Thermoset decorative panels.
  6. Solid-surfacing materials.
- D. Samples for Verification:
1. Lumber with or for transparent finish, not less than **50 sq. in.**, for each species and cut, finished on 1 side and 1 edge.
  2. Veneer leaves representative of and selected from flitches to be used for transparent-finished woodwork.
  3. Veneer-faced panel products with or for transparent finish, **8 by 10 inches**, for each species and cut. Include at least one face-veneer seam and finish as specified.
  4. Lumber and panel products with shop-applied opaque finish, **50 sq. in.** for lumber and **8 by 10 inches** for panels, for each finish system and color, with 1/2 of exposed surface finished.
  5. Plastic laminates, **8 by 10 inches**, for each type, color, pattern, and surface finish.
  6. Solid-surfacing materials, **6 inches** square.
  7. Exposed cabinet hardware and accessories, one unit for each type and finish.
- E. LEED Submittals:
1. Product Data for Credit EQ 4.1: For installation adhesives, including printed statement of VOC content.
  2. Product Data for Credit EQ 4.4:
    - a. For each composite-wood product used, documentation indicating that the bonding agent contains no urea formaldehyde.
    - b. For each adhesive used, documentation indicating that the adhesive contains no urea formaldehyde.

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3. Product Data for Credit(s) MR 4.1 and MR 4.2: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content
  - a. Include statement indicating costs for each product having recycled content.
4. Certificates for Credit MR 7: Chain-of-custody certificates certifying that products specified to be made from certified wood comply with forest certification requirements. Include evidence that mill is certified for chain of custody by an FSC-accredited certification body.
  - a. Include statement indicating costs for each certified wood product.
- F. Product Certificates: For each type of product, signed by product manufacturer.
- G. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- H. Qualification Data: For Installer.

**1.5 QUALITY ASSURANCE**

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- B. Installer Qualifications: Certified participant in AWI's Quality Certification Program.
- C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers and wood doors with face veneers that are sequence matched with woodwork and transparent-finished wood doors that are required to be of same species as woodwork.
- D. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
  1. Provide AWI Quality Certification Program labels and certificates indicating that woodwork, including installation, complies with requirements of grades specified.
- E. Quality Standard: Unless otherwise indicated, comply with WI's "Manual of Millwork" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
  1. Provide WI-certified compliance labels and certificates indicating that woodwork, including installation, complies with requirements of grades specified.

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- F. Forest Certification: Provide interior architectural woodwork produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

**1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

**1.7 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 43 and 70 percent during the remainder of the construction period.
- C. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.

**1.8 COORDINATION**

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.
- B. Hardware Coordination: Distribute copies of approved hardware schedule specified in Division 8 Section "Door Hardware (Scheduled by Describing Products)" to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

**PART 2 - PRODUCTS**

**2.1 MATERIALS**

- A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Species and Cut for Transparent Finish: Bamboo, plain sawn.
- C. Wood Products: Comply with the following:
  - 1. Recycled Content of Medium-Density Fiberboard and Particleboard: Provide products with an average recycled content so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 20 percent.
  - 2. Hardboard: AHA A135.4.
  - 3. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
  - 4. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
  - 5. Particleboard: Straw-based particleboard complying with requirements in ANSI A208.1, Grade M-2, except for density.
  - 6. Softwood Plywood: DOC PS 1, Medium Density Overlay.
  - 7. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.
- D. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
  - 1. Provide PVC or polyester edge banding complying with LMA EDG-1 on components with exposed or semiexposed edges.
- E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.
  - 1. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:
    - a. Formica Corporation.
    - b. Nevamar Company, LLC; Decorative Products Div.
    - c. Wilsonart International; Div. of Premark International, Inc.
- F. Quartz-Surfacing Material: 93 percent crushed quartz aggregate combined with resins and pigments and fabricated into slabs using vacuum vibro-compaction process complying with ISSFA-2.
  - 1. Manufacturers: Basis of Design Product: Subject to compliance with requirements, provide CaesarStone Quartz Surfacing material distributed by U.S. Quartz Products, Inc. or comparable product by one of the following:

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- a. Silestone Quartz.
  - b. Zodiaq by Dupont
2. Colors and Patterns: Basis of Design: CaesarStone Quartz Surfacing 9140 Charcoal.

**2.2 CABINET HARDWARE AND ACCESSORIES**

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 8 Section "Door Hardware (Scheduled by Describing Products)."
- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 100 degrees of opening.
- C. Back-Mounted Pulls: BHMA A156.9, B02011.
- D. Bar Pulls (European Type): Back mounted, solid metal, stainless steel finish, **6-1/4 inches** long, **1-1/2 inches** deep, and **1/2 inch** in diameter.
- E. Catches: Roller catches, BHMA A156.9, B03071.
- F. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- G. Shelf Rests: BHMA A156.9, B04013; metal.
- H. Drawer Slides: BHMA A156.9, B05091.
1. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-extension type; zinc-plated steel ball-bearing slides.
  2. Box Drawer Slides: Grade 1HD-100; for drawers not more than **6 inches** high and **24 inches** wide.
  3. File Drawer Slides: Grade 1HD-100; for drawers more than **6 inches** high or **24 inches** wide.
  4. Keyboard Slides: Grade 1HD-100; for computer keyboard shelves.
  5. Trash Bin Slides: Grade 1HD-100; for trash bins not more than **20 inches** high and **16 inches** wide.
- I. Door Locks: BHMA A156.11, E07121.
- J. Drawer Locks: BHMA A156.11, E07041.
- K. Grommets for Cable Passage through Countertops: **1-1/4-inch** OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.

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1. Product: Subject to compliance with requirements, provide "OG" series" by Doug Mockett & Company, Inc.
- L. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
  1. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
- M. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

**2.3 MISCELLANEOUS MATERIALS**

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
  1. Douglas fir-larch.
  2. Douglas fir-south.
  3. Douglas fir-larch (north).
  4. Hem-fir.
  5. Hem-fir (north).
  6. Southern pine.
  7. Spruce-pine-fir (south).
  8. Spruce-pine-fir.
- C. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- D. Adhesives, General: Do not use adhesives that contain urea formaldehyde.
- E. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  1. Wood Glues: 30 g/L.
  2. Contact Adhesive: 250 g/L.
- F. Adhesive for Bonding Plastic Laminate: Woodworker's option.
  1. Adhesive for Bonding Edges: Hot-melt adhesive.
- G. Adhesive for Bonding Quartz Surfacing: Manufacturer's specifications.

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**2.4 FABRICATION, GENERAL**

- A. Interior Woodwork Grade: Unless otherwise indicated, provide Custom grade interior woodwork complying with referenced quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- D. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
  - 1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members Thick or Less: **1/16 inch.**
  - 2. Edges of Rails and Similar Members More Than **3/4 Inch** Thick: **1/8 inch.**
- E. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- F. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 1. Seal edges of openings in countertops with a coat of varnish.

**2.5 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH**

- A. Grade: Custom.
- B. Wood Species and Cut: Red oak, plain sawn.
  - 1. Provide split species on trim that faces areas with different wood species, matching each face of woodwork to species and cut of finish wood surfaces in areas finished.
- C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.

**2.6 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH**

- A. Grade: Custom.
- B. Wood Species: Any closed-grain hardwood.

**2.7 INTERIOR FRAMES AND JAMBS FOR TRANSPARENT FINISH**

- A. Grade: Custom.
- B. Wood Species and Cut: Red oak, plain sawn.

**2.8 BAMBOO PLYWOOD PANELING**

- A. Grade: Custom.
- B. Wood Species and Cut: "Plyboo" Bamboo by Smith & Fong Company.
  - 1. Lumber Trim and Edges: At fabricator's option, trim and edges indicated as solid wood (except moldings) may be either lumber or veneered construction compatible with grain and color of veneered panels.
- C. Matching of Adjacent Veneer Leaves: Book match.
- D. Veneer Matching within Panel Face: Running match.
- E. Panel-Matching Method: No matching between panels is required. Select and arrange panels for similarity of grain pattern and color between adjacent panels.
- F. Panel-Matching Method: Match panels within each separate area by the following method:
  - 1. Premanufactured sets used full width as indicated.
  - 2. Refer to Division 1 Section "Summary" for requirements concerning flitches reserved by Architect.
  - 3. Refer to Division 1 Section "Allowances" for allowances covering the purchase of wood face veneers for panels and components.

**2.9 BAMBOO FACED WOOD CABINETS FOR TRANSPARENT FINISH**

- A. Grade: Custom.
- B. AWI Type of Cabinet Construction: Flush overlay.
- C. WI Construction Style: Style A, Frameless.

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- D. WI Construction Type: Type II, single-length sections to fit access openings.
- E. WI Door and Drawer Front Style: Flush overlay.
- F. Reveal Dimension: 1/8 inch.
- G. Wood Species and Cut for Exposed Surfaces: “Plyboo” Bamboo by Smith & Fong Company.
  - 1. Grain Direction: Vertically for drawer fronts, doors, and fixed panels.
  - 2. Matching of Veneer Leaves: Book match.
  - 3. Vertical Matching of Veneer Leaves: End match.
  - 4. Comply with veneer and other matching requirements indicated for blueprint-matched paneling.
- H. Semiexposed Surfaces: Provide surface materials indicated below:
  - 1. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.
  - 2. Drawer Sides and Backs: Thermoset decorative panels.
  - 3. Drawer Bottoms: Thermoset decorative panels.
- I. Provide dust panels of 1/4-inch plywood or tempered hardboard above compartments and drawers, unless located directly under tops.
- J. Core Material at Base: Exterior-grade plywood.

**2.10 PLASTIC-LAMINATE CABINETS**

- A. Grade: Custom.
- B. WI Construction Style: Style A, Frameless.
- C. WI Construction Type: Type II, single-length sections to fit access openings.
- D. WI Door and Drawer Front Style: Flush overlay.
- E. Reveal Dimension: 1/8 inch.
- F. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
  - 1. Horizontal Surfaces Other Than Tops: Grade HGL.
  - 2. Postformed Surfaces: Grade HGP.
  - 3. Vertical Surfaces: Grade HGS.
  - 4. Edges: Grade VGS, matching laminate in color, pattern, and finish.
- G. Materials for Semiexposed Surfaces:

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1. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.
  2. Drawer Sides and Backs: Thermoset decorative panels.
  3. Drawer Bottoms: Thermoset decorative panels.
- H. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: High-pressure decorative laminate, Grade BKL.
- I. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. As selected by Architect from laminate manufacturer's full range in the following categories:
    - a. Solid colors, gloss and/or matte finish.
- J. Provide dust panels of 1/4-inch plywood or tempered hardboard above compartments and drawers, unless located directly under tops.
- K. Core Material at Base: Exterior-grade plywood.

**2.11 PLASTIC-LAMINATE COUNTERTOPS**

- A. Grade: Custom.
- B. High-Pressure Decorative Laminate Grade: HGP.
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. As indicated by manufacturer's designations.
  2. Match Architect's sample.
  3. As selected by Architect from manufacturer's full range in the following categories:
    - a. Solid colors, gloss and/or matte finish.
    - b. Solid colors with core same color as surface, gloss and/or matte finish.
    - c. Patterns, gloss and/or matte finish.
- D. Grain Direction: Parallel to cabinet fronts.
- E. Edge Treatment: Same as laminate cladding on horizontal surfaces.
- F. Core Material: Exterior-grade plywood.
- G. Core Material at Sinks: Exterior-grade plywood.
- H. Backer Sheet: Provide plastic-laminate backer sheet, Grade BKL, on underside of countertop substrate.

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- I. Paper Backing: Provide paper backing on underside of countertop substrate.

**2.12 QUARTZ SURFACING-MATERIAL COUNTERTOPS**

- A. Grade: Premium.
- B. Solid-Surfacing-Material Thickness: **1-1/4 inch**.
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
  1. Basis of Design Product CaesarStone Quartz Color: 9140 “Charcoal”.
- D. Fabricate tops in one piece, unless otherwise indicated. Comply with quartz-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
  1. Fabricate tops with shop-applied edges of materials and configuration indicated.
  2. Fabricate tops with shop-applied backsplashes.
- E. Install integral sink bowls in countertops in shop.
- F. Drill holes in countertops for plumbing fittings and soap dispensers in shop.

**2.13 CLOSET AND UTILITY SHELVING**

- A. Grade: Custom.
- B. Shelf Material: **3/4-inch** thermoset decorative panel with PVC or polyester edge banding.
- C. Cleats: **3/4-inch** thermoset decorative panel.

**PART 3 - EXECUTION**

**3.1 PREPARATION**

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

### 3.2 INSTALLATION

- A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
- B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of **1/8 inch in 96 inches**.
- D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- F. Paneling: Anchor paneling to supporting substrate with concealed panel-hanger clips.
  - 1. Install flush paneling with no more than **1/16 inch in 96-inch** vertical cup or bow and **1/8 inch in 96-inch** horizontal variation from a true plane.
- G. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
  - 1. Install cabinets with no more than **1/8 inch in 96-inch** sag, bow, or other variation from a straight line.
  - 2. Maintain veneer sequence matching of cabinets with transparent finish.
  - 3. Fasten wall cabinets through back, near top and bottom, at ends and not more than **16 inches** o.c. with No. 10 wafer-head screws sized for **1-inch** penetration into wood framing, blocking, masonry or hanging strips.
- H. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Align adjacent quartz-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
  - 2. Install countertops with no more than **1/8 inch in 96-inch** sag, bow, or other variation from a straight line.
  - 3. Secure backsplashes to tops with concealed metal brackets at **16 inches** o.c. and to walls with adhesive.

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4. Calk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."
- I. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

**3.3 ADJUSTING AND CLEANING**

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

**END OF SECTION 06402**

## SECTION 06403 – BAMBOO PANELING

### PART 1–GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:
  - Bamboo Paneling
  - Bamboo Plywood Products
- B. Related Sections:
  - Division 1 Section “LEED Requirements”.
  - Division 6 Section “Rough Carpentry”
  - Division 6 Section “Interior Architectural Woodwork”.

#### 1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  - ASTM D 1037, Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.
  - ASTM D 3043 Standard Test Methods for Flexural Structural Panels in Flexure
  - ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials.
  - ASTM D 4442, Standard Test Methods for Direct Moisture Content Measurement of Wood-Base Materials.
  - ASTM D 3500, Standard Test Method for Structural Panels in Tension
  - ASTM E 1333, Standard Test Method for Determining Formaldehyde Concentrations in Air Emission Rates from Wood Using a Large Chamber
- B. American National Standards Institute/Hardwood Plywood and Veneer Association (ANSI/HPVA): American National Standard for Hardwood and Decorative Plywood, HP-1.
- C. US Green Building Council’s Leadership in Energy and Environmental Design Green Building Rating System™ (LEED).

#### 1.4 SUBMITTALS

- A. Product Data:
  - 1. Bamboo plywood manufacturer's product data.
- B. LEED Submittals:
  - 1. Credit MR 6, Rapidly Renewable Materials: Bamboo manufacturer's product data for each product used, indicating that product(s) are manufactured from a rapidly renewable resource.
  - 2. Credit EQ 4.1, Low Emitting Materials: Adhesive and/or sealant manufacturer's product data for each product used, indicating adhesive agent contains low voc adhesive.
  - 3. Credit EQ 4.2, Low Emitting Materials: Paints and/or coatings manufacturer's product data for finishes used.

#### 1.5 WARRANTY

- A. A Special Warranty for Smith & Fong Plyboo Products referenced at [www.plyboo.com](http://www.plyboo.com)
- B. Warranty Coverage: All bamboo plywood products are free from manufacturing defects and will remain free from defects during the Warranty Period.
- C. Warranty Period: Five years from the date of purchase

### PART 2–PRODUCTS

#### 2.1 MATERIALS

- A. Provide the specified Bamboo plywood products by the following manufacturer or by another manufacturer with products equal to those specified:
  - 1. Basis of Design manufacturer: Smith & Fong Company, San Francisco, CA.  
Tel: (866) 835-9859.  
<http://www.plyboo.com/>
  - 2. Species: Moso (Phyllostachys Pubescens).
  - 3. Fire Resistance Classification: [Class A] [Class C].
    - a. Test surface burning characteristics in accordance with ASTM E 84.
  - 4. Type:
    - a. 3/4 inch thick, 3-ply Dark Strand and Neopolitan. See drawings for locations.
  - 5. Physical/Mechanical Properties:
    - a. ASTM D 3043 Method D Flexural Strength (MOE/MOR)
      - i. 3/4 inch thick 3-ply Cross Core: 148 MOE/9,109 MOR average
    - b. ASTM D 1037 Screw Hold

- i.  $\frac{3}{4}$  inch thick 3-ply Cross Core
  - a) Face: 1009 pounds average
  - b) Back: 681 pounds average
  - c) Edge 1: 361 pounds average
  - d) Edge 2: 670 pounds average
- c. ASTM D 4442 Method A Moisture Content
  - i.  $\frac{3}{4}$  inch thick 3-ply Cross Core: 5.7 percent average
- d. ASTM D 1037 Tensile Strength Parallel
  - i.  $\frac{3}{4}$  inch thick 3-ply Cross Core: Load 892 pounds, Strength 3547 psi average
- e. ASTM D 3500 Tensile Strength Perpendicular
  - i.  $\frac{3}{4}$  inch thick 3-ply Cross Core: Load 1536 pounds, Strength 1024 psi average
- f. ASTM D 1037 Dimensional Stability at 20% RH
  - i.  $\frac{3}{4}$  inch thick 3-ply Cross Core
    - a) Linear Expansion: Parallel –0.09 percent; Perpendicular –0.07 percent
    - b) Thickness Swell: -0.39 percent
- g. ASTM E 1333 Formaldehyde Emission
  - i.  $\frac{3}{4}$  inch thick 3-ply Cross Core: 0.02 ppm
- h. ASTM E 84 Surface Burning
  - i.  $\frac{3}{4}$  inch thick, 3-ply, edge grain cross core: Class C
  - ii.  $\frac{3}{4}$  inch thick, 3-ply, edge grain cross core Strand: Class C

#### 6. Accessories

- a. Edge Banding,  $\frac{7}{8}$  inch width by 4 millimeters thick by 72 inches length panel Dark Strand and Neopolitan Strand. See drawings for location.

#### 7. Veneers

- a. 48 inches width by 0.6 millimeters thickness by 96 inches length natural edge grain

**END OF SECTION 06403**

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