

SECTION 06100 - ROUGH CARPENTRY

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. Rooftop equipment bases and support curbs.
 - 2. Wood blocking, cants, and nailers.
 - 3. Wood furring.
 - 4. Plywood backing panels.
 - 5. Subflooring and underlayment.
- B. Related Sections include the following:
 - 1. Division 6 Section "Gypsum Sheathing."
 - 2. Division 6 Section "Exterior Architectural Woodwork," for woodwork associated with the construction of the "Children's Gate" and the wood gate at the north end of the garden.
 - 3. Division 6 Section "Interior Architectural Woodwork," for interior woodwork.

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.

1.4 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. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 - 3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 3. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWP A C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWP A C31 with inorganic boron (SBX).
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.

3. Rooftop equipment bases and support curbs.
4. Cants.
5. Furring.
6. Grounds.

- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.
- C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- D. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.4 PLYWOOD BACKING PANELS

- A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.5 SUBFLOORING

- A. Plywood Subflooring: Exterior Grade, Structural I. Thickness as shown.

2.6 UNDERLAYMENT

- A. Underlayment at Carpet: APA 15/32", C-C Plugged, Exterior Grade, Group 1, Sanded Face, with plugged inner plys.

2.7 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).

- F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

2.8 SLAB VAPOR BARRIERS

- A. Liquid Applied Damp Proof Membrane "DPM":
 - 1. Provide epoxy damp proof membrane from the following manufacturer's or approved equal:
 - a. Maxxon DPM
Maxxon Corporation, 920 Hamel Road, P.O. Box 253
Hamel, Minnesota 55340 USA
 - b. Ardex DPM
400 Ardex Park Drive
Aliquippa, Pennsylvania 1500
 - c. AltroProof™ Epoxy Surface Damp Proof Membrane
224 Nazareth Pike
Bethlehem, PA 18020
- B. Polyethylene Vapor Barrier: Polyethylene Vapor Retarders: ASTM D 4397, 6 mils (0.15 mm) thick, with maximum permeance rating of 0.13 perm (7.5 ng/Pa x s x sq. m).
- C. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- C. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- D. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 1. Use inorganic boron for items that are continuously protected from liquid water.
 2. Use copper naphthenate for items not continuously protected from liquid water.
- E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 1. NES NER-272 for power-driven fasteners.
 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
 3. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in ICBO's Uniform Building Code.
 4. Table 2305.2, "Fastening Schedule," in BOCA's BOCA National Building Code.
 5. Table 2306.1, "Fastening Schedule," in SBCCI's Standard Building Code.
 6. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.
 7. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in ICC's International One- and Two-Family Dwelling Code.
- F. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

3.2 WOOD STRUCTURAL PANEL INSTALLATION AT FLOORS

- A. Concrete Slabs that are to receive wood or carpet finished floors require wood structural panel sub-floors or underlayment. Before installing such products, verify that concrete slabs comply with ASTM F 710 and the following:
 1. The emission of moisture vapor from the floor shall not exceed 3 lbs per 1000 square feet per 24 hours.
- B. If concrete slabs to receive subfloors are within the specified limits for moisture, apply sheet polyethylene vapor barrier before application of subfloor. Tape joints in polyethylene vapor barrier. If concrete slabs to receive subfloors are outside the specified limits for moisture, and additional curing time is not available while maintaining the overall project schedule, treat slabs with 2-component, moisture tolerant, extremely high density, chemically enhanced epoxy based product which prevents the passage of water vapor and moisture through slabs (Damp Proof

Membrane or "DPM"). Follow epoxy manufacturer's recommendations, including shot blasting if required, for slab preparation and installation of barrier coat.

C. Application:

1. Obtain coating manufacturer's warranty for suitability of product and installation methods.
2. Application of DPM: Apply DPM material in quantities as per manufacturers' specifications and recommendations. Apply in sufficient coats to reduce moisture to within specified limits.
3. Re-test cured coating to verify that slabs are within requirements for moisture and pH.

D. Panel Installation, General: Comply with applicable recommendations in APA Form No. E30S, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

E. Fastening Methods: Fasten panels as indicated below:

1. Subflooring:

- a. Mechanically fasten to slab.
- b. Space panels 1/8 inch apart at edges and ends.

2. Underlayment:

- a. Nail to subflooring.
- b. Space panels 1/32 inch apart at edges and ends.

3.3 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.4 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Plywood: Install 1-by-3-inch nominal- size furring horizontally at 24 inches o.c.

3.5 PROTECTION

- A. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION

SECTION 06401 - EXTERIOR 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. Exterior ornamental work, including exposed wood framing, at the "Children's Gate" and the garden gate at the north end of the garden.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for concealed framing.
 - 2. Division 9 Section "Painting" for field finishing of exterior architectural woodwork.

1.3 SUBMITTALS

- A. Product Data: For each type of product and process indicated and incorporated into items of exterior architectural woodwork during fabrication, finishing, and installation.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show details full size.
 - 2. Show locations and sizes of blocking and nailers, including concealed blocking and reinforcement specified in other Sections.
- C. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- D. Qualification Data: For fabricator.

1.4 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. Shop is a certified participant in AWI's Quality Certification Program.

- B. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of exterior architectural woodwork indicated for construction, finishes, installation, and other requirements.

- 1. Provide AWI Quality Certification Program certificates indicating that woodwork complies with requirements of grades specified.

1.5 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation of exterior woodwork only when existing and forecasted weather conditions permit work to be performed and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.
- B. 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.

1.6 COORDINATION

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

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 Products: Comply with the following:
 - 1. Hardboard: AHA A135.4.
 - 2. Softwood Plywood: DOC PS 1, Medium Density Overlay.
- C. Lumber: Clear, vertical-grain, straight, kiln-dried Western Red Cedar.

2.2 INSTALLATION MATERIALS

- A. Blocking, Shims, and Nailers: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
- B. Nails: Stainless steel.

- C. Screws: Bronze or stainless steel.
- D. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts, unless otherwise indicated. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.3 FABRICATION, GENERAL

- A. Wood Moisture Content: 10 to 15 percent.
- B. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - 1. Edges of Solid-Wood (Lumber) Members 3/4 Inch Thick or Less: 1/16 inch.
 - 2. Edges of Rails and Similar Members More Than 3/4 Inch Thick: 1/8 inch.
- C. 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.
- D. Shop cut openings, to maximum extent possible, to receive hardware, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and seal with a water-resistant coating suitable for exterior applications.

2.4 EXTERIOR ORNAMENTAL WORK FOR OPAQUE FINISH

- A. Exterior ornamental work for opaque finish includes the following:
 - 1. Garden gates and gate structure.
- B. Grade: Custom.
- C. Wood Species: Western red cedar.
 - 1. Do not use plain-sawn lumber with exposed, flat surfaces more than 3 inches wide.

2.5 SHOP PRIMING

- A. Woodwork for Opaque Finish: Shop prime woodwork for paint finish with one coat of wood primer specified in Division 9 painting Sections.
- B. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to surfaces installed in contact with concrete or masonry and to end-grain surfaces.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- B. Deliver concrete inserts and similar anchoring devices to be built into substrates well in advance of time substrates are to be built.
- C. 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. Quality Standard: Install woodwork to comply with same grade specified in Part 2 for type of woodwork involved.
- B. Install woodwork true and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- C. 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.
- D. Complete finishing work specified in this Section to extent not completed at shop or before installation of woodwork. Fill nail and screw holes with matching filler where exposed.
- E. Refer to Division 9 Sections for final finishing of installed architectural woodwork.

3.3 ADJUSTING AND CLEANING

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

END OF SECTION

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. New interior trim, frames and jambs for transparent or opaque finish specified and applied as part of Division 9 Section "Painting."
 - 2. Casework, countertops and shelving for transparent or opaque finish shop applied as part of this Section.
 - 3. Sliding interior shutters for transparent finish shop applied as part of this Section.
 - 4. Cabinet and shutter hardware.
 - 5. Repair of existing casework.
 - 6. Plastic-laminate cabinets.
 - 7. Solid surface material countertops.
 - 8. Steel reinforcing members built into countertops.
- B. See drawings and schedules for extent of transparent or opaque finishes. In general, finishes are as follows:
 - 1. Architectural Woodwork within the historic library, including flat file tops, to be transparent finish matching existing woodwork.
 - 2. Wood interior shutters at the glazed curtainwall, and the fin-tube covers below them, to be transparent finish matching the historic woodwork.
 - 3. Other woodwork within the new construction shall be opaque finish.
- C. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.
 - 2. Division 6 Section "Exterior Architectural Woodwork" for woodwork associated with the construction of the "Children's Gate" and the wood gate at the north end of the garden.
 - 3. Division 8 Section "Flush Wood Doors."
 - 4. Division 8 Section "Stile and Rail Wood Doors."
 - 5. Division 8 Section "Glazing" for glass installed in cabinets.
 - 6. Division 9 Section "Painting" for field finishing of interior architectural woodwork not shop finished.

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 each type of product indicated, including cabinet hardware and accessories, handrail brackets, and finishing materials and processes.
- B. Product Data: For all manufactured products, including medium-density fiberboard, particleboard, plywood, high-pressure decorative laminate, adhesive for bonding plastic laminate, stone, fire-retardant-treated materials, cabinet hardware and accessories, handrail brackets, and finishing materials and processes.
 - 1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- C. Shop Drawings: Provide shop drawings for each item of casework or millwork. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show details full size.
 - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, and other items installed in architectural woodwork.
 - 4. At shutters, show detailed drawings of both shutters and hardware installation with associated adjoining construction including soffits, curtainwall and fascias at heads and radiation at sills.
- D. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated.
 - 1. Plastic laminates.
 - 2. Solid surface materials.
- E. Samples for Verification: For the following:
 - 1. Lumber with or for transparent finish, representative of range of grain pattern, 5 inches wide by 24 inches long, for each species and cut, finished on 1 side and 1 edge.
 - 2. Wood-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.
 - 3. Lumber and panel products with shop-applied transparent finish, 100 sq. in., for each finish system, with 1/2 of exposed surface finished.
 - 4. Lumber and panel products with shop-applied opaque finish, 100 sq. in., for each finish system, with 1/2 of exposed surface finished.

5. Plastic-laminate-clad panel products, 8 by 10 inches, for each type, color, pattern, and surface finish, with separate samples of unfaced panel product used for core.
 6. Exposed cabinet hardware and accessories, one unit for each type.
- F. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Shutter Mockup: 3'-0" by 3'-0" mockup showing the following:
 - a. Construction of head, jamb and sill with metal framing.
 - b. Operating shutter vanes.
 - c. Shop applied transparent finish.
 - d. 36" sample of shutter track, hardware and fascia.
- G. Product Certificates: Signed by manufacturers of woodwork certifying that products furnished comply with requirements.
- H. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing architectural woodwork similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production and installation of interior architectural woodwork.
- C. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements.
1. Provide AWI Quality Certification Program labels and certificate indicating that woodwork complies with requirements of grades specified.
- D. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

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. 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.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Species and Cut for Transparent Finish: Red Oak (*Quercus rubra*) quarter sawn or cut, all heartwood.
- C. Wood Species for Opaque Finish at Interior Uses: Any closed-grain hardwood.
- D. Wood Products: Comply with the following:
 - 1. Hardboard: AHA A135.4.
 - 2. Medium-Density Fiberboard: ANSI A208.2, Grade MD-Exterior Glue.
 - 3. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 - 4. Softwood Plywood: DOC PS 1, Medium Density Overlay.
 - 5. Hardwood Plywood and Face Veneers: HPVA HP-1, except veneer thickness for bamboo shall be no less than 1/8".

- E. Adhesive for Bonding Plastic Laminate:
 - 1. Adhesive for Faces: Unpigmented contact cement.
 - 2. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

- F. Solid-Surfacing Material: For use as countertops in Bathrooms G06 and G07, Staff Kitchenette G18. This material is subject to an Alternate.
 - 1. Base price is for the following:
 - a. Manufacturer: E. I. du Pont de Nemours and Company.
 - b. Colors and Patterns: Corian, color selected from manufacturer's full range.
 - c. Finish: Matte.

 - 2. Alternate is for the following:
 - a. Manufacturer: E. I. du Pont de Nemours and Company.
 - b. Colors and Patterns: Zodiac, color selected from manufacturer's full range.
 - c. Finish: Matte.

- G. Steel angles for reinforcing counters. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

- H. Steel Framing Support System for Countertops: Steel angle members, without pierced openings, dimensions as indicated on the drawings. Paint finish.

- I. Aluminum Framing and Trim : Extruded tubes or angles of profiles and dimensions shown where so indicated as part of Interior Architectural Woodwork. Clear anodized at exposed locations.

2.2 CABINET HARDWARE AND ACCESSORIES

- A. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.

- B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening.

- C. Wire Pulls: Back mounted, 5 inches long, 2-1/2 inches deep, and 5/16 inches in diameter.

- D. Catches: Push-in magnetic catches, BHMA A156.9, B03131.

- E. Shelf Rests: BHMA A156.9, B04013, flat style without vertical leg resting against shelf edge.

- F. Drawer Slides: Side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, and rated for the following loads:
 - 1. Box Drawer Slides: 100 lbf.
 - 2. File Drawer Slides: 200 lbf.
 - 3. Pencil Drawer Slides: 45 lbf.

- G. Door Locks: BHMA A156.11, E07121.

- H. Drawer Locks: BHMA A156.11, E07041.
- I. Grommets for Cable Passage through Countertops: 3-inch OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.
- J. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
 - 1. Satin Chromium or Nickel Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
- K. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.
- L. CPU (Computer Central Processing Unit) Holder:
 - 1. Special features: slides forward-backward (12" travel distance).
 - 2. 5" to 9-1/2" wide (adjustable).
 - 3. 14" to 24" tall (adjustable).
 - 4. 14-1/2" deep.
 - 5. Color: Architect to select from standard colors available.
 - 6. Material: powder-coated steel.
 - 7. Quantity: as indicated on drawings.

2.3 SHUTTER TRACK AND ACCESSORIES

- A. Hardware for sliding shutters shall allow the shutters to slide where just one door is used to pull the entire series of doors closed in a cascading action. Hardware rated for 300 pound doors. Follow manufacturer's instructions.
- B. Manufacturer:

Johnson Hardware
Tel. 1-800-837-5664, Fax 1-800-837-4697
- C. Hardware: 200 MD Sliding Door Hardware, 2054 Multi-Door Pull Catch Sets.
 - 1. 200 I-Beam Track: Heavy walled aluminum track precision extruded for smooth operation. Provide track in longest practical length, ideally in continuous runs the length of rooms.
 - 2. 2020 Ball Bearing Hangers: 4-wheel carriage design with rocker system to ensure even weight distribution for smooth operation. Ball bearing wheel hangers that cannot fall off the track yet can be easily disengaged from the door if necessary. Hangers machine turned and balanced with nylon wheels and adjustable height.
 - 3. Strong Door Guide: Steel reinforced 1705 bottom guide slotted into 1050 extruded aluminum bottom guide track to effectively hold doors in place without binding, insuring smooth door operation. Provide track in longest practical length, ideally in continuous runs the length of rooms.

4. 2054 Multi-Door Pull Catch Set: Multi-door pull catch used in multi-slide door applications where just one door is used to pull the entire series of doors closed in a cascading action.

2.4 INSTALLATION MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.
- B. 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.

2.5 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Provide Custom grade interior woodwork complying with the 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. 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 and Rails: 1/16 inch.
- D. 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.
 1. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- E. 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.
- F. Install glass to comply with applicable requirements in Division 8 Section "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

2.6 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

- A. Quality Standard: Comply with AWI Section 300.
- B. Grade: Custom.
- C. Where indicated, mill to custom profiles matching historic profiles indicated.
- D. For pieces wider or thicker than available lumber, use veneered construction. Do not glue for width or thickness.
- E. 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.
- F. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- G. Wood Species and Cut: Red Oak (*Quercus rubra*) quarter sawn.
- H. Finish: Field finishing shall be a part of Division 9 Section "Painting."

2.7 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

- A. Quality Standard: Comply with AWI Section 300.
- B. Grade: Custom.
- C. Where indicated, mill to custom profiles matching historic profiles indicated.
- D. For pieces wider or thicker than available lumber, use veneered construction. Do not glue for width or thickness.
- E. 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.
- F. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- G. Wood Species: Any closed grain hardwood.
- H. Finish: Field finishing shall be a part of Division 9 Section "Painting."

2.8 WOOD CASEWORK FOR TRANSPARENT FINISH

- A. Quality Standard: Comply with AWI Section 400 requirements.
- B. Grade: Custom.
- C. AWI Type of Cabinet Construction: As indicated on drawings.

- D. Wood Species and Cut for Exposed Surfaces: Red Oak (*Quercus rubra*) quarter sawn.
- E. Grain Matching: Run and match grain horizontally for drawer fronts, doors, and fixed panels.
- F. Semi-exposed Surfaces: Provide surface materials indicated below:
 - 1. Surfaces Other Than Drawer Bodies: Birch (*Betula lutea*).
 - 2. Drawer Sides and Backs: Solid-hardwood lumber, birch (*Betula lutea*).
 - 3. Drawer Bottoms: Hardwood plywood, birch (*Betula lutea*) for exposed surfaces.
- G. Finish: Shop finish as a part of the work of this Section.

2.9 WOOD CASEWORK FOR OPAQUE FINISH

- A. Quality Standard: Comply with AWI Section 400 requirements.
- B. Grade: Custom.
- C. AWI Type of Cabinet Construction: As indicated on drawings.
- D. Wood Species: Any closed grain hardwood.
- E. Finish: Shop finish as a part of the work of this Section.

2.10 PLASTIC-LAMINATE CABINETS

- A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.
- B. Grade: Custom.
- C. AWI Type of Cabinet Construction: As indicated.
- D. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
 - 1. Horizontal Surfaces Other Than Tops: HGL.
 - 2. Vertical Surfaces: VGS.
 - 3. Edges: VGS.
- E. Materials for Semi-exposed Surfaces: Provide surface materials indicated below:
 - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade VGS.
 - 2. Drawer Sides and Backs: Solid-hardwood lumber.
 - 3. Drawer Bottoms: Hardwood plywood.
- F. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. Provide Architect's selections from laminate manufacturer's full range of colors and finishes.

2.11 SOLID-SURFACING-MATERIAL COUNTERTOPS

- A. Grade: Custom.
- B. Solid-Surfacing-Material Thickness: 3/4 inch.
- C. Colors, Patterns, and Finishes: Provide materials and products that result in colors of solid-surfacing material complying with the following requirements:
 1. As selected by Architect from manufacturer's full range.
- D. Fabricate tops in one piece, unless otherwise indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
- E. Drill holes in countertops for plumbing fittings and soap dispensers in shop.

2.12 INTERIOR ORNAMENTAL WORK FOR TRANSPARENT FINISH

- A. Quality Standard: Comply with AWI Section 700.
- B. Grade: Custom.
- C. Wood Species and Cut: Red Oak (*Quercus rubra*) quarter sawn.
- D. Finish: Field finishing shall be a part of Division 9 Section "Painting."

2.13 INTERIOR ORNAMENTAL WORK FOR OPAQUE FINISH

- A. Quality Standard: Comply with AWI Section 700.
- B. Grade: Custom.
- C. Wood Species: Any closed grain hardwood.
- D. Finish: Field finishing shall be a part of Division 9 Section "Painting."

2.14 INTERIOR FRAMES AND JAMBS FOR TRANSPARENT FINISH

- A. Quality Standard: Comply with AWI Section 900.
- B. Grade: Custom.
- C. Wood Species and Cut: Red Oak (*Quercus rubra*) quarter sawn.

- D. Finish: Field finishing shall be a part of Division 9 Section "Painting."

2.15 INTERIOR FRAMES AND JAMBS FOR OPAQUE FINISH

- A. Quality Standard: Comply with AWI Section 900.
- B. Grade: Custom.
- C. Wood Species: Any closed grain hardwood.
- D. Finish: Field finishing shall be a part of Division 9 Section "Painting."

2.16 INTERIOR SHUTTERS FOR TRANSPARENT FINISH

- A. Quality Standard: Comply with AWI Section 1200.
- B. Grade: Custom.
- C. Wood Species and Cut: Red Oak (*Quercus rubra*) quarter sawn.
- D. Finish: Shop finish as a part of the work of this Section.

2.17 SHOP FINISHING

- A. Quality Standard: Comply with AWI Section 1500, unless otherwise indicated.
 - 1. Grade: Provide finishes of same grades as items to be finished.
- B. General: Shop finish finished interior architectural woodwork at fabrication shop as specified in this Section. Field finished architectural woodwork is specified as part of Division 9 Section "Painting."
- C. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
 - 1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative overlay.
- D. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining, and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523:
 - 1. Grade: Custom.
 - 2. AWI Finish System TR-6: Catalyzed polyurethane.

3. Filled Finish for Open-Grain Woods: Apply paste wood filler to open-grain woods and wipe off excess. Tint filler to match wood.
 4. Sheen: Satin, 30-50 gloss units.
- E. Opaque Finish:
1. Grade: Custom.
 2. AWI Finish System: Catalyzed polyurethane.
 3. Color: Match Architect's sample.
 4. Sheen: Semigloss, 46-60 gloss units measured on 60-degree gloss meter per ASTM D 523.

PART 3 - EXECUTION

3.1 PREPARATION

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

3.2 INSTALLATION

- A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved.
- B. 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.
- C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.
- D. 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.
- E. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36 inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
 1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base, if finished.
 2. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches.

- F. 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. 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, or hanging strips.

- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Align adjacent solid-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..
 - 4. Calk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."

- H. Shutters: Fabricate aluminum frames and build into shutters. Weld frames in jigs so frames are flat and free of distortion. Install so shutters operate smoothly along tracks and so shutter vanes open and close smoothly and stay in any position.
 - 1. Special Warranty: Contractor agrees to repair or replace shutters that fail in materials or workmanship within specified warranty period.
 - a. Failures include, but are not limited to, the following: Warping (bow, cup, or twist) more than 3/8 inch in a 42-by-156-inch section.
 - 2. Install shutter tracks and telescoping mechanism in accordance with approved shop drawings and manufacturer's instructions. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective shutters.
 - 3. Warranty Period for Shutters: Six years.

3.3 ADJUSTING AND CLEANING

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

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END OF SECTION

INTERIOR ARCHITECTURAL WOODWORK
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