

SECTION 06400 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Interior standing and running trim.
 - 2. Custom wood/plastic laminate casework.
 - 3. Custom plastic-laminate cabinets.
 - 4. Plastic-laminate countertops.
 - 5. Window sills and aprons.
 - 6. Shop finishing interior woodwork.
 - 8. Solid surface countertops.
 - 9. Shelving & clothes rod
 - 10. Solid surface countertops w/integral sink
- B. 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 "Finish Carpentry" for manufactured cabinets and interior carpentry exposed to view that is not specified in this Section.
 - 3. Division 9 Section "Painting" for field finishing of interior architectural standing and running trim receiving an opaque finish. Section 09770 Prefinished Interior Panels.
 - 4. Division 15 Sections for sink units mounted in countertops and for plumbing connections of appliances installed in casework.
 - 5. Division 16 Sections for conduit and connections installed in casework.
- C. Products installed, but not furnished, under this Section include the following:
 - 1. Countertop supports furnished in Division 5 Section "Metal Fabrications."

1.03 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.
- B. Exposed Surfaces of Casework: Surfaces visible when doors and drawers are closed, including visible surfaces in open cabinets or behind glass doors.
- C. Semi exposed Surfaces of Casework: Surfaces behind opaque doors or drawer fronts, including interior faces of doors and interiors and sides of drawers. Bottoms of wall cabinets are defined as "semi exposed."

- D. Concealed Surfaces of Casework: Surfaces not usually visible after installation, including sleepers, web frames, dust panels, bottoms of drawers, and ends of cabinets installed directly against and completely concealed by walls or other cabinets. Tops of wall cabinets and tall cabinets are defined as "concealed."

1.04 SUBMITTALS

- A. General: Submit in accordance with 01330.
- B. Product Data: For each type of product indicated, including cabinet hardware and accessories, and finishing materials and processes.
- C. 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 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, and other items installed in architectural woodwork and countertops.
- D. Samples for Verification: For the following:
 - 1. Lumber with transparent finish, 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. Plastic-laminate-clad panel products, 8-by 10-inches, for each type, color, pattern, and surface finish.
 - 4. Stone with one edge finished to profile indicated, 6-inches square.
 - 5. Exposed cabinet hardware and accessories, one unit for each type and finish.
- E. Product Certificates: Signed by manufacturers of woodwork certifying that products furnished and construction provided comply with requirements.
- F. 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.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced Installer who has completed architectural woodwork similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. 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.

- 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. Contract Documents contain selections chosen from options in the Quality Standards as well as additional requirements beyond those of the Quality Standards. Comply with such selections and requirements in addition to the Quality Standards.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration.
- B. 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.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and provisions have been made for 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 accurate 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.

1.08 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

2.01 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: Maple, plain sawn and sliced.
- C. Wood Species for Opaque Finish: Any closed-grain hardwood.

- D. E. Wood Products: Comply with the following:
 - 1. Particleboard: ANSI A208.1, Grade M-2.
 - a. Provide water-resistant particleboard at within 2'-0" of sinks.
 - 2. Hardwood Plywood and Face Veneers: HPVA HP-1, 7-ply core, no voids, Grade A veneers.
- F. Thermoset Decorative Overlay (Melamine): Particleboard complying with ANSI A208.1, Grade M-2, or medium-density fiberboard complying with ANSI A208.2, Grade MD, with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1, fused to core using average pressure of 320 psi and average temperature of 320 deg F.

2.02 SHELVING AND CLOTHES RODS

- A. Shelving for Storage Closets:
 - 1. Shelves: Thermoset decorative panels (melamine) on particleboard, 3/4 inch thick minimum, with melamine edges on both faces and ends.
 - 2. Shelf Brackets and Standards: Twin slotted, heavy-duty, steel shelf standards and U-shaped, double prong, heavy-duty steel brackets, white powder coat finish.
 - a. Product: Standard No. E3200 and bracket No. E3210; Knape & Vogt Mfg. Co.
- B. Coat Closet Shelving: 3/4" hardwood plywood or MDO with solid-wood front edge.
 - 1. Shelf Cleats: 3/4-by-5-1/2-inch boards with holes to receive clothes rods, of same species and grade indicated above for interior lumber trip of opaque finish.
- C. Clothes Rods: 1-1/2-inch-diameter, clear, kiln-dried hardwood rods.
 - 1. Rod Flanges: Clear, kiln-dried white maple turnings.

2.03 CABINET HARDWARE

- A. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.
- B. Door and Drawer Pulls: Knobgallery: Amerock Pull Candler BP29355G10; finish: satin nickel.
- C. Shelf Rests: BHMA A156.9, B04013.
 - 1. Double pin shelf rest with clip retainer for 5 mm diameter drilled holes, PX Allen Fields.
- D. Drawer Slides: Side-mounted, full-extension, white epoxy-coated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, and rated for the following loads:
 - 1. Box Drawer Slides: 100 lbf.
 - a. Product: Drawer slide No. 6200, Grasse, Inc. or No. 3211, Mepla-Alfit, Inc.
 - 2. File Drawer Slides: 200 lbf.
 - a. Product: Pendaflex No. 6110; Grasse, Inc. or Prosystem; Mepla-Alfit, Inc.
- E. Drawer Locks: Cylindrical type, 5-pin tumbler and cam, complying with BHMA A156.11, Grade 1; satin chrome finish.
 - 1. Provide minimum of 2 keys per lock.
 - 2. Lock all drawers; keyed according to Owner's instructions.

- F. Grommets for Cable Passage through Countertops: Molded-plastic grommets and matching plastic caps with slot for wire passage; size determined during Shop Drawing review; color selected by Architect.
 - 1. Manufacturers: Doug Mockett and Co., Inc. or Outwater Plastics, (800) 631-8375.

2.03 INSTALLATION MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.
- B. Screws: Select material, type, size, and finish required for each use. Comply with ASME B 18.6.1 for applicable requirements.
- C. Nails: Select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.
- 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 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.
- E. Glue: Aliphatic- or Phenolic resin wood glue recommended by manufacturer for general carpentry use. Comply with LEED low emitting materials - adhesives and sealants.

2.04 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade indicated. When quality grade is not indicated, provide Custom quality grade.
- 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 $\frac{3}{4}$ -inch Thick or Less: $\frac{1}{16}$ -inch.
 - 2. Edges of Rails and Similar Members More Than $\frac{3}{4}$ -Inch Thick: $\frac{1}{8}$ -inch.
 - 3. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: $\frac{1}{16}$ -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 water-resistant varnish.

- 2.05 CUSTOM INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH
 - A. Quality Standard: Comply with AWI Section 300.
 - B. Grade: Custom.
 - 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.
 - D. Assemble casings in plant except where limitations of access to place of installation require field assembly.
 - E. Wood Species and Cut: Maple, plain sawn.

- 2.06 CUSTOM INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH
 - A. Quality Standard: Comply with AWI Section 300.
 - B. Grade: Custom.
 - 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.
 - D. Assemble casings in plant except where limitations of access to place of installation require field assembly.
 - E. Wood Species: Any closed-grain hardwood.

- 2.07 WOOD/PLASTIC LAMINATE CASEWORK FOR TRANSPARENT FINISH
 - A. Quality Standard: Comply with AWI Section 400 requirements for wood and laminate cabinets.
 - B. Grade: Custom.
 - C. AWI Type of Cabinet Construction: Flush overlay.
 - D. Wood Species and Cut for Exposed Surfaces: Maple, plain sawn or sliced.
 - 1. Grain Matching: Run and match grain vertically for drawer fronts and fixed panels.
 - 2. Matching of Veneer Leaves: Book match.
 - 3. Vertical Matching of Veneer Leaves: End match.
 - 4. Veneer Matching within Panel Face: Balance match.
 - 5. Drawer Faces: Solid wood.

- E. 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.
 - 4. Colors, Patterns, and Finishes: As indicated by laminate manufacturer's designations in Interior Finish Legend for these characteristics.
- F. Semi exposed Surfaces: Provide surface materials indicated below:
 - 1. Drawer Sides and Backs: Thermoset decorative overlay.
 - 2. Drawer Bottoms: Thermoset decorative overlay.

2.08 PLASTIC-LAMINATE CASEWORK

- A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.
- B. Grade: Custom.
- C. AWI Type of Cabinet Construction: Flush overlay.
- 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. Colors, Patterns, and Finishes: As indicated by laminate manufacturer's designations in Interior Finish Legend for these characteristics.

2.09 PLASTIC-LAMINATE COUNTERTOPS

- A. Quality Standard: Comply with AWI Section 400C requirements for high-pressure decorative laminate countertops.
- B. Grade: Custom.
- C. High-Pressure Decorative Laminate Grade: HGS.
- D. Colors, Patterns, and Finishes: As indicated by laminate manufacturer's designations in Interior Finish Legend for these characteristics.
- E. Grain Direction: Parallel to cabinet fronts.
- F. Edge Treatment: As indicated.
- G. Core Material: Particleboard.
- H. Core Material at Sinks: Exterior-grade plywood or moisture-resistant particleboard.
- I. Balance Sheet: Phenolic laminate applied to the reverse side of plastic laminate finish.
- J. ADA Sink Areas: In countertops with stepped areas for ADA sinks, construct depressed area

and vertical sides with plywood substrate. Face edge of tops shall be 1-inch wide minimum, fully covering substrate. No joints shall occur within 2-feet of a sink. Sand surfaces to which plastic laminate is to be bonded.

2.10 SOLID SURFACE COUNTERTOPS

- A. General: Provide units with smooth surfaces in uniform plane free of defects.
- B. Solid Surface Fabrication: Provide units polished on all exposed surfaces, sawn on concealed surfaces, and having the following configurations:
 - 1. Nominal Thickness: Provide thickness indicated, but not less than indicated on the drawings. Gage backs to provide units of identical thickness.
 - 2. Edge Detail: As indicated.
 - 3. Seams: Fabricate tops without seams to the maximum extent possible. Where required, seams shall be hairline and sealant filled.
 - 4. Color: As indicated on finish legend.
 - 5. Provide integral solid surface sink.

2.11 WINDOW SILLS

- A. Quality Standards: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards."
- B. Window Sills (Stools) and Aprons for opaque finish: Fabricate to AWI Custom Grade, from solid hardwood, in profile indicated.
 - 1. Species: Poplar.

2.12 ACCESSORY MATERIALS

- A. Counter Bracket Supports: Angle brackets fabricated of 1/8 inch steel with multiple 1/4-inch mounting holes on each leg; 3- by 3-inch, 45 deg notch at leg intersection for wire run clearance; 2,000 lb capacity; factory primed for field finishing.
 - 1. Size: Varies as required for condition; coordinate with Drawings.
 - 2. Product: Work Station Brackets; A & M Hardware, Inc.; phone: (888) 647-0200;

2.13 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: Priming and finishing of interior architectural woodwork required to be performed at fabrication shop are specified in this Section. Refer to Division 9 Section "Painting" for final finishing of installed architectural woodwork and for material and application requirements for woodwork not specified to receive final finish in this Section.
 - 1. Custom standing and running trim receiving an opaque finish shall be back primed for field finishing.
- 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.

- 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: Premium system for all casework grades .
 - 2. AWI Finish System TR-6: Catalyzed polyurethane.
 - 3. Staining: Match approved sample for color.
 - 4. Sheen: Satin, 30-50 gloss units.
 - 5. Provide 7 coat system on custom millwork indicated.

PART 3 - EXECUTION

3.01 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.

3.02 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 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 drawers fit openings properly and are accurately aligned. Adjust hardware to center 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.

- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
 - 1. Install countertops with no more than **1/8-inch** in **96-inch** sag, bow, or other variation from a straight line.
 - 2. Secure backsplashes to walls with adhesive.
 - 3. Install countertop brackets specified in Division 5 Section "Metal Fabrications." Painting of bracket specified in Division 9 Section "Painting."
 - 4. Provide cutouts for fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal surfaces of cutout edges.
 - 5. Calk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."

- H. Solid Surface Tops: Install tops by adhering to supports with water-cleanable epoxy adhesive.
 - 1. Bond seams with stone seam adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to seams to prevent adhesive smears. Clamp units to temporary bracing to ensure that countertops are properly aligned and seams are minimum width.
 - 2. Apply sealant to seams and to gap between tops and wall; comply with Division 7 Section "Joint Sealants." Install per manufacturer's requirements.

- I. Refer to Division 9 Sections for final finishing of installed architectural woodwork.

3.03 SHELVING AND CLOTHES ROD INSTALLATION

- A. Cut shelf cleats at ends of shelves about ½ inch less than width of shelves and sand exposed ends smooth.

- B. Install shelf cleats by fastening to framing or backing with finish nails or trim screws, set below face and filled. Space fasteners not more than 16 inches o.c. Use 2 fasteners at each framing member or fastener location for cleats 4 inches nominal in width and wider.
 - 1. Apply a bead of multipurpose construction adhesive to back of shelf cleats right before installing. Remove adhesive that is squeezed out immediately after fastening shelf cleats in place.

- C. Install standards for adjustable shelf brackets according to manufacturer's written instructions, space not more than 36 inches o.c. and within 6 inches of end of shelves. Fasten to framing members, blocking, or metal backing, or use toggle bolts or hollow wall anchors.

- D. Cut shelves to neatly fit openings with only enough gap to allow shelves to be removed and reinstalled. Install shelves, fully seated on cleats, brackets, and supports.
 - 1. Fasten shelves to cleats with finish nails or trim screws, set flush.
 - 2. Fasten shelves to brackets to comply with bracket manufacturer's written instructions.

3.04 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 semi exposed surfaces. Touch up shop-applied finishes to

restore damaged or soiled areas.

3.04 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to fabricator and Installer that ensures that woodwork is without damage or deterioration at the time of Substantial Completion.

END OF SECTION 06400