

SECTION 06400 - 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. Custom interior standing and running trim.
 - 2. Custom plastic-laminate cabinets.
 - 3. Plastic-laminate countertops.
- B. Related Sections include the following:
 - 1. Division 5 Section "Metal Fabrications" for counter supports not included in this Section.
 - 2. 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.
 - 3. Division 6 Section "Finish Carpentry" for standing and running trim, window sills and aprons, closet shelving, manufactured casework, and interior carpentry exposed to view that is not specified in this Section.

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. Semiexposed 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 "semiexposed."
- 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.
- D. Samples for Verification: For the following:
1. Lumber with or for transparent finish, 5 inches wide by 24 inches long, for each species and cut, finished on 1 side and 1 edge.
 2. Plastic-laminate-clad panel products, 8 by 10 inches, for each type, color, pattern, and surface finish.
 3. Thermoset decorative-overlay surfaced panel products, 8 by 10 inches, for each type, color, pattern, and surface finish.
 4. Exposed cabinet hardware and accessories, one unit for each type and finish, if requested by Architect.
- 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. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production and installation of interior architectural woodwork.
- D. 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. The 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.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

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 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 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's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated. If a quality grade is not specified, provide AWI Custom Grade.
- B. Wood Species and Cut for Transparent Finish: Select white maple, plain sliced.
- C. Wood Products: Comply with the following:
 - 1. Medium-Density Fiberboard, MDF: ANSI A208.2, Grade MD, 48 lb. density.
 - 2. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 - 3. Softwood Plywood: DOC PS 1.
- 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, PLAM-1 & 2: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.
 - 1. Manufacturer: Pionite.
 - 2. Colors, Patterns, and Finishes: As indicated on Materials Legend.
- F. Edgebanding for Plastic Laminate: Shall be as follows:
 - 1. Casework and Shelves in Concealed Locations: Rigid PVC extrusions, through color with satin finish, 1 mm and 3 mm thick with radiused edges, where indicated in other Part 2 articles, color to match laminate. Hot melt adhesive application.

2. Countertops: Self-edged, unless otherwise noted.

2.02 CABINET HARDWARE

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 8 Section "Door Hardware."
- B. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.
- C. Butt Hinges: 2-3/4-inch, 5-knuckle steel hinges made from 0.095-inch-thick metal with antifriction bearings and rounded tips, and as follows:
 1. Semiconcealed Hinges for Flush Doors: BHMA A156.9, B01361.
 2. Provide 2 for doors less than 48 inches high; 3 for doors 48 to 62 inches high; and 4 hinges for doors more than 62 inches high.
- D. Wire Pulls: Back mounted, 4 inches long, 5/16 inches in diameter; satin finished stainless steel.
 1. Manufacturer: Ives or Stanley.
- E. Catches: Provide 2 catches on doors more than 48 inches high.
 1. Heavy duty magnetic catches, BHMA A156.9, B03171.
 - a. Product: Catch No. 918; Knapé & Vogt Mfg. Co.
 2. Heavy duty roller catches with conical spring and full lip strike.
 - a. Product: Roller latch No. 335; H. B. Ives.
- F. Adjustable Shelf Standards and Supports:
 1. Recessed Standards and Supports for Concealed Locations: Steel standards with 2 inch o.c. adjustment complying with BHMA A156.9, B84071; with steel shelf rests; with nickel finish.
 - a. Product: Standard No. 255 with shelf rest No. 256; Knapé & Vogt Mfg. Co.
- G. Drawer Slides: Side-mounted, full-extension, epoxy-coated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, and rated for the following loads:
 1. Box Drawer Slides: 75 lbf.
 - a. Product: Drawer slide No. 6200, Grasse, Inc. or No. 3211, Mepla-Alfit, Inc.
- H. Drawer and Cupboard Locks: Cylindrical type, 5-pin tumbler and cam, brass with chrome-plated finish, complying with BHMA A156.11, Grade 1.
 1. Timberline; CompX deadbolt door locks; tall cabinets System 260.
 - a. Provide barlock multipoint locks for tall cabinets.
 2. Provide minimum of 2 keys per lock and 3 master keys.
 3. Each room shall be keyed according to Owner's instructions. Provide on all drawers and doors.
- I. Grommets for Cable Passage through Countertops: Molded-plastic grommets and matching plastic caps with slot for wire passage.
 1. Size: Determined during Shop Drawing review.
 2. Color: Selected by Architect from manufacturer's full range of colors.
 3. Manufacturers:
 - a. Doug Mockett and Co., Inc.
 - b. Outwater Plastics, (800) 631-8375.

- J. 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.
- K. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.03 CABINET ACCESSORY MATERIALS

- A. Counter Bracket Supports: Fabricated of 6063 T-6, T-shaped extruded aluminum; MIG welded along 45 degree miters and along back; pre-punched for 1/4-inch fasteners; provide rubber grommet in 7/8-inch hole; powder coated finish; Rakks, Rangine Corp., Millis, MA.

2.04 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.
 - 1. For metal framing supports, provide screw as recommended by metal-framing manufacturer.
- 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. Fasteners For Pressure-Preservative Treated Materials: Provide stainless steel fasteners when fastening to pressure-preservative treated materials.

2.05 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 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.
 - 3. 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 water-resistant varnish.

2.06 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 moldings in plant to maximum extent possible. Miter corners in plant and prepare for field assembly with bolted fittings designed to pull connections together.
- E. Wood Species and Cut: Select white maple, plain sawn.

2.07 PLASTIC-LAMINATE CABINETS

- 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: PVC tape, matching laminate in color, pattern, and finish.
- E. Materials for Semiexposed Surfaces: Provide surface materials indicated below:
 - 1. Surfaces Other Than Drawer Bodies: Thermoset decorative overlay.
 - 2. Drawer Sides and Backs: Thermoset decorative overlay.
 - 3. Drawer Bottoms: Thermoset decorative overlay.

- F. Base and Tall Cabinets: Bottoms and ends of cabinets, exposed backs, and tops of cabinets; **3/4-inch** particleboard, plastic laminate faced on exposed surfaces, melamine or plastic laminate cabinet liner faced on semi-exposed surfaces.
1. Backs of Cabinets: **3/8-inch** plywood. Back mounted to side, bottom and top; inset **3/4-inch** to conceal mounting rails. Tall cabinets shall have rails positioned at top and intermediate location. Base cabinet shall have mounting rail positioned at the top.
 2. Mounting Rails: **3/4-inch** thick, fastened to cabinet back on interior of cabinet or as indicated in details.
 3. Cabinet Sub-Base: Separate and continuous (no cabinet body sides to floor), water resistant exterior grade plywood with concealed fastening to cabinet bottom. Ladder type construction of front, back, and intermediates to form a secure and level platform to which cabinets attach.
 4. Depth: Provide cabinets of the type indicated meeting the following:
 - a. Deep Cabinet: Minimum outside depth of 23 inches from wall to face of cabinet box, less the door (approximately 24 inches from wall to face of door).
 - b. Shallow Cabinet: Minimum outside depth of 13 inches from wall to face of cabinet box, less the door (approximately 14 inches from wall to face of door).
- G. Wall Cabinets: Ends of cabinets and exposed backs; **3/4-inch** particleboard, plastic-laminate faced on exposed surfaces, melamine or plastic laminate cabinet liner faced on semi-exposed surfaces. Tops and bottoms of cabinets; **1-inch** particleboard, melamine or plastic laminate cabinet liner faced.
1. Backs of Cabinets: **3/8-inch** plywood, melamine or plastic laminate cabinet liner faced surfaces with balance sheet on concealed side. Back mounted to side bottom and top, inset **3/4-inch** to conceal mounting rails. Cabinets shall have rails positioned at top and bottom location.
 2. Mounting Rails: **3/4-inch** thick, fastened to back of cabinet on interior of cabinet or as indicated in details.
 3. Depth: Wall hung cabinets shall have a minimum outside depth of 13 inches from wall to face of cabinet box, less the door (approximately 14 inches from wall to face of door).
- H. Inside Corners: Construct cabinets and fillers at inside corners to allow for proper clearance and operation of drawers and doors.
- I. Drawer Fronts: **3/4-inch** thick particleboard, plastic-laminate faced on exposed surfaces, melamine or plastic laminate cabinet liner faced on semi-exposed surfaces, applied to separate drawer body sub-front.
- J. Drawer Bodies: **1/2-inch** thick MDF or plywood sides, back, and sub-fronts with dadoed, pinned and glued joints. MDF bottom, **1/4-inch** thick, rabbeted into sides, back and sub-front, and glued. All surfaces inside and outside of drawer box shall be covered with melamine finish. Reinforce drawer bottoms with **1/2-inch by 4-inch** front to back, hardwood intermediate stiffeners, glued and fastened in place. Provide one stiffener for drawers to **24 inches** wide, two to **36 inches** wide and four to **48 inches** wide.
- K. Solid Doors: **3/4-inch** thick particleboard or medium-density fiberboard, plastic-laminate faced on exposed surface, melamine or plastic laminate cabinet liner faced on semi-exposed surfaces.
- L. Dividers: **3/4-inch** thick particleboard or medium-density fiberboard, plastic-laminate faced on exposed surface, melamine or plastic laminate cabinet liner faced on semi-exposed surfaces.

- M. Shelving: Particleboard or medium-density fiberboard meeting the following:
1. Behind Solid Doors: **3/4-inch** thick for cabinets up to **24 inches** wide. **1-inch** thick shelving for cabinets **24 inches** and greater wide. Melamine or plastic laminate cabinet liner faced.
 2. All shelving shall be adjustable. Fixed center shelf for tall units to prevent bowing of cabinet sides.
- N. Edgebanding: Color to match surfacing material. Finished edgebanding shall be uniform in color and sheen.
1. Semi-Exposed Shelving: 3 mm PVC applied to front edge, matching face laminate. 1 mm PVC applied to back edge and both ends.
 2. Doors and Drawer Fronts: 0.020 inch PVC applied to perimeter, matching face laminate.
 3. Drawer Bodies: 1 mm PVC applied to all edges, semi-exposed and concealed locations (top, back and bottom edges).
 4. Cabinet Bodies: 1 mm PVC applied to all exposed and semi-exposed edges.
 5. Dividers: 1 mm PVC.
- O. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. Match color, pattern, and finish as indicated by laminate manufacturer's designations for these characteristics.

2.08 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: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. Match color, pattern, and finish as indicated by manufacturer's designations for these characteristics.
- E. Edge Treatment: Same as laminate cladding on horizontal surfaces, unless otherwise noted.
- F. Core Material: Particleboard.
1. Core Material at Sinks: Exterior-grade plywood.

2.09 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. 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. Sheen: Satin, 30-50 gloss units.

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 backpriming.

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. Custom 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 wall railings on indicated metal brackets securely fastened to wall framing.
 - 3. 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. 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.
- 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 tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.

3. Calk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."

H. Complete the finishing work specified in this Section to extent not completed at shop or before installation of woodwork. Fill nail holes with matching filler where exposed. Apply specified finish coats, including stains and paste fillers if any, to exposed surfaces where only sealer/prime coats were applied in shop.

3.03 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.

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