

SECTION 06400
FINISH CARPENTRY AND ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.01 PROVISIONS INCLUDED

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

1.02 SUMMARY

- A. Work Included:
1. Interior standing and running trim.
 2. Laminate clad cabinets.
 3. Laminate clad counters.
 4. Solid surfacing lavatory counters.
 5. Adjustable shelving.
 6. Closet shelving and poles.
- B. Related Work Specified in Other Sections:
1. Furring, blocking, and other carpentry work that is not exposed to view: Section 06100, "Rough Carpentry."
 2. Wood doors: Section 08210.
 3. Laboratory casework and tops: Section 12350.

1.03 REFERENCED STANDARDS

- A. American National Standards Institute (ANSI)/Builders Hardware Manufacturer's Association, Inc. (BHMA): ANSI/BHMA A156 Series standards for hardware and specialties.
1. ANSI/BHMA A156.9, "American National Standard for Cabinet Hardware."
 2. ANSI/BHMA A156.11, "American National Standard for Cabinet Locks."
 3. ANSI/BHMA A156.16, "American National Standard for Auxiliary Hardware."
- B. Architectural Woodwork Institute (AWI): "Architectural Woodwork Quality Standards."
- C. Hardwood Plywood and Veneer Association (HPVA): HP-1-1993, "Interim Voluntary Standard for Hardwood and Decorative Plywood."
- D. U. S. Department of Commerce Product Standards: PS-20, "American Softwood Lumber Standard."

1.04 SUBMITTALS

- A. Product data: Submit manufacturer's illustrated product literature, specifications and installation instructions for each type of manufactured product and process specified in this section.

- B. Shop drawings: Submit shop drawings for the following fabrications. Show location of each item; include dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Interior standing and running trim.
 - 2. Laminate clad cabinets.
 - 3. Laminate clad countertops.
 - 4. Solid surfacing lavatory counters.
- C. Samples:
 - 1. For initial selection, submit manufacturer's color charts or chains, showing full range of colors, textures, and patterns available for each type of material indicated.
 - a. Plastic laminate.
 - b. Solid surfacing.
 - 2. For verification, submit the following samples:
 - a. Lumber with or for transparent finish, 50 square inches, for each species and cut, finished on one side and one edge.
 - b. Laminate clad panel products, 8-1/2 inches, by 11 inches for each type, color, pattern, and surface finish, with separate samples of unfaced panel product used for core.
 - c. Solid surfacing material.
 - d. Samples showing cabinet corner construction.
 - e. Miter joints for standing trim.
 - f. Exposed cabinet hardware, one unit of each type and finish.
- D. Product certificates signed by woodwork manufacturer certifying that products comply with specified requirements.
- E. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.

1.05 QUALITY ASSURANCE

- A. Fabricator and Installer Qualifications: Firm experienced in successfully producing and installing architectural woodwork similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work. The fabricator shall assume undivided responsibility for woodwork specified in this section, including fabrication, finishing, and installation.
- B. Materials and Fabrication Quality Standard: Comply with applicable requirements of AWI "Quality Standards," except as otherwise indicated.

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, wet work, grinding, and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions."

1.07 PROJECT CONDITIONS

- A. Environmental Conditions for Interior Woodwork: Obtain and comply with Woodwork Manufacturer's recommendations for temperature and humidity conditions for woodwork during its storage and installation. Do not install woodwork until these conditions have been stabilized inside the building, so that woodwork is within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.
- B. Field Measurements: Where woodwork is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of Work.

PART 2 - PRODUCTS

2.01 SOLID LUMBER

- A. Solid Lumber, Transparent Finish: Select White Maple, plain sawn, AWI Grade I.

2.02 PANEL PRODUCTS

- A. General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade indicated.
- B. Panel Core Materials: Provide type of material specified under fabrication or noted on the drawings, complying with the following:
 - 1. Furnish panel core materials which comply with the following standards with respect to properties other than recycled material and urea formaldehyde content:
 - a. Medium-Density Fiberboard: ANSI A208.2, Grade MD.
 - b. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 - 2. Furnish panel core materials which are made of 100% recycled wood fiber and which contain no added urea formaldehyde. Available products include the following:
 - a. Roseburg "Skyblend" Particleboard.
 - b. SierraPine "Medite II" panels for dry applications; "Medex" panels for counters with sinks.
- C. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
 - 1. Color: As selected by Architect from manufacturer's full range.

D. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.

1. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:
 - a. Formica Corporation.
 - b. Nevamar Company, LLC; Decorative Products Div.
 - c. Pionite Decorative Surfaces; Panolam Industries International Incorporated.
 - d. Wilsonart International; Div. of Premark International, Inc.
2. Colors, Patterns, and Finishes: As selected by Architect from manufacturer's full range of colors and finishes in solid or pattern.

E. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2-01.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Avonite, Inc.
 - b. E. I. du Pont de Nemours and Company.
 - c. Formica Corporation.
 - d. Nevamar Company, LLC; Decorative Products Div.
 - e. Wilsonart International, Div. of Premark International, Inc.
2. Colors and Patterns: As selected by Architect from manufacturer's full range.
3. Accessories: Furnish adhesives and seaming materials recommended by the solid surfacing manufacturer, subject to compliance with general limitations on adhesives specified for this Project.
 - a. Furnish seaming materials in color matching the polymer sheet.

2.03 CABINET HARDWARE

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.
- B. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.
- C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 135 degrees of opening.
- D. Wire Pulls: Back mounted, 5 inches long, 2-1/2 inches deep, and 5/16 inches in diameter.
- E. Catches: Push-in magnetic catches, BHMA A156.9, B03131.
- F. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- G. Drawer Slides: Side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091. Furnish box drawer slides rated for 100 lbf, minimum.

- H. Door Locks: BHMA A156.11, E07121.
- I. Drawer Locks: BHMA A156.11, E07041.
- J. Grommets for Cable Passage through Countertops: 2-inch OD, black, molded-plastic grommets and matching plastic caps with slot for wire passage.
- K. Exposed Hardware Finish: For exposed hardware, provide stainless steel hardware with satin finish that complies with BHMA A156.18 for BHMA 630.
- L. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.04 ACCESSORY MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content, conforming to Section 06100.
- 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 for mounting carpentry items inside toilet rooms. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- C. Screws: Select material, type, size, and finish required for each use. Comply with FS FF-S-111 for applicable requirements.
- D. Adhesives:
 - 1. Do not use adhesives that contain urea formaldehyde.
 - 2. VOC Limits: For adhesives and glues used in assemblies which will be installed inside the building, whether shop- or field-fabricated, use products which comply with limitations on VOC content of adhesives as specified in Section 01600, "Product Requirements."
 - 3. Adhesive for Bonding Plastic Laminate: Contact cement. For bonding edges, use hot-melt adhesive.

2.05 FABRICATION, GENERAL

- A. Interior Woodwork Grade: AWI Premium Grade.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard.
- C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to 1/16 inch radius, unless other radius is indicated on the drawings.
- D. Complete fabrication, including assembly, finishing, and hardware application, before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

- E. Factory-cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, 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. Seal edges of openings in countertops with a coat of varnish.
 - 1. When fabricating countertops for sinks, coordinate with dimensions and clearance requirements for sinks, drains and faucets.

2.06 STANDING AND RUNNING TRIM

- A. Quality Standard: Comply with AWI Section 300.
- B. Backout or groove backs of flat trim members and kerf backs of other wide flat members, except for members with ends exposed in finished work.

2.07 LAMINATE CLAD CABINETS

- A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.
- B. AWI Type of Cabinet Construction: Flush overlay.
- C. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
 - 1. Vertical Surfaces: VGS, 0.028 inch thick.
 - 2. Horizontal Surfaces Other Than Tops: HGS, 0.05 inch thick.
 - 3. Edges: Match laminate surface in Grade, color, pattern, and finish.
- D. Materials for Semiexposed Surfaces: Provide surface materials indicated below:
 - 1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade VGS or thermoset decorative panels.
 - a. Shelf Edges: Match face laminate in thickness, color and finish.
 - b. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, Grade VGS.
 - 2. Drawer Sides and Backs: Thermoset decorative panels.
 - 3. Drawer Bottoms: Hardwood plywood or thermoset decorative panels.
- E. Concealed Backs of Panels with Exposed Plastic Laminate Surfaces: High-pressure decorative laminate, Grade BKL.

2.08 LAMINATE-CLAD CABINET TOPS AND COUNTERS

- A. Quality Standard: Comply with AWI Section 400 requirements for high-pressure decorative laminate countertops.
- B. High-Pressure Decorative Laminate Grade: HGS, 0.048 inch thick.
- C. Edge Treatment: As indicated.
- D. Core Material: Particleboard or medium-density fiberboard; except at counters with sinks, use particleboard made with exterior glue or medium-density fiberboard made with exterior glue.

2.09 SOLID-SURFACING-MATERIAL COUNTERTOPS

- A. Quality Standard: Comply with AWI Section 400 requirements for countertops.
- B. Solid-Surfacing-Material Thickness: 3/4 inch unless otherwise shown.
- C. Fabricate tops in one piece, with shop-applied edges of materials and configuration indicated. Comply with solid-surfacing-material manufacturer's written recommendations for adhesives, sealers, fabrication, and finishing.
 - 1. Provide 4-inch high splashback wherever the counter meets a vertical surface. At Contractor's option, backsplash may be shop-applied or shipped loose for field application.

2.10 FACTORY FINISHING OF ARCHITECTURAL WOODWORK

- A. Quality Standard: Comply with AWI Section 1500 unless otherwise indicated.
- B. Finish architectural woodwork at factory. Defer only final touch-up, cleaning, and polishing until after installation.
- C. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces and similar preparations for finishing of architectural woodwork, as applicable to each unit of work.
- D. Transparent Finish for Closed-Grain Woods: AWI Catalyzed Polyurethane finish system, Premium grade; satin sheen, 30°-50° on 60° Gloss Meter (ASTM D 523).

2.11 SHELVING AND SUPPORTS

- A. Closet and Storage Shelving: Particleboard overlaid with low-pressure decorative laminate such as "melamine"; white color. Finish both faces and all four edges.
- B. Shelving Supports: Heavy-duty 16-gauge steel double-slotted standards and 12 inch deep steel shelf brackets; chrome finish; equal to Knap & Vogt 85 ANO standard with 185LL ANO brackets.
- C. Closet Rods: Stainless steel clad tubing, 1-1/16" diameter, 0.087 inch minimum wall thickness; with polished chrome escutcheon supports. One of the following or approved equal.
 - 1. Knap & Vogt #660 rods with #735 and 735 supports.
 - 2. EPCO (The Engineered Products Co.) #870 rods with #850 and 860 supports.
- D. Supports for Open Front Counters: Bent strap steel brackets, dimensions as shown on Drawings, pre-drilled with pair of screw holes at each end of the strap; minimum 400 lb. capacity per pair; Doug Mockett & Co. Model SWS4 or equal.
 - 1. Metal Finish: Shop-finished with manufacturer's standard powder-coat in color selected by Architect from standard color options.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas before installing.
- 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 back priming and removal of packing.

3.02 INSTALLATION, GENERAL

- A. Quality Standard: Install woodwork to comply with AWI Section 1700 for same grade specified in Part 2 of this section for type of woodwork involved.
- B. Install woodwork plumb, level, true, and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 8'-0" for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.
- C. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
- D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork and matching final finish where transparent finish is indicated.

3.03 STANDING AND RUNNING TRIM

- A. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns and miter at corners.

3.04 LAMINATE-CLAD CABINETS AND TOPS

- A. Cabinets: Install without distortion so that 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 the installation of hardware and accessory items as indicated. Maintain veneer sequence matching (if any) of cabinets with transparent finish.
- B. Tops and Counters: Anchor securely to base units and other support systems as indicated, using concealed fasteners.
 - 1. Laminate-Clad Splashback: Unless shown otherwise, install 4-inch high splashback wherever top or counter meets a vertical surface. Bed splashback in a continuous bead of sealant.

3.05 LAVATORY COUNTERS

- A. Anchor security to undercounter supports using concealed fasteners.
- B. Solid Surfacing Splashback: If backsplashes were shipped loose, place snugly against abutting vertical surfaces and weld to counter using methods recommended by solid-surfacing manufacturer; make seam watertight.

3.06 MISCELLANEOUS CARPENTRY

- A. Closet Shelving and Poles: Install level. Mount poles at 48 inch height to comply with accessibility requirements, unless other height is shown. Mount shelf 2-1/2 to 3 inches above centerline of pole to allow adequate clearance for hangers, unless other height is shown. Support on three sides with 1 x 2 wood set on edge under shelf and screwed to blocking in wall.
- B. Storage Shelving: Install in shelf supports in accordance with manufacturer's instructions. Locate standards as required so that each shelf unit is supported on at least two supports, one located near each end of each shelf unit, and with intermediate supports spaced as recommended by the manufacturer of the standards and brackets to support the design loads specified in Part 2 of this Section. Space shelves vertically as shown, or if not shown, at nominal 12 inch center to center spacing.

3.07 ADJUSTMENT AND CLEANING

- A. Repair damaged and defective woodwork to eliminate defects functionally and visually; where not possible to repair to Architect's satisfaction, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean and adjust hardware.
- C. Clean woodwork on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.08 PROTECTION

- A. Protect finish carpentry and casework and maintain environmental conditions in a manner acceptable to manufacturer and Installer, to ensure that woodwork is without damage or deterioration at time of Substantial Completion.

END OF SECTION 06400