

## **SECTION 06 40 00 – 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. Section includes furnishing and installing the following:
  - 1. Plastic laminate clad wood cabinets and cabinet tops.
  - 2. Closet and utility shelving.

#### **1.3 RELATED WORK**

- A. Related Work of Other Sections:
  - 1. Section 06 10 53 – Miscellaneous Rough Carpentry.
  - 2. Section 09 65 00 – Resilient Flooring.
  - 3. Section 09 90 00 – Painting and Coating.
  - 4. Division 22 Sections – Plumbing equipment and systems.
  - 5. Division 23 Sections – Mechanical equipment and systems.
  - 6. Division 26 Sections – Electrical equipment and systems.
  - 7. Division 27 Sections – Communication equipment and systems.

#### **1.4 REFERENCES**

- A. Referenced Standards: Comply with applicable requirements of AWI "Architectural Woodwork Quality Standards", 7th Edition, Ver. 1.2, 1999, except comply with more stringent requirements specified.

#### **1.5 SUBMITTALS**

- A. Submit shop drawings showing location of each item, elevations, and large scale details, indicating related work and complete method of connections, jointing, support, anchorage, reinforcement, material types (including wood species, cut, high pressure decorative laminate grade, finish and color), hardware, and finishes. Show and note field dimensions requiring field measurement for verification and coordination with related work. Submit samples of plastic laminate, each type of hardware, and opaque finished wood.
- B. Environmental Submittals:
  - 1. Certification of compliance with the environmental performance requirements specified.
  - 2. Material Safety Data Sheets (MSDS) for adhesive and coatings.
  - 3. Energy performance data.
  - 4. Maintenance data.

## 1.6 QUALITY ASSURANCE

- A. Fabricator/Installer Qualifications: Arrange for work of this Section to be performed by a firm with not less than 3 years successful experience in fabrication and finishing of woodwork similar to required work.
- B. Environmental Requirements:
  - 1. Provide cabinets for which all solid and veneer wood panel material originates from a sustainably managed forest certified by a Forest Stewardship Council (FSC) accredited certification agency.
  - 2. Provide substrate that is manufactured without a formaldehyde-based binding resin.
  - 3. Adhere plastic laminate to substrate using adhesive that complies with low-VOC (volatile organic compound) requirements.
  - 4. Where adhesive is used in installation provide adhesive that complies with low-VOC (volatile organic compound) requirements.
  - 5. Where wood-veneer or high-pressure plastic-laminate countertops are used:
    - a. Provide substrate that is manufactured without a formaldehyde-based binding resin.
    - b. Attach veneer or laminate to substrate using low VOC adhesive.
  - 6. Where adhesive is used to install countertops, provide water-based adhesive that complies with low-VOC (volatile organic compound) requirements.

## 1.7 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.

## 1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and will maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.
- C. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.

2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

## 1.9 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. Wood Materials, General: Quality grade, wood specie, cut and match required are specified for each category of architectural woodwork item. Unless otherwise specified, provide lumber and panel products of the grades required by the referenced "Quality Standard" for each quality grade for each woodwork item specified. Where optional materials are indicated within each "Quality Standard" grade, choice is left to fabricator, unless otherwise specified.
  1. Provide materials that comply with requirements of AWI referenced "Quality Standard" for each type of woodwork and quality grade indicated and, where the following products are part of woodwork, with requirements of the referenced product standards, that apply to product characteristics indicated.
    - a. Hardboard: AHA A135.4.
    - b. High Pressure Decorative Laminate: NEMA LD 3.
    - c. Medium Density Fiberboard: ANSI A208.2
    - d. Particleboard: ANSI A208.1, Grade M-2.
    - e. Softwood Plywood: DOC PS-1
    - f. Hardwood Plywood and Face Veneers: HPVA HP-1.
    - g. Formaldehyde Emissions: Comply with the following:
      - (1). Particleboard: ANSI A208.1, Grade M-2 made with phenol-formaldehyde resin.
      - (2). Medium Density Fiberboard: NPA-9.
      - (3). Hardwood Plywood: HPMA FE.
- B. Melamine Faced Plywood for Cabinet Carcass Construction: Thermally fused overlay plywood (melamine or polyester), NEMA LD-3 vertical grade high pressure decorative laminate, white color toward cabinet interior, plywood thickness shown; birch tee-band edges exposed to view for facing with GP-50 grade high pressure decorative laminate.
- C. Birch Veneer Plywood for Drawer Box Construction: Appleply plywood, thickness shown, clear A2 clear birch veneer faces; and birch tee-band edges exposed to view.
- D. High Pressure Decorative Laminate: NEMA LD3 for each exposure and grade required, color as selected; Refer to the Finish Legend, elevations and details on the Drawings for product selections, colors, and locations required.

E. Cabinet Hardware and Miscellaneous Item Schedule:

1. Concealed Self-Closing Cabinet Hinges: Grass Nexis Series, 170 degree full overlay for end mount; Grass Nexis Series, 170 degree half overlay for center mount, bright nickel finish, or equivalent accepted by Architect. Provide 1-1/2 pr. for heights 32 inches or more, or door weights of 20 to 40 lb., and 2 pair for door weights of 40 to 60 lb.
2. Cabinet Shelf Supports: KV 255 x 256 nickel plated steel, or equivalent accepted by Architect.
3. Door/Drawer Pulls: Stanley 4483 1/2 x US 26, or equivalent accepted by Architect.
4. Cabinet Catches (Where Shown): KV 916 aluminum, or equivalent accepted by Architect.
5. Full Extension Drawer Slides (100 lb. Capacity for Drawers Up to 24" Wide): Grant 5632, Accuride 3832, or equivalent accepted by Architect.
6. Ball Bearing, Rail Mount, Full Extension Pencil Drawer Slides: Accuride 2632, or 2006, or equivalent accepted by Architect.
7. Ball Bearing, Rail Mount, Full Extension Keyboard Drawer Slides: Accuride 2632, or 2009, or equivalent accepted by Architect.
8. Closet Rods (Where Shown): KV-2, or equivalent accepted by Architect.
9. Cupboard Door and Drawer Locks: Yale 5591 x US 26D x 6 pin tumbler keyed differently in each room and keyed to building keying system, or equivalent accepted by Architect.
10. Elbow Catches (Inactive Leaf of Locked Pairs of Doors): Ives 2A92 aluminum, or equivalent accepted by Architect.
11. Countertop Grommets: Doug Mockett & Company, Inc. "DM XG x 3", black plastic, or equivalent accepted by Architect.

F. Architectural Cabinets, Laminate Clad: Comply with AWI Section 400 and Division 400B, and AWI "Architectural Casework - General".

1. Laminate Clad Cabinets: "Custom Grade"; flush overlay construction, with melamine faced veneer plywood for cabinet carcass construction and birch tee-band at exposed edges; clear birch veneer "Appleply" veneer plywood for drawer box construction with birch tee-and at exposed edges; and any close-grained hardwood listed in the referenced "Quality Standard" for the quality grade specified.
2. Panel product for semi-exposed panel product parts with high pressure decorative laminate shall be same as for exposed surfaces.
3. Panel product for exposed panel product parts with high pressure decorative laminate shall be softwood veneer core plywood, or lumbercore plywood listed in the referenced "Quality Standard" for the quality grade specified, except shelves spanning more than 12" shall be veneer or lumber core plywood only.
4. Laminate for Exposed Surfaces and Edges: GP-50 grade.
5. Laminate for Semi-Exposed Surfaces and Edges: GP-28 grade.

G. Architectural Cabinet Tops and Cabinet Trim: Comply with AWI Section 400 and Division 400C, and AWI "Architectural Casework - General". Provide the following:

1. Laminate Clad Tops: "Custom Grade"; with GP-50 grade laminate at exposed surfaces and edges, BK-50 grade backer sheet at underside of panel core, Interior Type 1M1 medium density particleboard panel cores, except at tops where sinks occur, use APA EXT A-C veneer plywood or Exterior Type 2M2 phenolic resin particleboard.

2. Laminate core to rails, except provide glued-under-pressure lumber drop edge with dado and rabbet continuous lock joint wherever unsupported area of top exceeds 4 sq. ft. Use maximum length laminate with a minimum number of joints. Install laminate on edge first and then on surface. Uniformly bevel edges 15 degrees from edge surface.
- H. Closet and Utility Shelving: Comply with AWI Section 600. Provide the following:
1. Shelving for Opaque Finish: "Economy Grade"; Ponderosa Pine or Poplar lumber, or Birch faced veneer core plywood shelving. Where indicated, provide glued-under-pressure lumber drop edge with dado and rabbet continuous lock joint.
- I. Shop and Field Finishing of Interior Architectural Woodwork: Comply with AWI Section 1500; shop (factory) finish to greatest extent possible. Seal concealed surfaces with same finish used on exposed faces. Stain exposed and semi-exposed sapwood to match heartwood. Provide the following:
1. Catalyzed Opaque Conversion Varnish Finish for Open and Closed Grain Woods: Premium Grade, AWI Finish System OP-4 consisting of a primer-surfacer coat of Sherwin-Williams V84 Series Conversion Varnish with maximum 4-6 oz. per gallon level of colorant, followed by scuff sanding with 200 grit stearated paper and two top coats of catalyzed Sherwin-Williams "Sher-Wood Kemvar" V84F62 satin conversion varnish with maximum 4-6 oz. per gallon level of colorant.

## 2.2 FABRICATION

- A. Comply with AWI "Quality Standards" for lumber moisture content at time of fabrication and for relative humidity conditions in the installation areas.
- B. Complete fabrication, assembly, finish hardware application, and other work before shipment to the Project Site to maximum extent possible. Allow for scribing and fitting. Pre-cut openings for related work.
- C. Take field measurements for work required to be fitted to other construction.
- D. Edge band shelf edges, cabinet door edges and exposed cabinet edges with 3/8 inch hardwood, except where greater depth is required to secure hardware. Use full length pieces only.
- E. Apply plastic laminate finish in full uninterrupted sheets consistent with maximum manufactured sizes. Make corners and joints hairline. Locate counter butt joint minimum 2 feet from sink cut-outs. Apply plastic laminate face sheets after application of plastic laminate to edges. Bevel edges 15° from edge surface.
- F. Cap exposed plastic laminate edges with material of same finish and pattern.
- G. Mechanically fasten splash backs to countertops with steel brackets at 16" o.c. unless shown or noted otherwise.
- H. Apply laminate backing sheet to concealed side of plastic laminate finished surfaces.

### **PART 3 - EXECUTION**

#### **3.1 PREPARATION**

- A. Condition woodwork to average prevailing humidity conditions in installation areas prior to installing.
- B. Pre-Installation Meeting: Meet at the Project Site prior to delivery of architectural woodwork and review coordination and environmental controls required for proper installation and ambient conditioning in areas to receive work. Include in meeting the Contractor, Architect and City of Houston Representatives (if any), Installers of architectural woodwork, wet work including plastering, other finishes, painting, mechanical work and electrical work, and firms and persons responsible for continued operation (whether temporary or permanent) of HVAC system as required to maintain temperature and humidity conditions. Proceed with woodwork installation only when everyone concerned agrees that required ambient conditions can be maintained.

#### **3.2 EXECUTION**

- A. Install the work rigid, plumb, level and true with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8 inch in 8'-0" for plumb and level, and with no variations in flushness of adjoining surfaces.
- B. Scribe and cut work to fit adjoining work leaving gap of 1/32 inch to adjacent surfaces. Repair or replace damaged finish at cuts. Do not use additional overlay trim for this purpose.
- C. Where field cutting or trimming is necessary, perform Work in a neat, accurate, professional manner without damaging woodwork and adjacent Work.
- D. Anchor woodwork to anchors or blocking built-in or directly attached to substrates.
- E. Counter-sink screw anchorage devices at exposed locations used to wall mount components. Conceal screw fasteners with solid plugs of species to match surrounding wood, grain and color. Finish flush with surrounding surfaces.
- F. Cabinets: Install with concealed fasteners, without distortion, so that doors and drawers will fit openings properly, and be 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.
- G. Tops, General: Anchor securely to base units with concealed fasteners and other support systems as indicated. Join countertop cores with a minimum of 4 wood biscuits arranged to provide flush, tight joints.
- H. Repair damaged and defective woodwork and finishes; where possible eliminate functional and visual defects; where repair is not possible, replace item.
- I. Refer to Section 09 90 00 for field finishing of exposed opaque finished woodwork.

**END OF SECTION 06 40 00**