

## SECTION 06 41 16 - PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
  - 1. *Uniform General Conditions for Construction Contracts, State of Texas, 2010 (UGC).*
  - 2. *The University of Houston's Supplemental General Conditions and Special Conditions for Construction.*

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Plastic-laminate-faced architectural cabinets.
- B. Related Requirements:
  - 1. Section 06 10 53 "Miscellaneous Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets and concealed within other construction before cabinet installation.

#### 1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product, including panel products high-pressure decorative laminate adhesive for bonding plastic laminate fire-retardant-treated materials and cabinet hardware and accessories.
  - 1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. LEED Submittals (Projects authorized for LEED certification only):
  - 1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.

"Product Certificates for Credit MR 5" Subparagraph below applies to LEED-CI.

2. Product Certificates for Credit MR 5: For products and materials required to comply with requirements for regionally manufactured materials. Include statement indicating cost for each regionally manufactured material.

First subparagraph below applies to LEED-CI.

- a. Include statement indicating location of manufacturer and distance to Project for each regionally manufactured material.

First option in "Certificates for (Credit MR 6) (Credit MR 7)" Subparagraph below applies to LEED-CS; second applies to LEED-NC, LEED-CI, and LEED for Schools.

3. Certificates for [Credit MR 6] [Credit MR 7]: Chain-of-custody certificates indicating that products specified to be made from certified wood comply with forest certification and chain-of-custody requirements. Include statement indicating cost for each certified wood product.

"Laboratory Test Reports for Credit IEQ 4.1" Subparagraph below applies to LEED for Schools.

4. Laboratory Test Reports for Credit IEQ 4.1: For adhesives, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

"Product Data for Credit IEQ 4.4" Subparagraph below applies to LEED-NC, LEED-CI, and LEED-CS.

5. Product Data for Credit IEQ 4.4: For adhesives and composite wood products, documentation indicating that products contain no urea formaldehyde.

"Laboratory Test Reports for Credit IEQ 4.4" Subparagraph below applies to LEED for Schools.

6. Laboratory Test Reports for Credit IEQ 4.4: For composite wood products, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

- 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 electrical switches and outlets and other items installed in architectural plastic-laminate cabinets.
4. Apply AWI Quality Certification Program label to Shop Drawings.

- D. Samples for Initial Selection:

1. Plastic laminates.
2. PVC edge material.

E. Samples for Verification:

1. Plastic laminates, 12 by 12 inches, for each type, color, pattern, and surface finish, with one sample applied to core material and specified edge material applied to one edge.
2. Wood-grain plastic laminates, 24 by 24 inches, for each type, pattern and surface finish, with one sample applied to core material and specified edge material applied to one edge.
3. Corner pieces as follows:
  - a. Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
  - b. Miter joints for standing trim.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.
- B. Product Certificates: For each type of product.
- C. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- D. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

1.6 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. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.
- C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  1. Build mockups of typical plastic-laminate cabinets as shown on Drawings.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver cabinets until painting and similar operations that could damage woodwork have been completed in installation areas. If cabinets must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

## 1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 43 and 70 percent during the remainder of the construction period.
- B. Field Measurements: Where cabinets are 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 cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.
- C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. 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 cabinets can be supported and installed as indicated.
- B. Hardware Coordination: Distribute copies of approved hardware schedule specified in Section 08 71 11 "Door Hardware (Descriptive Specification)" to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

## PART 2 - PRODUCTS

### 2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

- A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
- B. Grade: Premium.
- C. Regional Materials: Plastic-laminate cabinets shall be manufactured within 500 miles of Project site.
- D. Type of Drawer Construction: Dovetail joints.
- E. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.
- F. Reveal Dimension: As indicated on drawings.

- G. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following :
    - a. Formica Corporation.
    - b. Panolam Industries International, Inc.
    - c. Wilsonart International; Div. of Premark International, Inc.
    - d. Substitutions: See Section 01 25 00 – Substitution Procedures.
- H. Laminate Cladding for Exposed Surfaces:
1. Horizontal Surfaces: Grade HGS 0.048 inch (1.22 mm) nominal thickness, colors as scheduled, finish as scheduled.
  2. Postformed Horizontal Surfaces: Grade HGP, 0.039 inch (1.0 mm) nominal thickness, colors as scheduled, finish as scheduled.
  3. Vertical Surfaces: Grade VGS, 0.028 inch (0.71 mm) nominal thickness, colors as scheduled, finish as scheduled.
  4. Postformed Vertical Surfaces: Grade VGP, 0.028 inch (0.71 mm) nominal thickness, colors as scheduled, finish as scheduled.
  5. Edges: Extruded PVC edge banding, flat shaped, smooth finish, self locking serrated tongue, of width to match component thickness, matching laminate in color and pattern. Use at all exposed plywood edges and all exposed shelf edges.
- I. Materials for Hardwood Lumber Surfaces:
1. Drawer Sides and Backs: Solid-hardwood lumber , NHLA; Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade III/Economy; average moisture content of 4-9 percent; species Red Oak, Grade AA.
  2. Exposed Stiles and Rails: Solid-hardwood lumber, NHLA; Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade III/Economy; average moisture content of 4-9 percent; species Red Oak, Grade AA.
  3. Exposed Surfaces: Species Red Oak.
  4. Semi-Exposed Surfaces: Species Poplar.
  5. Concealed Surfaces: Species Poplar.
- J. Materials for Softwood Lumber: NIST PS 20; Graded in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Grade III/Economy; average moisture content of 4-9 percent; species Douglas Fir for exposed, semi-exposed, and concealed surfaces.
- K. 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 Architect's sample.

## 2.2 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.

1. Wood Moisture Content: 8 to 13] percent.
- B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
1. Medium-Density Fiberboard (MDF): ANSI A208.2, Grade 130 type as specified in AWI/AWMAC Architectural Woodwork Quality Standards Illustrated; composed of wood fibers pressure bonded with moisture resistant adhesive to suit application; sanded faces; thickness as required. Use for painted components, concealed components, backing for plastic laminate (unless otherwise indicated), and components not indicated as another material.
  2. Exposed Surfaces: PS 1; APA A-A Grade, plain-sliced redwood face veneer, Interior rated adhesives, core of particleboard, medium density fiberboard, or engineered combination, thickness as indicated.
  3. Hardboard: AHA A135.4; Pressed wood fiber with resin binder, Class 1 – Tempered, ¼ inch (6 mm) thick, smooth one side (S1S); use for dust panels and other components indicated on drawings.

### 2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Materials, General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
1. Use treated materials that comply with requirements of referenced woodworking standard. Do not use materials that are warped, discolored, or otherwise defective.
  2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
  3. Identify fire-retardant-treated materials with appropriate classification marking of qualified testing agency in the form of removable paper label or imprint on surfaces that will be concealed from view after installation.
- B. Fire-Retardant-Treated Lumber and Plywood: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
1. Kiln dry lumber and plywood after treatment to a maximum moisture content of 19 and 15 percent, respectively.
  2. Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.
- C. Fire-Retardant Particleboard: Panels complying with the following requirements, made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture

to achieve flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.

1. For panels 3/4 inch thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: modulus of rupture, 1600 psi; modulus of elasticity, 300,000 psi; internal bond, 80 psi; and screw-holding capacity on face and edge, 250 and 225 lbf, respectively.
2. For panels 13/16 to 1-1/4 inches thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: modulus of rupture, 1300 psi; modulus of elasticity, 250,000 psi; linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 and 175 lbf, respectively.
3. Products: Subject to compliance with requirements, provide one of the following :
  - a. Flakeboard Company Limited; Duraflake FR.
  - b. SierraPine; Encore FR.
  - c. Substitutions: See Section 01 25 00 – Substitution Procedures.

D. Fire-Retardant Fiberboard: Medium-density fiberboard panels complying with ANSI A208.2, made from softwood fibers, synthetic resins, and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 200 or less per ASTM E 84.

1. Products: Subject to compliance with requirements, provide one of the following :
  - a. Panel Source International, Inc.; Pyroblock Platinum.
  - b. SierraPine; Medite FR.
  - c. Substitutions: See Section 01 25 00 – Substitution Procedures.

## 2.4 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.
- B. Cabinet Hinges (Standard Application): Blum model 100 series, full overlay, self-closing, No. B91M255, nickel plated steel.
- C. Drawer and Door Pulls: Stanley No. 4483 ½. US 32D finish.
- D. Adjustable Shelf Standards and Supports: Hafele No. 282.11.710 on 32 mm centers.
- E. Drawer Slides: Side mounted, full extension, zinc-plated steel drawer slides and steel ball bearings, complying with BHMA A156.9, Grade 1, and rated for the following loads:
  1. Box Drawer Slides: 100 lbf., Knap & Vogt Series 8400.
  2. Lateral File Drawer Slides: 200 lbf., Accuride AC 3640.
  3. Pencil Drawer Slides: 45 lbf., Accuride Series .
- F. Grommets: Hafele No. 429.93.313.

## 2.5 MISCELLANEOUS MATERIALS

- A. Fasteners: Size and type to suit application.
- B. Bolts, Nuts, Washers, Lags, pins, and Screws: Of size and type to suit application; galvanized or chrome plated finish in concealed locations and stainless steel, or chrome plated finish in exposed locations.
- C. Concealed Joint Fasteners: Threaded steel.
- D. Grommets: Standard plastic grommets for cut-outs, in color to match adjacent surface.
- E. Adhesives: Type recommended by AWI/AWMAC to suit application.

## 2.6 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- B. Fabricate cabinets to dimensions, profiles, and details indicated.
- C. Complete fabrication, including assembly 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 before disassembling for shipment.
- D. Shop-cut openings to maximum extent possible to receive hardware, appliances, 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.
- E. Install glass to comply with applicable requirements in Section 08 80 00 "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.
- B. Before installing cabinets, examine shop-fabricated work for completion and complete work as required.



### 3.2 INSTALLATION

- A. Grade: Install cabinets to comply with same grade as item to be installed.
- B. Assemble cabinets and complete fabrication at Project site to the extent that it was not completed in the shop.
- C. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.
- D. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails[ **or finishing screws**] for exposed fastening, countersunk and filled flush with woodwork.
  - 1. Use filler matching finish of items being installed.
- 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.

### 3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, 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 cabinets on exposed and semiexposed surfaces.

END OF SECTION 06 41 16