

SECTION 064113 – ARCHITECTURAL MILLWORK

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.

1.2 SUMMARY

A. Section Includes:

1. Architectural cabinets.
2. Wood furring, blocking, shims, and hanging strips for installing architectural cabinets that are not concealed within other construction.
3. Shop finishing of architectural cabinets.

B. Related Requirements:

1. Section 061053 "Miscellaneous Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets that are concealed within other construction before cabinet installation.

1.3 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to support loads imposed by installed and fully loaded cabinets.
- B. Hardware Coordination: Distribute copies of approved hardware schedule specified in Section 087111 "Door Hardware" to manufacturer of architectural cabinets; coordinate Shop Drawings and fabrication with hardware requirements.

1.4 PREINSTALLATION MEETINGS

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

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- C. Shop Drawings: For architectural cabinets.
1. Include plans, elevations, sections, and attachment details.
 2. Show **large-scale** details.
 3. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 4. Show locations and sizes of cutouts and holes for items installed in architectural cabinets.
 5. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.
 6. Apply **AWI Quality Certification** or **WI Certified Compliance** Program label to Shop Drawings.
- D. Samples: For each exposed product and for each color and finish specified, in manufacturer's standard size.
- E. Samples for Initial Selection: For each type of exposed finish.
- F. Samples for Verification: For the following:
1. Lumber for Transparent Finish: Not less than **5 inches (125 mm) wide by 12 inches (300 mm) long** for each species and cut, finished on one side and one edge.
 2. Veneer Leaves: Representative of and selected from flitches to be used for transparent-finished cabinets.
 3. Lumber and Panel Products with Shop-Applied Opaque Finish: **5 inches (125 mm) wide by 12 inches (300 mm) long** for lumber and **12 by 12 inches (300 by 300 mm)** for panels, for each finish system and color.
 - a. Finish **entire** exposed surface.
 4. Thermoset Decorative Panels: **12 by 12 inches (300 by 300 mm)**, for each color, pattern, and surface finish.
 - a. Provide edge banding on one edge.
 5. Corner Pieces:
 - a. Cabinet-front frame joints between stiles and rails and at exposed end pieces, 18 inches (450 mm) high by 18 inches (450 mm) wide by 6 inches (150 mm) deep.
 - b. Miter joints for standing trim.
 6. Exposed Cabinet Hardware and Accessories: One full-size unit for each type and finish.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For **manufacturer and installer**.
- B. Product Certificates: For **the following**:
 - 1. Composite wood and agrifiber products.
 - 2. Thermoset decorative panels.
 - 3. Glass.
 - 4. Adhesives.
- C. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.
- D. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

- A. Quality Standard Compliance Certificates: **AWI Quality Certification Program** or **WI Certified Compliance Program** certificates.

1.8 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: 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.
 - 1. Manufacturer's Certification: Licensed participant in **AWI's Quality Certification Program** or **WI's Certified Compliance Program**].
- B. Hardware Manufacturer Qualifications: A manufacturer capable of fabricating hardware that meets or exceeds performance requirements indicated and of documenting this performance by inclusion in lists and by labels, test reports, and calculations.
 - 1. Manufacturer to have ISO 9001 quality management system registration.
- C. Installer Qualifications: **Licensed participant in AWI's Quality Certification Program** or **Licensed participant in WI's Certified Compliance Program**.
 - 1. **Any firm producing architectural woodwork must document 5 years of experience with a record of successful in-service performance, as well as sufficient production capacity to produce required units specified in the documents.**
 - 2. **The qualified woodworking firm shall assume undivided responsibility for fabricating, finishing, and installing woodwork specified.**
- D. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockups of **typical architectural cabinets as shown on Drawings. Specifically finger pull on cabinets.**
2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver cabinets until painting and similar finish operations that might damage architectural cabinets have been completed in installation areas. Store cabinets in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.10 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 and relative humidity at levels planned for building occupants during the remainder of the construction period.
- B. 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 (16 and 32 deg C) and relative humidity between **25 and 55** percent during the remainder of the construction period.
- C. 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/concealed by construction, and indicate measurements on Shop Drawings.
- D. 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.

1.11 WARRANTY

- A. Hardware Manufacturer's Warranty: Manufacturer agrees to replace hardware components that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: Limited Lifetime from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ARCHITECTURAL CABINET MANUFACTURERS

- A. Source Limitations: Engage a qualified woodworking firm to assume responsibility for production of architectural cabinets with sequence-matched wood veneers **wood paneling, wood doors with face veneers that are sequence matched with architectural cabinets and transparent-finished wood doors that are required to be of same species as architectural cabinets.**

2.2 CABINETS, GENERAL

- A. Quality Standard: Unless otherwise indicated, comply with the Architectural Woodwork Standards for grades of architectural cabinets indicated for construction, finishes, installation, and other requirements.
1. Provide **labels and certificates** from **AWI** or **WI** certification program indicating that **woodwork and installation** complies with requirements of grades specified.
 - a. This project has been registered with AWI as AWI Quality Certification Program Number **<Insert number>**.
 2. The Contract Documents contain requirements that are more stringent than the referenced woodwork quality standard. Comply with requirements of Contract Documents in addition to those of the referenced quality standard.

2.3 WOOD CABINETS FOR TRANSPARENT FINISH

- A. Architectural Woodwork Standards Grade: **Custom.**
- F. Type of Construction: **Refer to Drawings.**
- G. Door and Drawer-Front Style: **Flush overlay.**
- H. Wood for Exposed Surfaces: **As indicated on Drawings.**
1. Species: **WD-1 and WD-3 (see finish schedule on sheet I110).**
 2. Blueprint Matching: Comply with veneer and other matching requirements indicated for blueprint-matched paneling.
 3. Cut: **Plain sliced. Alternate stripes on wood to create a vertical stripe pattern.**
 4. Grain Direction: **Vertically for drawer fronts, doors, and fixed panels.**
 5. Matching of Veneer Leaves: **Random** match.
 6. Veneer Matching within Panel Face: **Running** match.
 7. Veneer Matching within Room: Provide cabinet veneers in each room or other space from a single flitch with doors, drawer fronts, and other surfaces matched in a sequenced set with continuous match where veneers are interrupted perpendicular to the grain.
- I. Semiexposed Surfaces:

1. Surfaces Other Than Drawer Bodies: **Same species and cut indicated for exposed surfaces.**
 2. Drawer Subfronts, Backs, and Sides: **Solid-hardwood lumber, stained to match species indicated for exposed surfaces**
 3. Drawer Bottoms: **Hardwood plywood.**
- J. Dust Panels: 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers unless located directly under tops.
- K. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
1. Join subfronts, backs, and sides with **glued rabbeted joints supplemented by mechanical fasteners or glued dovetail joints.**
- 2.4 WOOD CABINETS FOR OPAQUE FINISH
- A. Architectural Woodwork Standards Grade: **Custom.**
- G. Type of Construction: **Frameless.**
- H. Door and Drawer-Front Style: **Flush overlay.**
- I. Species for Exposed Lumber Surfaces: Any closed-grain hardwood.
- J. Panel Product for Exposed Surfaces: **Hardwood plywood.**
- K. Semiexposed Surfaces:
1. Surfaces Other Than Drawer Bodies: **Match materials indicated for exposed surfaces.**
 - a. Edges of Thermoset Decorative Panel Shelves: PVC or polyester edge banding.
 2. Drawer Sides and Backs: **Solid-hardwood lumber.**
 3. Drawer Bottoms: **Hardwood plywood.**
- L. Dust Panels: 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers unless located directly under tops.
- M. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
1. Join subfronts, backs, and sides with **glued rabbeted joints supplemented by mechanical fasteners or glued dovetail joints.**

2.5 WOOD MATERIALS

- A. **General:**

1. All materials shall comply with requirements of the AWI quality standard for each type of woodwork and quality grade.
 2. Provide Medium-Density Fiberboard: ANSI A208.2 (latest edition), Grade MD-Exterior Glue. No exposed, unfinished MDF surfaces. All MDF surfaces must be painted or veneer.
 3. Provide 3/4 in. exterior grade plywood at sinks and wet locations
 4. Provide High-Pressure Decorative Laminate: NEMA LD-3 (latest edition), grades as required by woodwork quality standard.
 5. Solid-Surfacing Material shall be homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
 6. The interior of all Custom grade cabinetry shall be white melamine.
- B. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
1. Do not use plain-sawn softwood lumber with exposed, flat surfaces more than 3 inches (75 mm) wide.
 2. Wood Moisture Content: **4 to 9** percent.
- C. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
- E. Composite Wood Products: Formaldehyde emission rates shall not be greater than the following when tested in accordance with ASTM D6007 or ASTM E1333:
1. Hardwood Plywood: 0.05 ppm.
 2. Particleboard: 0.09 ppm.
 3. MDF More Than 5/16 Inch (8 mm) Thick: 0.11 ppm.
 4. MDF 5/16 Inch (8 mm) or Less in Thickness: 0.13 ppm.
- F. Composite Wood Products: Products shall be made without urea formaldehyde.
1. MDF: ANSI A208.2, **Grade 130**.
 2. Particleboard: ANSI A208.1, [**Grade M-2**] [**Grade M-2-Exterior Glue**].
 3. Particleboard: Straw-based particleboard complying with requirements in ANSI A208.1, Grade M-2, except for density.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Environ Biocomposites Manufacturing LLC.
 - 2) Sorm Incorporated.
 - 3) Architect approved equal prior to Bid.
 4. Softwood Plywood: DOC PS 1, **medium-density overlay**.

5. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1.
6. Thermoset Decorative Panels: Particleboard or MDF finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.6 FIRE-RETARDANT-TREATED MATERIALS

- A. Fire-Retardant-Treated Materials, General: Where fire-retardant-treated materials are indicated, use materials 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 quality 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 in accordance with ASTM E84, 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 (3.2 m) 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. For items indicated to receive a stained or natural finish, use organic resin chemical formulation.
 3. Mill lumber after treatment within limits set for wood removal that do not affect listed fire-test-response characteristics, using a woodworking shop certified by testing and inspecting agency.
 4. Mill lumber before treatment and implement 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 architectural cabinets.
- C. Fire-Retardant Particleboard: 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 E84.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Flakeboard Company Limited.
 - b. SierraPine.
 - c. Architect approved equal prior to Bid.

2. For panels 3/4 inch (19 mm) thick and less, comply with ANSI A208.1 for Grade M-2 except for the following minimum properties: modulus of rupture, 1600 psi (11 MPa); modulus of elasticity, 300,000 psi (2070 MPa); internal bond, 80 psi (550 kPa); and screw-holding capacity on face and edge, 250 and 225 lbf (1100 and 1000 N), respectively.
 3. For panels 13/16 to 1-1/4 inches (20 to 32 mm) thick, comply with ANSI A208.1 for Grade M-1 except for the following minimum properties: modulus of rupture, 1300 psi (9 MPa); modulus of elasticity, 250,000 psi (1720 MPa); linear expansion, 0.50 percent; and screw-holding capacity on face and edge, 250 and 175 lbf (1100 and 780 N), respectively.
- D. Fire-Retardant Fiberboard: MDF 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 E84.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Panel Source International, Inc.
 - b. SierraPine.
 - c. Architect approved equal prior to Bid.

2.7 CABINET HARDWARE AND ACCESSORIES

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087111 "Door Hardware".
1. Basis-of-Design Product: Subject to compliance with requirements, provide Grass America Inc.; Cabinet hardware and accessories or comparable product by one of the following:
 - a. Accuride International.
 - b. Blum, Julius & Co., Inc.
 - c. CompX International, Inc.
 - d. Hettich America L.P.
 - e. Knape & Vogt Manufacturing Company.
 - f. Architect approved equal prior to Bid.
- B. **Frameless** Concealed Hinges (European Type): ANSI/BHMA A156.9, Grade 2, B01602, **170** degrees of opening, **self-closing, soft-closing**.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Grass America Inc.; [**Tiomos**] [**Nexis**] frameless hinge system or comparable product.
 2. Overlays: [**Full**] [**Overlay**] [**Half**] [**Inset**].
 3. Cup Assembly: [**Screw-on**] [**Tool-free application**] [**Dowelled**].
 4. Material: **Nickel-plated steel**.
 5. Cup Diameter: 1.38 inch (35mm).
 6. Cup Depth: [**0.39 inch (10 mm)**] [**0.43 inch (10.8 mm)**] [**0.46 inch (11.8 mm)**] [**0.5 inch (12.6 mm)**] [**0.52 inch (13.2 mm)**].

- E. Closer Adapters: Non-handed; mounted independent of hinge; used for face-frame cabinet doors on all overlays and for full-overlay frameless cabinet doors.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Grass America Inc.; Unisoft Soft-Close System or comparable product.
- F. Side-Mounted Drawer Slides: ANSI/BHMA A156.9, Grade 1.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Grass America Inc.; **Ball-Bearing Slide** or comparable product.
 2. Grade 1: Side mounted **and extending under bottom edge of drawer**.
 - a. Type: **Full** extension.
 - b. Material: **Galvanized cold-rolled steel with steel ball-bearings**.
 - c. Load Capacity: **75 lb (34 kg)**.
 3. Grade 1: Side mounted; full-extension type; zinc-plated steel, ball-bearing slides.
 4. Drawers:
 - a. Grade 1: 3 inches (75 mm) high and 24 inches (600 mm) wide or less.
 - b. Grade 1: 3 to 6 inches (75 to 150 mm) high and 24 inches (600 mm) wide or less.
 - c. Grade 1: 6 inches (150 mm) or higher, or 24 inches (600 mm) wide or wider.
 5. Computer Keyboard Shelves: Grade 1.
 6. Trash Bins: Grade 1; 20 inches (500 mm) high and 16 inches (400 mm) wide or less.
- G. Undermount Drawer Slides: ANSI/BHMA A156.9, Grade 1.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Grass America Inc.; [**Dynapro**] [**Elite Plus**] [**Maxcess**] or comparable product.
 2. Grade 1: Side mounted **and extending under bottom edge of drawer**.
 - a. Type: **Full** extension.
 - b. Material: Galvanized cold-rolled steel.
 - c. Load Capacity: **75 lb (34 kg)**.
 3. Drawers:
 - a. Grade 1: 3 inches (75 mm) high and 24 inches (600 mm) wide or less.
 - b. Grade 1: 3 to 6 inches (75 to 150 mm) high and 24 inches (600 mm) wide or less.
 - c. Grade 1: 6 inches (150 mm) or higher, or 24 inches (600 mm) wide or wider.
 4. Computer Keyboard Shelves: Grade 1.
 5. Trash Bins: Grade 1; 20 inches (500 mm) high and 16 inches (400 mm) wide or less.
- H. Opening Systems: Mechanical opening system.
3. Drawers:
 - a. Grade 1: 3 inches (75 mm) high and 24 inches (600 mm) wide or less.
 - b. Grade 1: 3 to 6 inches (75 to 150 mm) high and 24 inches (600 mm) wide or less.
 - c. Grade 1: 6 inches (150 mm) or higher, or 24 inches (600 mm) wide or wider.

4. Computer Keyboard Shelves: Grade 1.
5. Trash Bins: Grade 1; 20 inches (500 mm) high and 16 inches (400 mm) wide or less.

I. Additional requirements (to supersede conflicting requirements)

1. Provide manufacturers and BHMA numbers to designate hardware requirements.
2. Provide Butt Hinges that are semi-concealed hinges for overlay doors and comply with BHMA A156.9 Grade 1 criteria.
3. Catches if required shall be provided as push-in magnetic catches complying with BHMA A156.9 Grade 1 criteria.
4. Provide shelf rests that comply with BHMA A156.9 Grade 1 criteria.
5. Provide back mounted wire pulls, 5 inches long, 2-1/2 inches deep and 5/16" in diameter.
6. Provide shelf rests complying with BHMA A156.9, B04013.
7. Provide drawer slides that are side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings that comply with BHMA A156.9, Grade 1 criteria and rated for the following loads:
 - a. Box Drawer Slides: 100 lbf
 - b. File Drawer Slides: 200 lbf
 - c. Keyboard Slide: 100 lbf
8. Provide locks as required that comply with ANSI 156.11, grade 1 cycle testing. Confirm if locks need to be keyed alike.
9. Provide molded-plastic grommets for cable passage through countertops. Coordinate proper size required for use. Specify number of grommets required with a minimum of one (1) at each workstation.
10. Exposed hardware Finish: Specify finish complying with BHMA A156.18 for BHMA finish:
 - a. Satin Stainless Steel: BHMA 630

2.8 OTHER CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in **Section 087111 "Door Hardware."**

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Accuride International.
 - b. Blum, Julius & Co., Inc.
 - c. CompX International, Inc.
 - d. Hettich America L.P.
 - e. Knappe & Vogt Manufacturing Company.

- f. Architect approved prior to Bid.
 - B. Catches: **Magnetic catches, ANSI/BHMA A156.9, B03141**
 - C. Shelf Rests: ANSI/BHMA A156.9, B04013; **metal.**
 - D. Slides for Sliding Glass Doors: ANSI/BHMA A156.9, B07063; **aluminum.**
 - E. Door Locks: ANSI/BHMA A156.11, E07121.
 - F. Drawer Locks: ANSI/BHMA A156.11, E07041.
 - G. Door and Drawer Silencers: ANSI/BHMA A156.16, L03011.
 - H. Grommets for Cable Passage: **2-inch (51-mm) OD**, molded-plastic grommets and matching plastic caps with slot for wire passage.
 - 1. Color: **White solid surface: white; dark colored solid surface or wood: black**
 - I. Exposed Hardware Finishes: **All hardware to be concealed from view.**
 - J. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in ANSI/BHMA A156.9.
- 2.9 DRAWER SYSTEMS
- A. Drawer Systems: ANSI/BHMA 156.9, Grade 1, full extension, double-walled, side-profile, steel drawer system with a synchronized, full-extension, soft-close drawer slide.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Grass America Inc.; Nova Pro Drawer System or comparable product by one of the following:
 - a. Accuride International.
 - b. Blum, Julius & Co., Inc.
 - c. CompX International, Inc.
 - d. Hettich America L.P.
 - e. Knappe & Vogt Manufacturing Company.
 - f. Architect approved prior to Bid.
 - 2. Drawer Side Height: **4.75 inches (122 mm).**
 - 3. Load Capacity: **84 lb (38 kg).**
 - 4. Cabinet Member Set, 84 lb (38 kg): [**11 inches (270 mm)**] [**14 inches (350 mm)**] [**16 inches (400 mm)**] [**18 inches (450 mm)**] [**20 inches (500 mm)**] [**22 inches (550 mm)**].
 - 5. Cabinet Member Set, 154 lb (70 kg): [**18 inches (450 mm)**] [**20 inches (500 mm)**] [**22 inches (550 mm)**].
 - 6. Mounting brackets: [**Screw-on**] [**Dowelled**].

2.10 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: **Softwood or hardwood lumber, Fire-retardant-treated softwood lumber**, kiln-dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.
 - 1. **Provide Screws to be select material, type, size, and finish required for each use. Comply with ASME B18.6.1 for applicable requirements.**
 - a. **For metal framing supports, specify screws as recommended by metal-framing manufacturer.**
 - 2. **Provide Nails to be select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.**
 - 3. **Provide Anchors to be select material, type, size, and finish required for each substrate for secure anchorage. Specify nonferrous metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Specify toothed steel or lead expansion bolt devices for drilled-in-place anchors.**
- C. Adhesives: Use adhesives that meet the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- D. Adhesives: Do not use adhesives that contain urea formaldehyde.
- E. Adhesives: Do not use adhesives that contain urea formaldehyde.

2.11 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- B. Fabricate architectural cabinets to dimensions, profiles, and details indicated. Ease edges and corners to 1/16-inch (1.5-mm) radius unless otherwise indicated.
- C. Assemble drawer systems in accordance with manufacturer's written instructions.
- D. 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. Notify Architect seven days in advance of the dates and times architectural cabinet fabrication will be complete.
 - 2. Trial fit assemblies at manufacturer's 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.

- E. 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.
- F. Install glass to comply with applicable requirements in Section 088000 "Glazing" and in GANA's "Glazing Manual."
 - 1. For glass in wood frames, secure glass with removable stops.
 - 2. For exposed glass edges, polish and grind smooth.

G. Additional Requirements

- 1. **Specify the following requirements for interior woodwork grade: interior woodwork shall comply with the referenced quality standard and of the following grade:**
 - a. **Grade:**
 - i. **Premium Grade in public areas, executive offices, and meeting rooms. This grade shall be specified in all areas of high use and other areas requiring premium finish materials and full edge laminations.**
 - ii. **Custom Grade in all other areas.**
- 2. **Specify the following requirements for wood moisture content: comply with requirements of referenced quality standard for wood moisture content in relation to relative humidity conditions existing during time of fabrication and in installation areas.**
- 3. **All woodwork shall have eased edges to radius indicated for the following:**
 - a. **Corners of cabinets and edges of solid-wood (lumber) members 3/4 inch thick or less: 1/16 inch.**
 - b. **Edges of rails and similar members more than 3/4 inch thick: 1/8 inch.**
- 4. **Specify complete fabrication, including assembly, 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.**
- 5. **Specify shop-cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Specify to locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Require smooth edges of cutouts and, where located in countertops and similar exposures, seal edges with a water-resistant coating.**

2.12 SHOP FINISHING

- A. General: Finish architectural cabinets at manufacturer's shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of cabinets.
- B. Transparent Finish:
1. Architectural Woodwork Standards Grade: **Custom**
 2. Finish: System - **water-based polycrylic sealer**.
 3. Wash Coat for Closed-Grain Woods: Apply wash-coat sealer to cabinets made from closed-grain wood before staining and finishing.
 4. Staining: **None required**.
 5. Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.
 6. Sheen: **Satin, 31-45**.
- C. Opaque Finish:
1. Architectural Woodwork Standards Grade: **Custom**.
 2. Finish: System - **water-based polyurethane**.
 3. Color: **Refer to Drawings**.
 4. Sheen: **Satin, 31-45**.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.

3.2 INSTALLATION

- A. Architectural Woodwork Standards Grade: Install cabinets to comply with quality standard grade of item to be installed.
- B. Assemble cabinets and complete fabrication at Project site to extent that it was not completed in the shop.
1. Install drawer systems in accordance with manufacturer's written instructions.
- C. 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 cabinet surface.
1. For shop-finished items, use filler matching finish of items being installed.
- D. Install cabinets level, plumb, and true in line to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm) using concealed shims.
1. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

2. Install cabinets without distortion so doors and drawers fit openings 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.
 3. Maintain veneer sequence matching of cabinets with transparent finish.
 4. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches (400 mm) o.c. with **No. 10 wafer-head screws sized for not less than 1-1/2-inch (38-mm) penetration into wood framing, blocking, or hanging strips** or **No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish** or **toggle bolts through metal backing or metal framing behind wall finish**].
- E. Shop Finishes: Touch up finishing after installation of architectural cabinets. Fill nail holes with matching filler.
1. Apply specified finish coats, including stains and paste fillers if any, to exposed surfaces where only sealer/prime coats are shop applied.

3.3 FIELD QUALITY CONTROL

- A. Inspections: Provide inspection of installed Work through **AWI's Quality Certification Program** or **WI's Certified Compliance Program**] certifying that woodwork, including installation, complies with requirements of the Architectural Woodwork Standards for the specified grade.
1. Inspection entity shall prepare and submit report of inspection.

3.4 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects. Where not possible to repair, replace architectural cabinets. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean cabinets on exposed and semiexposed surfaces. Touch up finishes to restore damaged or soiled areas.

END OF SECTION 064113