SECTION 064113 - WOOD-VENEER-FACED ARCHITECTURAL CABINETS

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Review requirements of the Architectural Woodwork Institute (AWI) before revising this Section.

1. GENERAL
	* + 1. RELATED DOCUMENTS
				1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			2. SUMMARY
				1. Section Includes:

Wood cabinets for transparent finish.

Wood cabinets for opaque finish.

Cabinet hardware and accessories.

Wood furring, blocking, shims, and hanging strips for installing architectural cabinets that are not concealed within other construction.

Shop finishing.

* + - * 1. Related Requirements:

Retain subparagraph below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

[**Section 061000 "Rough Carpentry"**] [**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. REFERENCES
				1. Architectural Woodwork Standards (including errata to date) by the Architectural Woodwork Institute (AWI).
			2. COORDINATION
				1. 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.

Retain "Hardware Coordination" Paragraph below if cabinet locks or other hardware applied to woodwork, such as hinges and locks applied to wood jambs, is specified in a hardware Section. Include a similar paragraph for other specific items requiring coordination, such as light fixtures installed in woodwork.

* + - * 1. Hardware Coordination: Distribute copies of approved hardware schedule specified in Section 087100 "Door Hardware" to manufacturer of architectural cabinets; coordinate Shop Drawings and fabrication with hardware requirements.
			1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" Paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.

If needed, insert list of conference participants.

* + - 1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product.

Retain subparagraph below for fire-retardant-treated materials.

Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

* + - * 1. Sustainable Design Submittals:
				2. Shop Drawings: For architectural cabinets.

Include plans, elevations, sections, and attachment details.

Retain "full-size" option in first subparagraph below for ornate or complex work.

Show large-scale details.

Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.

Show locations and sizes of cutouts and holes for items installed in architectural cabinets.

Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.

Apply AWI Quality Certification Program label to Shop Drawings.

Retain "Samples" Paragraph below for single-stage Samples, with a subordinate list if applicable. Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs for two-stage Samples.

* + - * 1. Samples: For each exposed product and for each color and finish specified, in manufacturer's standard size.
				2. Samples for Initial Selection: For each type of exposed finish.
				3. Samples for Verification: For the following:

Retain "Lumber for Transparent Finish," "Veneer Leaves," "Lumber and Panel Products with Shop-Applied Opaque Finish" subparagraphs below to control grain character, color, and finish, or insert other subparagraphs to suit Project. The Architectural Woodwork Standards require samples to be "as wide as practical" by 12 inches long for lumber and 12 by 12 inches for panel products.

Lumber for Transparent Finish: Not less than 5 inches wide by 12 inches long, for each species and cut, finished on one side and one edge.

Veneer Leaves: Representative of and selected from flitches to be used for transparent-finished cabinets.

Lumber and Panel Products with Shop-Applied Opaque Finish: 5 inches wide by 12 inches long for lumber and 12 by 12 inches for panels, for each finish system and color.

Finish entire exposed surface.

Thermoset Decorative Panels: 12 by 12 inches, for each color, pattern, and surface finish.

Retain first subparagraph below if Samples must include edge banding.

Provide edge banding on one edge.

Corner Pieces:

Cabinet-front frame joints between stiles and rails and at exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.

Miter joints for standing trim.

Exposed Cabinet Hardware and Accessories: One full-size unit for each type and finish.

Coordinate "Qualification Data" Paragraph below with qualification requirements in "Quality Assurance" Article.

* + - * 1. Qualification Data: For manufacturer and Installer.

Retain "Product Certificates" Paragraph below to require submittal of product certificates from manufacturers.

* + - * 1. Product Certificates: For [**each type of product.**] [**the following:**]

Retain and revise subparagraphs below if retaining second option in "Product Certificates" Paragraph above.

Composite wood products.

Thermoset decorative panels.

Glass.

Adhesives.

Retain "Evaluation Reports" Paragraph below for fire-retardant-treated materials.

Design Consultant to review code references and verify that the referenced sections/tables are current. Note that code references shall be based on the current version of the Uniform Code.

* + - * 1. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

Retain "Field quality-control reports" Paragraph below if AWI or WI field inspections are retained under Part 3 "Field Quality Control" Article. Typically, AWI and WI do not perform inspections for every "certified" project. If field inspection is required, the Architect and Contractor have the option to request these inspections at any time, at no cost to the Owner or Architect.

* + - * 1. Field quality-control reports.
			1. CLOSEOUT SUBMITTALS

Retain "Quality Standard Compliance Certificates" Paragraph below only if retaining requirements for AWI's Quality Certification Program or WI's Certified Compliance Program.

* + - * 1. Quality Standard Compliance Certificates: [**AWI Quality Certification Program**] [**WI Certified Compliance Program**] certificates.
			1. QUALITY ASSURANCE
				1. 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.

Manufacturer's Certification: Licensed participant in AWI's Quality Certification Program.

* + - * 1. Installer Qualifications: Manufacturer of products.
				2. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

Build mockups of [**typical architectural cabinets as shown on Drawings**].

Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

* + - 1. DELIVERY, STORAGE, AND HANDLING
				1. 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.
			2. FIELD CONDITIONS

Retain "Environmental Limitations without Humidity Control" Paragraph below if humidity will not be controlled after building is occupied.

* + - * 1. Environmental Limitations without Humidity Control: 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.
				2. Environmental Limitations with Humidity Control: 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 25 and 55 percent during the remainder of the construction period.

Retain "Field Measurements" or "Established Dimensions" Paragraph below. Establishing dimensions allows cabinet fabrication to begin before installation areas are complete.

* + - * 1. 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.

Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed/concealed by construction, and indicate measurements on Shop Drawings.

* + - * 1. 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. PRODUCTS

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. ARCHITECTURAL CABINET MANUFACTURERS

Retain "Source Limitations" Paragraph and applicable options for single-source responsibility for architectural woodwork items.

* + - * 1. 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**].
			1. CABINETS, GENERAL

The Section Text is based on the AWI Architectural Woodwork Standards. The Section Text can be revised to incorporate the North American Architectural Woodwork Standards. See the Evaluations.

* + - * 1. 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. WOOD CABINETS FOR TRANSPARENT FINISH
				1. Architectural Woodwork Standards Grade: Custom.
				2. Type of Construction: [**Frameless**] [**Face frame**].
				3. Door and Drawer-Front Style: [**Flush overlay**] [**Reveal overlay**] [**Lipped**] [**Flush inset**].

Retain "Reveal Dimension" Subparagraph below for reveal-overlay style doors and drawer fronts.

Reveal Dimension: 1/2 inch.

Retain option in "Wood for Exposed Surfaces" Paragraph below if wood characteristics are indicated on Drawings. Otherwise, delete option and retain subparagraphs describing wood characteristics below.

* + - * 1. Wood for Exposed Surfaces:[**As indicated on Drawings.**]

Species: [**Red oak**] [**White oak**] [**White ash**] [**White birch**].

Retain "Blueprint Matching" Subparagraph below if blueprint-matched paneling is specified for installation area.

Blueprint Matching: Comply with veneer and other matching requirements indicated for blueprint-matched paneling.

Retain subparagraphs below if blueprint matching is not required.

Cut: [**Plain sliced/plain sawn**] [**Rift cut/rift sawn**] [**Quarter cut/quarter sawn**].

Grain Direction: [**Vertically for drawer fronts, doors, and fixed panels**] [**Horizontally for drawer fronts, doors, and fixed panels**] [**Vertically for doors and fixed panels, horizontally for drawer fronts**] [**As indicated on Drawings**].

Retain one of three options in "Matching of Veneer Leaves" Subparagraph below for Premium- or Custom-grade cabinets.

Matching of Veneer Leaves: [**Book**] [**Slip**] [**Random**] match.

Retain one of three options in "Veneer Matching within Panel Face" Subparagraph below for Premium-grade cabinets.

Veneer Matching within Panel Face: [**Running**] [**Balance**] [**Center-balance**] match.

Retain "Veneer Matching within Room" Subparagraph below for blueprint matching when only cabinets are to be matched.

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.

Retain "Semiexposed Surfaces" Paragraph below to restrict woodworker's choices established by the Architectural Woodwork Standards.

* + - * 1. Semiexposed Surfaces:

Surfaces Other Than Drawer Bodies: [**Same species and cut indicated for exposed surfaces**] [**Thermoset decorative panels**] [**Compatible species to that indicated for exposed surfaces, stained to match**].

Edges of Thermoset Decorative Panel Shelves: PVC or polyester edge banding.

Drawer Subfronts, Backs, and Sides: [**Solid-hardwood lumber, same species indicated for exposed surfaces**] [**Solid-hardwood lumber, stained to match species indicated for exposed surfaces**] [**Solid-hardwood lumber**] [**Thermoset decorative panels with PVC or polyester edge banding**].

Drawer Bottoms: [**Hardwood plywood**] [**Thermoset decorative panels**].

Retain "Dust Panels" Paragraph below if required. Dust panels are not required by the Architectural Woodwork Standards.

* + - * 1. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.
				2. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.

Join subfronts, backs, and sides with glued dovetail joints.

* + - 1. WOOD CABINETS FOR OPAQUE FINISH
				1. Architectural Woodwork Standards Grade: Custom.
				2. Type of Construction: [**Frameless**] [**Face frame**].
				3. Door and Drawer-Front Style: [**Flush overlay**] [**Reveal overlay**] [**Lipped**] [**Flush inset**].

Retain "Reveal Dimension" Subparagraph below for reveal-overlay style doors and drawer fronts.

Reveal Dimension: 1/2 inch.

"Species for Exposed Lumber Surfaces" and "Panel Product for Exposed Surfaces" paragraphs below are examples of requirements that are more restrictive than the Architectural Woodwork Standards. If required, retain these paragraphs and revise them to suit Project.

* + - * 1. Species for Exposed Lumber Surfaces: Any closed-grain hardwood.
				2. Panel Product for Exposed Surfaces: MDF.

Retain "Semiexposed Surfaces" Paragraph below to restrict woodworker's choices established by the Architectural Woodwork Standards.

* + - * 1. Semiexposed Surfaces:

Surfaces Other Than Drawer Bodies: Match materials indicated for exposed surfaces.

Edges of Thermoset Decorative Panel Shelves: PVC or polyester edge banding.

Drawer Sides and Backs: Solid-hardwood lumber.

Drawer Bottoms: Hardwood plywood.

Retain "Dust Panels" Paragraph below if required. Dust panels are not required by the Architectural Woodwork Standards.

* + - * 1. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.
				2. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.

Join subfronts, backs, and sides with glued dovetail joints.

* + - 1. WOOD MATERIALS
				1. 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.

Usually retain first subparagraph below if softwood lumber is used.

Do not use plain-sawn softwood lumber with exposed, flat surfaces more than 3 inches wide.

Wood Moisture Content: 5 to 10 percent.

* + - * 1. Composite 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.

Retain "MDF" Subparagraph and applicable "Particleboard" Subparagraph below for thermoset decorative panels, which are frequently called "melamine."

MDF: ANSI A208.2, Grade 130.

Particleboard (Medium Density): ANSI A208.1, [**Grade M-2**] [**Grade M-2-Exterior Glue**].

Softwood Plywood: DOC PS 1, medium-density overlay.

The term "plywood" in "Veneer-Faced Panel Products (Hardwood Plywood)" Subparagraph below refers to a wood-based panel with veneers applied to both faces; core may be made up of veneers (either hardwood or softwood), particleboard, MDF, hardboard, or glued-up lumber.

Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1.

Thermoset decorative panels are frequently called "melamine." If retaining "Thermoset Decorative Panels" Subparagraph below, also retain "MDF" Subparagraph and applicable "Particleboard" Subparagraph above.

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.

* + - 1. FIRE-RETARDANT-TREATED MATERIALS

If fire-retardant materials are required, verify requirements and acceptability of various materials with authorities having jurisdiction.

* + - * 1. 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.

Use treated materials that comply with requirements of referenced quality standard. Do not use materials that are warped, discolored, or otherwise defective.

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.

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.

* + - * 1. Fire-Retardant-Treated Lumber and Plywood: Products with a flame-spread index of 25 or less when tested according to 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 beyond the centerline of the burners at any time during the test.

Kiln-dry lumber and plywood after treatment to a maximum moisture content of 19 and 15 percent, respectively.

Retain first subparagraph below if items are to receive a stained or natural finish. Organic resin treatment is more expensive than salt treatments but helps ensure a better stained or natural finish.

For items indicated to receive a stained or natural finish, use organic resin chemical formulation.

Retain one of two subparagraphs below. Before retaining first, verify that wood species and treatment process specified are approved for milling after treatment.

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.

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.

Fire-retardant particleboard contains urea formaldehyde. It complies with requirements for Class I (Class A) finish but not with requirements of model codes for use where noncombustible materials are required.

* + - * 1. 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.

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.

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.

Fiberboard in "Fire-Retardant Fiberboard" Paragraph below complies with requirements for Class I (Class A) finish but not with requirements of model codes for use where noncombustible materials are required.

* + - * 1. 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. CABINET HARDWARE AND ACCESSORIES

Where close matching of cabinet hardware and door hardware is required, it may be preferable to specify cabinet hardware in door hardware Section.

* + - * 1. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087100 "Door Hardware."

[Manufacturers:](http://www.specagent.com/Lookup?ulid=12833) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[Accuride International](http://www.specagent.com/Lookup?uid=123457168124).

[Blum, Julius & Co., Inc](http://www.specagent.com/Lookup?uid=123457168125).

[Knape & Vogt Manufacturing Company](http://www.specagent.com/Lookup?uid=123457168126).

Approved equivalent.

Paragraphs below describing hardware items are examples only; revise to suit Project or delete and include a schedule on Drawings. See BHMA standards or the Architectural Woodwork Standards for illustrations of and designations for additional types of cabinet hardware.

* + - * 1. Butt Hinges: 2-3/4-inch, five-knuckle steel hinges made from 0.095-inch- thick metal, and as follows:

Semiconcealed Hinges for Flush Doors: ANSI/BHMA A156.9, B01361.

Semiconcealed Hinges for Overlay Doors: ANSI/BHMA A156.9, B01521.

Hinges in "Frameless Concealed Hinges (European Type)" Paragraph below are not as strong as heavy-duty butt hinges.

* + - * 1. Frameless Concealed Hinges (European Type): ANSI/BHMA A156.9, B01602, [**100**] [**135**] [**170**] degrees of opening[**, self-closing**].
				2. Back-Mounted Pulls: ANSI/BHMA A156.9, B02011.
				3. Wire Pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter.
				4. Catches: [**Magnetic catches, ANSI/BHMA A156.9, B03141**] [**Push-in magnetic catches, ANSI/BHMA A156.9, B03131**] [**Roller catches, ANSI/BHMA A156.9, B03071**] [**Ball friction catches, ANSI/BHMA A156.9, B03013**].

First option in "Adjustable Shelf Standards and Supports" Paragraph below specifies standards and clip-type rests for mounting at ends of shelves; second specifies standards and knife-type brackets for mounting at rear of shelves.

* + - * 1. Adjustable Shelf Standards and Supports: [**ANSI/BHMA A156.9, B04071; with shelf rests, B04081**] [**ANSI/BHMA A156.9, B04102; with shelf brackets, B04112**].

Rests in "Shelf Rests" Paragraph below are installed in holes drilled in cabinet sides and partitions.

* + - * 1. Shelf Rests: ANSI/BHMA A156.9, B04013; [**metal**] [**plastic**] [**two-pin plastic with shelf hold-down clip**].
				2. Drawer Slides: ANSI/BHMA A156.9.

Grade 1 and Grade 2: Side mounted and extending under bottom edge of drawer.

Type: Full extension.

Material: Epoxy-coated steel with polymer rollers.

Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel, ball-bearing slides.

Grades in five subparagraphs below correspond to the following initial load test requirements: Grade 2, 30 lbf; Grade 1, 50 lbf; Grade 1HD-100, 100 lbf; Grade 1HD-200, 200 lbf.

For drawers not more than 3 inches high and not more than 24 inches wide, provide Grade 1.

For drawers more than 3 inches high, but not more than 6 inches high and not more than 24 inches wide, provide Grade 1HD-100.

For drawers more than 6 inches high or more than 24 inches wide, provide Grade 1HD-200.

For computer keyboard shelves, provide Grade 1.

For trash bins not more than 20 inches high and 16 inches wide, provide Grade 1HD-100.

* + - * 1. Slides for Sliding Glass Doors: ANSI/BHMA A156.9, B07063; [**plastic**] [**aluminum**].

Locks specified in "Door Locks" and "Drawer Locks" paragraphs below are deadbolt locks, surface mounted on inside of door or drawer with only the cylinder exposed on outside; revise either paragraph if another type of lock is required.

* + - * 1. Door Locks: ANSI/BHMA A156.11, E07121.
				2. Drawer Locks: ANSI/BHMA A156.11, E07041.
				3. Door and Drawer Silencers: ANSI/BHMA A156.16, L03011.

Retain "Float Glass for Cabinet Doors" or "Tempered Float Glass for Cabinet Doors" Paragraph below if glass is required for cabinet doors. Retain one of two options in second paragraph for seamed exposed edges if unframed glass doors are used.

* + - * 1. Float Glass for Cabinet Doors: ASTM C1036, Type I, [**Class 1 (clear)**] [**Class 2 or 3 (tinted)**], Quality-Q3.

Thickness: [**3.0 mm**] [**4.0 mm**] [**5.0 mm**] [**6.0 mm**].

Tint Color: [**Blue-green**] [**Bronze**] [**Green**] [**Gray**].

* + - * 1. Tempered Float Glass for Cabinet Doors: ASTM C1048, Kind FT, Condition A, Type I, [**Class 1 (clear)**] [**Class 2 or 3 (tinted)**], Quality-Q3, 6 mm thick unless otherwise indicated.

Tint Color: [**Blue-green**] [**Bronze**] [**Green**] [**Gray**].

Unframed Glass Doors: Seam exposed edges seamed before tempering.

* + - * 1. Mirror Glass for Cabinet Doors: ASTM C1503, Mirror [**Select**] [**Glazing**], Quality-Q3.

Thickness: [**3.0 mm**] [**4.0 mm**] [**5.0 mm**] [**6.0 mm**].

* + - * 1. Decorative Glass for Cabinet Doors: Provide decorative glass complying with Section 088113 "Decorative Glass Glazing."
				2. Tempered Float Glass for Cabinet Shelves: ASTM C1048, Kind FT, Condition A, Type I, [**Class 1 (clear)**] [**Class 2 or 3 (tinted)**], Quality-Q3; with exposed edges seamed before tempering, 6 mm thick.

Tint Color: [**Blue-green**] [**Bronze**] [**Green**] [**Gray**].

* + - * 1. Grommets for Cable Passage: [**1-1/4-inch**] [**2-inch**] OD, molded-plastic grommets and matching plastic caps with slot for wire passage.

Color: [**Brown**] [**Black**].

* + - * 1. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with ANSI/BHMA A156.18 for BHMA finish number indicated.

Subparagraphs below are examples only. Revise to suit Project. If more than one finish is required, insert location of each here or indicate on Drawings. See the Evaluations.

Dark, Oxidized, Satin Bronze, Oil Rubbed: ANSI/BHMA 613 for bronze base; ANSI/BHMA 640 for steel base; match Director’s Representative's sample.

Bright Brass, Clear Coated: ANSI/BHMA 605 for brass base; ANSI/BHMA 632 for steel base.

Bright Brass, Vacuum Coated: ANSI/BHMA 723 for brass base; ANSI/BHMA 729 for zinc-coated-steel base.

Satin Brass, Blackened, Bright Relieved, Clear Coated: ANSI/BHMA 610 for brass base; ANSI/BHMA 636 for steel base.

Satin Chromium Plated: ANSI/BHMA 626 for brass or bronze base; ANSI/BHMA 652 for steel base.

Bright Chromium Plated: ANSI/BHMA 625 for brass or bronze base; ANSI/BHMA 651 for steel base.

Satin Stainless Steel: ANSI/BHMA 630.

* + - * 1. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in ANSI/BHMA A156.9.
			1. MISCELLANEOUS MATERIALS
				1. Furring, Blocking, Shims, and Hanging Strips: [**Softwood or hardwood lumber**] [**Fire-retardant-treated softwood lumber**], kiln-dried to less than 15 percent moisture content.
				2. 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.
			2. FABRICATION
				1. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
				2. Fabricate architectural cabinets to dimensions, profiles, and details indicated. Ease edges and corners to 1/16-inch radius unless otherwise indicated.
				3. 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.

Retain first subparagraph below if Director’s Representative will examine work in woodwork shop before it is shipped to Project site.

Notify Director’s Representative seven days in advance of the dates and times architectural cabinet fabrication will be complete.

Retain subparagraph below for high-quality and large or complex work.

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.

* + - * 1. 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.
				2. Install glass to comply with applicable requirements in Section 088000 "Glazing" and in GANA's "Glazing Manual."

For glass in wood frames, secure glass with removable stops.

For exposed glass edges, polish and grind smooth.

* + - 1. SHOP FINISHING

Retain this article unless all work is field finished. See the Evaluations. Shop finishing can be used to help comply with LEED 2009 NC, CI, or CS Credit IEQ 4.2, which limits VOC content of paints and coatings used within building.

Retain one of three "General" paragraphs below to indicate extent of shop finishing required. First paragraph requires all work to be shop finished.

* + - * 1. General: Finish architectural cabinets at manufacturer's shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.

Retain first "General" Paragraph below if both painted and transparent finishes are used and only transparent finish is shop applied.

* + - * 1. General: Shop finish transparent-finished architectural cabinets at manufacturer's shop as specified in this Section. See Section 099123 "Interior Painting" for field finishing of opaque-finished architectural cabinets.

Retain "General" Paragraph below if both shop- and field-finished architectural cabinets are required and Drawings indicate which items are required to be shop finished.

* + - * 1. General: Drawings indicate items that are required to be shop finished. Finish these items at manufacturer's shop as specified in this Section. See [**Section 099123 "Interior Painting"**] [**and**] [**Section 099300 "Staining and Transparent Finishing"**] for field finishing of architectural cabinets.

Retain "Shop Priming" Paragraph below if any field-finished cabinets are required to be shop primed.

* + - * 1. Shop Priming: Shop apply the prime coat including backpriming, if any, for items specified to be field finished. See [**Section 099123 "Interior Painting"**] [**and**] [**Section 099300 "Staining and Transparent Finishing"**] for material and application requirements.
				2. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural cabinets, as applicable to each unit of work.

Generally retain "Backpriming" Subparagraph below. Backpriming helps moderate alternating shrinking and swelling caused by fluctuations in moisture content resulting from variations in relative humidity.

Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of cabinets.

* + - * 1. Transparent Finish:

Architectural Woodwork Standards Grade: Custom.

Review the Architectural Woodwork Standards for general performance characteristics of finishing systems. In general, System - 4 has best resistance to yellowing; System - 5 is a durable, repairable, and good general-purpose fine finish; System - 7 is durable and has good chemical resistance; System - 11 is very durable but not easily repaired; and System - 13 can have high gloss (wet look), requires special care in applying, and is not generally repairable.

Finish: System - [**1, nitrocellulose lacquer**] [**2, precatalyzed lacquer**] [**3, postcatalyzed lacquer**] [**4, water-based latex acrylic**] [**5, conversion varnish**] [**6, synthetic penetrating oil**] [**7, catalyzed vinyl**] [**8, water-based crosslinking acrylic**] [**9, UV-curable acrylated epoxy, polyester, or urethane**] [**10, water-based UV curable**] [**11, catalyzed polyurethane**] [**12, water-based polyurethane**] [**13, catalyzed polyester**].

Wash coat helps prevent blotchiness with wiping stains.

Wash Coat for Closed-Grain Woods: Apply wash-coat sealer to cabinets made from closed-grain wood before staining and finishing.

Staining: [**None required**] [**Match approved sample for color**] [**Match Director’s Representative's sample**].

Retain "Open Finish for Open-Grain Woods" or "Filled Finish for Open-Grain Woods" Subparagraph below if using open-grain wood.

Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.

Retain option in "Filled Finish for Open-Grain Woods" Subparagraph below for highest-quality work to prevent solvent in filler from smearing stain.

Filled Finish for Open-Grain Woods:[**After staining, apply wash-coat sealer and allow to dry.**] Apply paste wood filler and wipe off excess. Tint filler to match stained wood.

Numerical values for gloss ratings in "Sheen" Subparagraph below correspond with the Architectural Woodwork Standards; coordinate with effect and finish system required. Retain flat sheen with oil finish.

Sheen: [**Flat, 15-30**] [**Satin, 31-45**] [**Semigloss, 46-60**] [**Gloss, 61-100**] gloss units measured on 60-degree gloss meter per ASTM D523.

* + - * 1. Opaque Finish:

Architectural Woodwork Standards Grade: Custom [**Same as item to be finished**].

Review the Architectural Woodwork Standards for general performance characteristics of finishing systems. In general, System - 5 is a durable, repairable, and good general-purpose fine finish; System - 7 is durable and has good chemical resistance; System - 11 is very durable but not easily repaired; and System - 13 can have high gloss (wet look), requires special care in applying, and is not generally repairable.

Finish: System - [**1, nitrocellulose lacquer**] [**2, precatalyzed lacquer**] [**3, postcatalyzed lacquer**] [**4, water-based latex acrylic**] [**5, conversion varnish**] [**7, catalyzed vinyl**] [**8, water-based crosslinking acrylic**] [**9, UV-curable acrylated epoxy, polyester, or urethane**] [**10, water-based UV curable**] [**11, catalyzed polyurethane**] [**12, water-based polyurethane**] [**13, catalyzed polyester**].

If retaining first options in "Color" Subparagraph below, indicate colors in a separate schedule.

Color: [**As indicated by manufacturer's designations**] [**Match Director’s Representative's sample**] [**As selected by Director’s Representative from manufacturer's full range**].

Numerical values for gloss ratings in "Sheen" Subparagraph below correspond with the Architectural Woodwork Standards; coordinate with effect and finish system required.

Sheen: [**Flat, 15-30**] [**Satin, 31-45**] [**Semigloss, 46-60**] [**Gloss, 61-100**] gloss units measured on 60-degree gloss meter per ASTM D523.

1. EXECUTION
	* + 1. PREPARATION
				1. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.
			2. INSTALLATION

Revise "Architectural Woodwork Standards Grade" Paragraph below if installation grade is different from fabrication grade.

* + - * 1. Architectural Woodwork Standards Grade: Install cabinets to comply with quality standard grade of item to be installed.
				2. Assemble cabinets and complete fabrication at Project site to extent that it was not completed in the shop.
				3. 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.

For shop-finished items, use filler matching finish of items being installed.

* + - * 1. Install cabinets level, plumb, and true in line to a tolerance of 1/8 inch in 96 inches using concealed shims.

Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

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.

Maintain veneer sequence matching of cabinets with transparent finish.

Revise requirements in subparagraph below as necessary for seismic restraint of cabinets. Delete if hanging cleats are used and are indicated on Drawings.

Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with [**No. 10 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips**] [**No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish**] [**toggle bolts through metal backing or metal framing behind wall finish**].

Retain "Shop Finishes" or "Field Finishing" Paragraph below, or both; coordinate with selections made in "Shop Finishing" Article.

* + - * 1. Shop Finishes: Touch up finishing after installation of architectural cabinets. Fill nail holes with matching filler.

Apply specified finish coats, including stains and paste fillers if any, to exposed surfaces where only sealer/prime coats are shop applied.

* + - * 1. Field Finishing: See [**Section 099123 "Interior Painting"**] [**and**] [**Section 099300 "Staining and Transparent Finishing"**] for finishing of installed architectural cabinets.
			1. ADJUSTING AND CLEANING
				1. 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.
				2. Clean, lubricate, and adjust hardware.
				3. Clean cabinets on exposed and semiexposed surfaces. Touch up finishes to restore damaged or soiled areas.

END OF SECTION 064113