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For more information, contact Wilsonart LLC, 2501 Wilsonart Drive, Temple, TX 76503-6110; Phone: (254) 207-7000; Toll Free (800) 433-3222; Website: www.wilsonart.com; Sustainable Design Website: http://sustain.wilsonart.com.

For information about MasterSpec contact ARCOM at (800) 424-5080 or visit www.MasterSpec.com.

SECTION 064116 - PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

TIPS:

To view non-printing **Editor's Notes** that provide guidance for editing, click on Masterworks/Single-File Formatting/Toggle/Editor's Notes.

To read **detailed research, technical information about products and materials, and coordination checklists**, click on Masterworks/Supporting Information.

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

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions.

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

Before editing this Section, review requirements of the Architectural Woodwork Institute (AWI), Architectural Woodwork Manufacturers Association of Canada (AWMAC), and Woodwork Institute's (WI) "Architectural Woodwork Standards." This review helps to avoid repeating or conflicting with requirements of that standard.

Wilsonart Laminate comprises a vast range of laminate products with colors and patterns to suit virtually any architectural cabinet design requirements, from standard decorative laminate offerings to digital artwork and photorealistic imagery replications. Wilsonart is the largest and most-recognized manufacturer of laminates in the United States with a substantial presence in the global marketplace.

Wilsonart Thermally Fused Laminate (TFL) Panels provide a cost-effective melamine-laminate-based panel construction option. TFL Panel laminate surfaces provide good wear and resistance to stains and scratches. Additionally, urea-formaldehyde-free and moisture-resistant panel core options are available. It is important to note that TFL Panels are one component of the Wilsonart Coordinated Surfaces Program, which enables the design professional to select from multiple laminate surface options without compromising the intended design concept for a particular project.

Wilsonart Laminate and TFL Panels contribute to LEED-NC and LEED-CI points in several categories. Wilsonart Laminate has attained UL GREENGUARD Gold Certification and SCS Gold Certification for low indoor air chemical emissions into indoor air during product usage, and SCS certifications for recycled content and FSC stewardship criteria compliance.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

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. Plastic-laminate-faced architectural cabinets.
2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.

B. Related Requirements:

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

1. Section 061000 "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets and concealed within other construction before cabinet installation.
2. Section 123623.13 "Plastic-Laminate-Clad Countertops."
3. Section 123661.19 "Quartz Agglomerate Countertops."

1.3 REFERENCES

A. ANSI A 208.1: Particleboard.

B. ANSI A 208.2: Medium Density Fiberboard (MDF) For Interior Applications

C. ASTM C 1036: Standard Specification for Flat Glass.

D. ASTM C 1048: Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.

E. ASTM C 1503: Standard Specification for Silvered Flat Glass Mirror.

F. ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials.

G. AWI: Architectural Woodwork Institute.

H. AWS: Architectural Woodwork Standards.

I. BHMA A156.9: Cabinet Hardware.

J. BHMA A156.11: Cabinet Locks.

K. BHMA A156.18: Materials and Finishes.

L. DOC PS 1: Voluntary Product Standard for Structural Plywood.

M. FSC: Forest Stewardship Council.

N. FSC 01-001: Principles and Criteria for Forest Stewardship.

O. FSC 04-004: Standard for Chain of Custody Certification.

P. GANA: Glass Association of North America.

Q. HPVA HP-1: American National Standard for Hardwood and Decorative Plywood

R. ICC: International Code Council.

S. ICC-ES: ICC Evaluation Service.

T. ISO 9001: Quality Management Systems.

U. LEED: Leadership in Energy and Environmental Design.

V. NEMA LD 3: High Pressure Decorative Laminates.

W. WI: Woodwork Institute.

1.4 PREINSTALLATION MEETINGS

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

A. Preinstallation Conference: Conduct conference at [**Project site**] <**Insert location**>.

If needed, insert list of conference participants not mentioned in Section 013100 "Project Management and Coordination."

1.5 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.

2. Include Safety Data Sheets (SDS).

LEED-NC and LEED-CI points are achievable in several categories. Sustainability certifications include UL GREENGUARD Gold Certification and SCS Gold Certification for low indoor air chemical emissions, and SCS certifications for recycled content and FSC stewardship criteria compliance. Full sustainability documentation can be accessed at www.wilsonart.com/resources.

B. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.

"Product Certificates" Subparagraph below applies to LEED 2009.

2. Product Certificates: For regional materials, indicating location of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include distance to Project and cost for each regional material.
3. Chain-of-Custody Certificates: For certified wood products. Include statement of costs.

"Product Data" Subparagraph below applies to LEED 2009 NC and CI Credit IEQ 4.4.

4. Product Data: For adhesives, indicating that product contains no urea formaldehyde.

"Product Data" Subparagraph below applies to LEED 2009 NC and CI Credit IEQ 4.4.

5. Product Data: For composite wood products, indicating that product contains no urea formaldehyde.

C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

Retain first subparagraph below only for ornate, complex, or very high-quality work.

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.

Retain one of two subparagraphs below only if retaining other requirements for WI's or AWI's quality certification program.

4. Apply WI Certified Compliance Program label to Shop Drawings.
5. Apply AWI Quality Certification Program label to Shop Drawings.

Delete "Samples for Initial Selection" Paragraph below if colors and other characteristics are preselected and specified or scheduled. Retain "Samples for Verification" Paragraph below with or without "Samples for Initial Selection" Paragraph.

D. Samples for Initial Selection:

Revise list below to suit Project.

1. Plastic laminates.
2. ABS/PVC edge material.
3. Thermoset decorative panels.

E. Samples for Verification:

Delete items in subparagraphs below that are not needed for control of grain character, color, and finish, or insert other items. The "Architectural Woodwork Standards" require samples to be "as wide as practical" by 12 inches (300 mm) for lumber and 12 by 12 inches (300 by 300 mm) for panel products.

1. Plastic laminates, [**8 by 10 inches (200 by 250 mm)**] [**12 by 12 inches (300 by 300 mm)**], for each[**type,**] color, pattern, and surface finish[**, with one sample applied to core material**] [**and specified edge material applied to one edge**].
2. Thermoset decorative panels, [**8 by 10 inches (200 by 250 mm)**] [**12 by 12 inches (300 by 300 mm)**], for each color, pattern, and surface finish[**, with edge banding on one edge**].
3. Corner pieces as follows:

    a. Cabinet-front frame joints between stiles and rails, as well as 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.

Delete subparagraph below if Product Data are acceptable.

4. Exposed cabinet hardware and accessories, one unit for each type[**and finish**].

1.6 INFORMATIONAL SUBMITTALS

Coordinate "Qualification Data" Paragraph below with qualification requirements in Section 014000 "Quality Requirements" and as may be supplemented in "Quality Assurance" Article.

A. Qualification Data: For [**Installer**] [**fabricator**].

B. Product Certificates: For [**each type of product.**] [**the following:**]

1. Composite wood and agrifiber products.
2. Thermoset decorative panels.
3. High-pressure decorative laminate.
4. Glass.
5. Adhesives.

C. Woodwork Quality Standard Compliance Certificates: [**AWI Quality Certification Program certificates**] [**WI Certified Compliance Program certificates**].

D. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

1.7 QUALITY ASSURANCE

Consider retaining one of two options in "Fabricator Qualifications" Paragraph below if AWI quality certification or WI compliance certification is required. Both AWI and WI will inspect work and provide certification for work that passes inspection if fabricator is not certified/licensed.

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.**][**Shop is a licensee of WI's Certified Compliance Program.**]

Delete "Installer Qualifications" Paragraph below if not required or available. If AWI Quality Certification Program labels or certificates are required for installation, installer must be a certified participant. If woodwork must be FSC certified, fabricator must either install woodwork or be FSC certified for chain of custody.

B. Installer Qualifications: [**Fabricator of products**] [**Certified participant in AWI's Quality Certification Program**] [**Licensee of WI's Certified Compliance Program**].

C. Laminate Manufacturer Qualifications: Manufacturer producing products in an ISO 9001 certified facility.

D. 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.

E. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

Retain first subparagraph below and indicate on Drawings plastic-laminate cabinets represented by mockup or draw mockup as separate element; otherwise insert a description of the cabinets to be mocked up.

1. Build mockups of [**typical plastic-laminate cabinets as shown on Drawings**] <**Insert description**>.

Retain subparagraph below if the intention is to make an exception to the default requirement in Section 014000 "Quality Requirements" for demolishing and removing mockups.

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

1.8 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.

1.9 FIELD CONDITIONS

Retain first "Environmental Limitations" Paragraph below if humidity will not be controlled during occupancy.

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 occupancy levels during the remainder of the construction period.

Retain "Environmental Limitations" Paragraph below if humidity will be controlled during occupancy and retain one of three relative-humidity ranges or insert another based on local climatological data. Three ranges given are for painted or finished woodwork. First applies to Ontario, Quebec, and most of U.S. Second applies to damp coastal areas of southern U.S. and the Maritime Provinces. Third applies to dry southwestern U.S. and to Alberta, Manitoba, and Saskatchewan. For unfinished woodwork, narrower ranges will be required to maintain optimum moisture content. See map and discussion about relative humidity and moisture content in the "Architectural Woodwork Standards."

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**] [**43 and 70**] [**17 and 50**] <**Insert humidity range**> 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, 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.

1.10 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.

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.

B. Hardware Coordination: Distribute copies of approved hardware schedule specified in Section 087111 "Door Hardware (Descriptive Specification)" to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

PART 2 - PRODUCTS

See Editing Instruction No. 1 in the Evaluations for cautions about named manufacturers and products. For an explanation of options and Contractor's product selection procedures, see Section 016000 "Product Requirements."

2.1 ARCHITECTURAL CABINET FABRICATORS

Retain "Fabricators" Paragraph below if a list of preapproved woodworkers is used as a quality-control procedure. See Evaluations. Retain first or second option if additional firms will not be considered; retain third option if they will. If retaining third option, include procedure for approving other firms in the Instructions to Bidders.

A. Fabricators: Subject to compliance with requirements, [**provide products by the following**] [**provide products by one of the following**] [**available fabricators offering products that may be incorporated into the Work include, but are not limited to, the following**]:

See AWI's or WI's member list for names of woodworking firms.

1. <**Insert, in separate subparagraphs, names and possibly contact information for preapproved woodworking firms**>.

2.2 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.

If retaining first subparagraph below, verify applicability of certification for Project's geographic location. Certification programs of both organizations are available to member and nonmember firms. Both AWI and WI will inspect work and provide certification for work that passes inspection if fabricator is not certified/licensed. Contact either organization for a list of certified woodworkers in Project's location.

1. Provide [**labels**] [**and**] [**certificates**] from [**AWI**] [**WI**] certification program indicating that woodwork[**, including installation,**] complies with requirements of grades specified.

Retain subparagraph below only if Drawings and Specifications are more restrictive than quality standard.

2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.

B. Grade: [**Premium**] [**Custom**] [**Economy**].

"Regional Materials" Paragraph below applies to LEED 2009 NC Credit MR 5 and to LEED 2009 CI Credit MR 5, Option 2; before retaining, verify availability of materials that comply.

C. Regional Materials: Wood products shall be manufactured within 500 miles (800 km) of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles (800 km) of Project site.

"Regional Materials" Paragraph below applies to LEED 2009 CI Credit MR 5, Option 1.

D. Regional Materials: Wood products shall be manufactured within 500 miles (800 km) of Project site.

"Certified Wood" Paragraph below applies to LEED 2009. Manufacturers certifying products as "FSC Mixed Credit" do not have to use 100 percent certified wood in the products; however, in their total production, manufacturers must use an amount equal to or greater than the percentage of their production that is labeled "FSC Mixed Credit."

E. Certified Wood: Wood products shall be certified as "FSC Pure"[**or "FSC Mixed Credit"**] according to FSC STD-01-00 and FSC STD-40-004.

F. Type of Construction: [**Frameless**] [**Face frame**].

G. Cabinet, Door, and Drawer Front Interface Style: [**Flush overlay**] [**Reveal overlay**] [**Lipped**] [**Flush inset**].

H. Reveal Dimension: [**1/2 inch (13 mm)**] [**As indicated**] <**Insert dimension**>.

Wilsonart offers a full complement of decorative plastic laminate product options, including “Standard,” “High Definition,” “Solicor,” WilsonartXYou,” “Virtual Design Library,” and “Compact Laminate.” Other choices are available for fire-rated (Wilsonart Fire-Rated) and chemical-resistant (Wilsonart Chemsurf) products. Complete design and technical information can be accessed at www.wilsonart.com/products.

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

1. Basis-of-Design Product: Subject to compliance with requirements, provide Wilsonart LLC; **Decorative Plastic Laminates** or a comparable product by one of the following:

a. Abet Laminati Inc.
b. Formica Corporation.
c. Lamin-Art, Inc.
d. Pionite; a Panolam Industries International, Inc. brand.
e. <**Insert manufacturer’s name**>.

J. Laminate Cladding for Exposed Surfaces:

Retain grade designations from options in first four subparagraphs below. Grade HGS is 1.2 mm (0.048 inch) thick, Grades HGL and HGP are 1.0 mm (0.039 inch) thick, and Grade VGS is 0.7 mm (0.028 inch) thick.

1. Horizontal Surfaces: [**Grade HGS**] [**Grade HGL**].
2. Postformed Surfaces: Grade HGP.
3. Vertical Surfaces: [**Grade HGS**] [**Grade VGS**].

The standard decorative edgeband for Wilsonart Laminates is an ABS/PVC extrusion, Wilsonart Edgeband.

4. Edges: ABS/PVC extruded fabrication.
5. Pattern 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**].

Delete "Materials for Semiexposed Surfaces" Paragraph below for woodworker's option from choices in standard.

K. Materials for Semiexposed Surfaces:

1. Surfaces Other Than Drawer Bodies: [**High-pressure decorative laminate, NEMA LD 3, Grade VGS**] [**High-pressure decorative laminate, NEMA LD 3, Grade CLS**] [**Thermoset decorative panels**].

Retain one edge construction from "Edges of Plastic-Laminate Shelves" Subparagraph below if retaining high-pressure decorative laminate in "Surfaces Other Than Drawer Bodies" Subparagraph above.

a. Edges of Plastic-Laminate Shelves: ABS/PVC extruded fabrication.
b. Edges of Thermoset Decorative Panel Shelves: ABS/PVC extruded fabrication.

Retain first subparagraph below if required to provide balanced construction.

c. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3, [**Grade VGS**] [**Grade CLS**].

2. Drawer Sides and Backs: [**Solid-hardwood lumber**] [**Thermoset decorative panels with ABS/PVC extrusion banding**].
3. Drawer Bottoms: [**Hardwood plywood**] [**Thermoset decorative panels**].

Retain "Dust Panels" Paragraph below if required. Dust panels are not required by standards.

L. Dust Panels: 1/4-inch (6.4-mm) plywood or tempered hardboard above compartments and drawers unless located directly under tops.

Retain "Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces" Paragraph below if required to provide balanced construction. Complete backer sheet technical information, including Grade designations other than BKL, can be accessed at www.wilsonart.com/products.

M. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.

N. 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**].

O. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

Retain one of first four subparagraphs below. If retaining second, indicate colors, patterns, and finishes in a separate schedule.

1. As specified in SCHEDULE Article of this Section.
2. As indicated by laminate manufacturer's designations.
3. Match Architect's sample.
4. As selected by Architect from laminate manufacturer's full range.
   a. Patterns, [**gloss**] [**matte**] finish.

2.3 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.

Retain one of three ranges of moisture content in "Wood Moisture Content" Subparagraph below. First range applies to Ontario, Quebec, and most of U.S. Second applies to damp coastal areas of southern U.S. and to the Maritime Provinces. Third applies to dry southwestern U.S. and to Alberta, Manitoba, and Saskatchewan. See relative-humidity and moisture-content map in the "Architectural Woodwork Standards." Note that some areas have micro-climates that differ from the surrounding region.

1. Wood Moisture Content: [**5 to 10**] [**8 to 13**] [**4 to 9**] 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.

Retain "Recycled Content of MDF and Particleboard" Paragraph below to specify recycled content if required. An alternative method of requiring recycled content is to retain requirement in Project's Division 01 sustainable design requirements Section that gives Contractor the option and responsibility to determine how recycled content requirements will be met. Recycled content of MDF and particleboard varies greatly; consult manufacturers before inserting requirement.

1. Recycled Content of MDF and Particleboard: Postconsumer recycled content plus one-half of preconsumer recycled content not less than <**Insert value**> percent.

"Composite Wood Products" Paragraph below applies to LEED 2009 NC, CI, and CS Credit IEQ 4.4.

C. Composite Wood Products: Products shall be made without urea formaldehyde.

Grades for medium-density fiberboard changed with the 2002 edition of ANSI A208.2. Grade 130 is approximately equivalent to the previous Grade MD.

1. Medium-Density Fiberboard: ANSI A208.2, [**Grade 130**] **<Insert grade>**.
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) <**Insert manufacturer's name**>.

4. Softwood Plywood: DOC PS 1[**, medium-density overlay**].

Note that 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, medium-density fiberboard, hardboard, or glued-up lumber.

5. 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 "Medium-Density Fiberboard" Subparagraph and applicable "Particleboard" Subparagraph above. Note that Wilsonart Thermally Fused Laminate (TFL) Panels are one component of the Wilsonart Coordinated Surfaces program that combines Wilsonart Laminate, TFL Panels, and the standard Wilsonart Edgeband as a suite of products offering the best possible matches in surface, design, and texture, regardless of the pattern(s) selected. Selection of products by other manufacturers, including those submitted as cost-effective (deductive) alternates, may compromise the design concept desired for a particular project. For additional information please visit www.wilsonart.com/resources.

6. Thermoset Decorative Panels: Particleboard or medium-density fiberboard 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.

    a. Basis-of-Design Product: Subject to compliance with requirements, provide Wilsonart Thermally Fused Laminate Panels or a comparable product by one of the following:

        1) Abet Laminati Inc.
        2) Arborite.
        3) Lamin-Art, Inc.
        4) <**Insert manufacturer's name**>.

2.4 FIRE-RETARDANT-TREATED MATERIALS

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

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 (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.

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.

2. 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.

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 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.

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

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 (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.
2. 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. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Flakeboard Company Limited.
2. SierraPine.
3. <**Insert manufacturer's name**>.

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

E. 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. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Panel Source International, Inc.
b. SierraPine.
c. <**Insert manufacturer's name**>.

2.5 CABINET HARDWARE AND ACCESSORIES

Where close matching of cabinet hardware and door hardware is required, it may be preferable to specify cabinet hardware in Section 087111 "Door Hardware (Descriptive Specification)."

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

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

B. Butt Hinges: 2-3/4-inch (70-mm), five-knuckle steel hinges made from 0.095-inch- (2.4-mm-) thick metal, and as follows:

1. Semiconcealed Hinges for Flush Doors: BHMA A156.9, B01361.
2. Semiconcealed Hinges for Overlay Doors: BHMA A156.9, B01521.

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

C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, [**100**] [**135**] [**170**] degrees of opening[**, self-closing**].

D. Back-Mounted Pulls: BHMA A156.9, B02011.

E. Wire Pulls: Back mounted, solid [**metal**] [**plastic**], [**4 inches (100 mm) long, 5/16 inch (8 mm) in diameter**] [**5 inches (127 mm) long, 2-1/2 inches (63.5 mm) deep, and 5/16 inch (8 mm) in diameter**].

F. Catches: [**Magnetic catches, BHMA A156.9, B03141**] [**Push-in magnetic catches, BHMA A156.9, B03131**] [**Roller catches, BHMA A156.9, B03071**] [**Ball friction catches, 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.

G. Adjustable Shelf Standards and Supports: [**BHMA A156.9, B04071; with shelf rests, B04081**] [**BHMA A156.9, B04102; with shelf brackets, B04112**].

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

H. Shelf Rests: BHMA A156.9, B04013; [**metal**] [**plastic**] [**metal, two-pin type with shelf hold-down clip**].

I. Drawer Slides: BHMA A156.9.

1. Grade 1 and Grade 2: Side mounted[**and extending under bottom edge of drawer**]; [**full-extension**] [**partial-extension**] type; [**zinc-plated steel**] [**epoxy-coated steel**] with polymer rollers.
2. Grade 1HD-100 and Grade 1HD-200: Side mounted; [**full-extension**] [**full-overtravel-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 (13.3 kg); Grade 1, 50 lbf (22.2 kg); Grade 1HD-100, 100 lbf (44.5 kg); Grade 1HD-200, 200 lbf (90 kg).

3. For drawers not more than 3 inches (75 mm) high and not more than 24 inches (600 mm) wide, provide [**Grade 2**] [**Grade 1**].
4. For drawers more than 3 inches (75 mm) high but not more than 6 inches (150 mm) high and not more than 24 inches (600 mm) wide, provide [**Grade 1**] [**Grade 1HD-100**].
5. For drawers more than 6 inches (150 mm) high or more than 24 inches (600 mm) wide, provide [**Grade 1HD-100**] [**Grade 1HD-200**].
6. For computer keyboard shelves, provide [**Grade 1**] [**Grade 1HD-100**].
7. For trash bins not more than 20 inches (500 mm) high and 16 inches (400 mm) wide, provide [**Grade 1HD-100**] [**Grade 1HD-200**].

J. [**Plastic**] [**Aluminum**] Slides for Sliding Glass Doors: BHMA A156.9, B07063.

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.

K. Door Locks: BHMA A156.11, E07121.

L. Drawer Locks: BHMA A156.11, E07041.

M. Door and Drawer Silencers: 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 option in second paragraph for seamed exposed edges if unframed glass doors are used.

N. Float Glass for Cabinet Doors: ASTM C 1036, Type I, [**Class 1 (clear)**] [**Class 2 or 3 (tinted)**], Quality-Q3, [**3.0 mm**] [**4.0 mm**] [**5.0 mm**] [**6.0 mm**] thick.

1. Tint Color: [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

O. Tempered Float Glass for Cabinet Doors: ASTM C 1048, 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 unless otherwise indicated.

1. Tint Color: [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

P. Mirror Glass for Cabinet Doors: ASTM C 1503, Mirror [**Select**] [**Glazing**], Quality-Q3, [**3.0 mm**] [**4.0 mm**] [**5.0 mm**] [**6.0 mm**] thick.

Q. Decorative Glass for Cabinet Doors: Provide decorative glass complying with Section 088113 "Decorative Glass Glazing."

R. Tempered Float Glass for Cabinet Shelves: ASTM C 1048, 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.

1. Tint Color: [**Blue-green**] [**Bronze**] [**Green**] [**Gray**] <**Insert color**>.

S. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

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

1. Dark, Oxidized, Satin Bronze, Oil Rubbed: BHMA 613 for bronze base; BHMA 640 for steel base; match Architect's sample.
2. Bright Brass, Clear Coated: BHMA 605 for brass base; BHMA 632 for steel base.
3. Bright Brass, Vacuum Coated: BHMA 723 for brass base; BHMA 729 for zinc-coated-steel base.
4. Satin Brass, Blackened, Bright Relieved, Clear Coated: BHMA 610 for brass base; BHMA 636 for steel base.
5. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
6. Bright Chromium Plated: BHMA 625 for brass or bronze base; BHMA 651 for steel base.
7. Satin Stainless Steel: BHMA 630.

T. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.6 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.

"Adhesives" Paragraph below applies to LEED 2009 NC and CI Credit IEQ 4.4.

C. Adhesives: Do not use adhesives that contain urea formaldehyde.

Retain one of five options in "Adhesive for Bonding Plastic Laminate" Paragraph below or delete all and leave as woodworker's option. First and second options are suitable for general use and for postforming. Use only unpigmented product with through-color laminate. Water-based varieties must be used where VOC limits apply. Third option is white or yellow wood glue and is good for use with through-color laminates; it is not for postforming and has poor water, chemical, and heat resistance. Fourth option has good water and chemical resistance and resistance to temperature fluctuations; it is also suitable for postforming and for through-color laminates. Retain fifth option if required for fire resistance; it is the only adhesive with flame-spread index less than 25. Resorcinol also has good water and chemical resistance; it is not for postforming or for through-color laminates. The complete line of Wilsonart laminate adhesives can be accessed at www.wilsonart.com/products.

D. Adhesive for Bonding Plastic Laminate: [**Unpigmented contact cement**] [**Contact cement**] [**PVA**] [**Urea formaldehyde**] [**Resorcinol**].

Retain "Adhesive for Bonding Edges" Subparagraph below unless good chemical, fire, or temperature resistance is required.

1. Adhesive for Bonding Edges: Hot-melt adhesive[**or adhesive specified above for faces**].

2.7 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.

Retain first subparagraph below if Architect will examine work in woodwork shop before it is shipped to Project site.

1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.

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

2. 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. For decorative plastic laminates, comply with manufacturer's written fabrication instructions.

E. 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.

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

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

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 (3 mm in 2400 mm).

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 (3 mm in 2400-mm) sag, bow, or other variation from a straight line.

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

2. 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**] [**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**].

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. Clean decorative plastic laminate surfaces according to manufacturer's written care and maintenance instructions.

D. Protect completed work from damage for duration of construction period.

3.4 SCHEDULE

END OF SECTION 064116