UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated January 2021
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11/16, CHG 1: 11/18

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SECTION 12 32 00

MANUFACTURED WOOD CASEWORK
11/16, CHG 1: 11/18

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NOTE: This guide specification covers the requirements for wood casework.

Use this guide specification in conjunction with and coordinate with the referenced sections.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).
****

PART 1 GENERAL

1.1 REFERENCES

****
NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also

use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

****

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN HARDBOARD ASSOCIATION (AHA)

AHA A135.4	(1995; R 2004) Basic Hardboard

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME B18.6.1	(2016) Wood Screws (Inch Series)

APA - THE ENGINEERED WOOD ASSOCIATION (APA)

APA E30	(2016) Engineered Wood Construction Guide
APA EWCG	(2011) Engineered Wood Construction Guide: Building Requirements and Related Panel Systems
APA PS 1	(2009) Structural Plywood (with Typical APA Trademarks)

ASTM INTERNATIONAL (ASTM)

ASTM A240/A240M	(2020) Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
ASTM A325	(2014) Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A325M	(2014) Standard Specification for Structural Bolts, Steel, Heat Treated, 830 MPa Minimum Tensile Strength (Metric)
ASTM A1008/A1008M	(2020) Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
ASTM C1036	(2016) Standard Specification for Flat Glass
ASTM D4689	(2012) Standard Specification for Adhesive, Casein-Type

ASTM D4690	(2012) Standard Specification for Urea Formaldehyde Resin Adhesives
ASTM F594	(2009; R 2020) Standard Specification for Stainless Steel Nuts
ASTM F836M	(2020) Standard Specification for Style 1 Stainless Steel Metric Nuts (Metric)

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

ANSI/BHMA A156.9	(2015) Cabinet Hardware

COMPOSITE PANEL ASSOCIATION (CPA)

CPA A208.1	(2016) Particleboard
CPA A208.2	(2016) Medium Density Fiberboard (MDF) for Interior Applications

HARDWOOD PLYWOOD AND VENEER ASSOCIATION (HPVA)

HPVA HP-1	(2016) American National Standard for Hardwood and Decorative Plywood

KITCHEN CABINET MANUFACTURERS ASSOCIATION (KCMA)

KCMA A161.1	(2017) Performance & Construction Standards for Kitchen and Vanity Cabinets

MASTER PAINTERS INSTITUTE (MPI)

MPI 9	(2016) Alkyd, Exterior Gloss (MPI Gloss Level 6)
MPI 10	(2016) Latex, Exterior Flat (MPI Gloss Level 1)
MPI 11	(2016) Latex, Exterior Semi-Gloss, MPI Gloss Level 5
MPI 28	(2012) Varnish, Marine Spar, Exterior, Gloss (MPI Gloss Level 6)
MPI 91	(2012) Paste, Wood Filler
MPI 94	(2016) Alkyd, Exterior, Semi-Gloss (MPI Gloss Level 5)
MPI 119	(2016) Latex, Exterior, Gloss (MPI Gloss Level 6)

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

ANSI/NEMA LD 3	(2005) Standard for High-Pressure Decorative Laminates

SCIENTIFIC EQUIPMENT AND FURNITURE ASSOCIATION (SEFA)

SEFA 7	(2007) Recommended Practice for Laboratory and Hospital Fixtures

U.S. DEPARTMENT OF COMMERCE (DOC)

DOC/NIST PS1	(1995) Structural Plywood
DOC/NIST PS20	American Softwood Lumber Standard

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS FF-B-588	(Rev E; Notice 1) Bolt, Toggle: and Expansion Sleeve, Screw
FS FF-S-325	(Basic; Int Amd 3; Notices 3, 4) Shield, Expansion; Nail, Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonry)
FS MM-L-736	(Rev D; Notice 1) Lumber; Hardwood
FS TT-C-490	(Rev G; 2019) Cleaning Methods for Ferrous Surfaces and Pretreatments for Organic Coatings
FS WW-P-541	(Rev E; Am 1; Notice 1) Plumbing Fixtures

1.2 SUBMITTALS

****

NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a “G” to an item, if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

Use the "S" Classification only in SD-11 Closeout Submittals. The "S" classification indicates submittals required as proof of compliance for

sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force and NASA projects, or choose the second bracketed item for Army projects.

****

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Fabrication; G[, [____]]

Installation Drawings; G[, [____]]

SD-03 Product Data

Cabinets; G[, [____]]

Corrosion-Resistant Steel; G[, [____]]

Plywood; G[, [____]]

Medium Density Fiberboard (MDF); G[, [____]]

Hardwood; G[, [____]]

Hardwood Plywood; G[, [____]]

Glass; G[, [____]]

Adhesives; G[, [____]]

Filler Material; G[, [____]]

Particle Board; G[, [____]]

Varnish; G[, [____]]

Fasteners; G[, [____]]

Steel Sinks; G[, [____]]

Service Fixtures; G[, [____]]

Accessories and Hardware; G[, [____]]

Softwoods; G[, [____]]

Plastic Laminate; G[, [____]]

Countertops; G[, [____]]

SD-04 Samples

Accessories and Hardware; G[, [____]]

Manufacturer's Standard Color Charts; G[, [____]]

SD-07 Certificates

Corrosion-Resistant Steel

Plywood

Hardwood

Glass

Adhesives

Filler Material

Particle Board

Varnish

Fasteners

Steel Sinks

Service Fixtures

Accessories and Hardware

SD-08 Manufacturer's Instructions

Manufacturer's Instructions

1.3 QUALITY CONTROL

Submit manufacturer's standard color charts for wood and metal cabinets showing the manufacturer's recommended color and finish selections.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver, handle, and store cabinets in a manner that prevents damage or deformity. Provide temporary skids under units weighing more than [_____] kilogram pounds.

PART 2 PRODUCTS

2.1 SYSTEM DESCRIPTION

Provide wood cabinets, factory-fabricated and finished in the manufacturer's standard sizes and finishes of the type, design, and configuration indicated on drawings. Construct cabinets as specified meeting the requirements of KCMA A161.1. Provide wall and base cabinet assemblies consisting of individual units joined into continuous sections. Use fastenings that permit removal and replacement of individual units without affecting the remainder of the installation.

Provide counters with watertight sink rim when indicated, and removable drawers equipped with position stops to avoid accidental complete withdrawals. Fix or adjust shelves as indicated.

2.2 FABRICATION

2.2.1 Wood Cabinet Fabrication

****

NOTE: Tempered or high-density hardboard is suitable for drawer bottoms. In plastic laminate covered cabinets, back doors with plastic-laminate backing sheets.

Require non-ferrous metal fasteners, fittings, and hardware wherever possible, especially in high humidity areas of facilities.

****

Construct wall and base cabinets with frame fronts and solid ends, or frame construction throughout. Provide 20 by 40 millimeter 3/4 by 1-1/2 inch kiln-dried hardwood framing members, using mortise and tenon, dovetailed, grove and lapped, biscuit and dado, or doweled, with glue assembly. Brace top and bottom corners with hardwood blocks that are glued with water-resistant glue and nailed in place. Provide base cabinets with an integral toe space at least 65 millimeter 2-1/2 inches deep and 100 millimeter 4 inches high. Mount drawers on [metal guides] [hardwood guides] [renewable plastic] [fiber guides]. Provide [fixed] [removable] [and] [adjustable] shelving, as indicated.

Provide minimum thicknesses of materials for frame-front, solid-end cabinet construction as follows:

a. Backs and bottoms of base cabinets and tops of wall cabinets: 3 millimeter 1/8 inch tempered hardboard. Brace bottoms with wood members glued in place.

b. Cabinet ends: 15 millimeter 1/2 inch hardwood-veneer plywood

c. Doors: 20 millimeter 3/4 inch [hardwood] [softwood] plywood, [solid] [hollow] core doors

d. Drawer fronts: 20 millimeter 3/4 inch hardwood

e. Drawer bottoms: 4.76 millimeter 3/16 inch plywood or tempered hardboard. Brace drawer bottoms over 380 millimeter 15 inches wide with wood members glued in place.

f. Drawer sides and backs: 15 millimeter 1/2 inch hardwood

g. Interior partitions or dividers: 15 millimeter 1/2 inch [fir plywood, Grade A-A] [hardwood]

h. Shelves: Grade A-B plywood, supported on ends and 600 millimeter 24 inches on centers

i. Adjustable shelves: 20 millimeter 3/4 inch plywood

j. Base cabinet shelves: 16 millimeter 5/8 inch plywood

k. Wall cabinet shelves: [15 millimeter 1/2 inch [plywood] [glued-up solid wood]] [6 millimeter 1/4 inch plywood with a solid-wood frame]

Provide minimum thicknesses of materials for frame-type cabinet construction as follows:

a. Cabinet ends: 6 millimeter 1/4 inch hardwood plywood

b. Backs, bottoms, partitions, and dividers: 4 millimeter 3/16 inch tempered hardboard in a frame

Provide materials for other components as specified.

2.2.1.1 High-Pressure Decorative Laminate (HPDL)

ANSI/NEMA LD 3, satin finish, unless otherwise indicated.

a. Countertops: PF 42, satin finish

b. Vertical Surfaces: GP 28 or PF 30, satin finish

c. Backing Sheet: BK 20

d. Cabinet Liner: CL 20

2.2.1.2 Hardwood Plywood

HPVA HP-1, Type II (Interior), [three-] [five-]ply, with face veneer of good grade (1) or better. Cover all exposed edges.

2.2.1.3 Hardwood

****

NOTE: Manufacturers use a variety of wood species in the production of kitchen cabinets. To specify a single species would be cost prohibitive and/or restrict competition. When indicating finishes, such as "light oak," "medium walnut," etc., a wood species should be included in the finish designation for use as a guide to the wood grain character and appearance.

****

Provide hardwood for use in cabinet work, thoroughly seasoned or kiln-dried to 12-15 percent mc; without defects in any exposed parts or surfaces.

2.2.1.4 Softwood Plywood

Comply with DOC/NIST PS1.

a. Countertops: Exterior type, A-C Grade

b. Elsewhere: Interior type, A-B Grade, may be used in lieu of hardwood plywood where HPDL finish is provided.

2.2.1.5 Hardboard

****

NOTE: Tempered or high-density hardboard is suitable for drawer bottoms. In plastic laminate covered cabinets, back doors with plastic-laminate backing sheets.

Require non-ferrous metal fasteners, fittings, and hardware wherever possible, especially in high humidity areas of facilities.

****

In accordance with AHA A135.4, tempered

2.2.1.6 Steel for Cabinets

ASTM A1008/A1008M, cold rolled, commercial quality carbon steel sheet

2.2.1.7 Sinks [, Lavatories] and Fittings

As specified in Section 22 00 00 PLUMBING, GENERAL PURPOSE.

[2.2.2 Particle Board Cabinet Fabrication

****

NOTE: Delete inapplicable paragraphs, or state appropriate options.

Tempered or high-density hardboard is suitable for drawer bottoms. In plastic laminate covered cabinets, back doors with plastic-laminate backing sheets.

Require non-ferrous metal fasteners, fittings, and hardware wherever possible, especially in high humidity areas of facilities.

****

[Construct frameless wall and base cabinets with solid particleboard panels throughout, using mortise and tenon, grooved and lapped, [with biscuit and dado] [doweled] and glue assembly. Brace top and bottom corners with hardwood blocks that are glued with water-resistant glue and nailed in place. Provide base cabinets with an integral toe space at least 65 millimeter 2-1/2-inches deep and 100 millimeter 4 inches high. Mount drawers on [metal guides] [hardwood guides] [renewable plastic or fiber guides]. Provide [fixed] [removable] [and] [adjustable] shelving, as indicated on drawings.

][Provide minimum thicknesses of materials for cabinet construction as follows:

a. Backs and bottoms of base cabinets and tops of wall cabinets: 16 millimeter 5/8 inch Grade [M-2] [M-2 exterior glue]

b. Exposed cabinet ends: 16 millimeter 5/8 inch particle board with a plastic laminate covering

c. Doors: 20 millimeter 3/4 inch particle board laminated on [front

surface] [rear surface] [all edges]

d. Drawer fronts: 20 millimeter 3/4 inch particle board laminated on all edges

e. Drawer bottoms: 3 millimeter 1/8 inch plywood or tempered hardboard. Brace drawer bottoms over 380 millimeter 15 inches wide with wood members glued in place.

f. Drawer sides and backs: 15 millimeter 1/2 inch particle board

g. Interior partitions or dividers: 15 millimeter 1/2 inch particle board

h. Shelves: Supported on ends and 600 millimeter 24 inches on centers

i. Adjustable shelves: 20 millimeter 3/4 inch particle board

j. Base cabinet shelves: 16 millimeter 5/8 inch particle board

k. Wall cabinet shelves: 13 millimeter 1/2 inch particle board

]][2.2.3 Plywood Cabinet Fabrication

****

NOTE: Delete inapplicable paragraphs, or state appropriate options.

Tempered or high-density hardboard is suitable for drawer bottoms. In plastic laminate covered cabinets, back doors with plastic-laminate backing sheets.

Require non-ferrous metal fasteners, fittings, and hardware wherever possible, especially in high humidity areas of facilities.

****

[Construct frameless wall and base cabinets with solid plywood panels throughout using mortise and tenon, grooved and lapped,[with biscuit and dado][doweled], with glue assembly. Brace top and bottom corners with hardwood blocks that are glued with water-resistant glue and nailed in place. Provide base cabinets with an integral toe space at least 65 millimeter 2-1/2 inches deep and 100 millimeter 4 inches high. Mount drawers on [metal guides] [hardwood guides] [renewable plastic or fiber guides]. Provide [fixed] [removable] [and] [adjustable] shelving, as indicated on drawings.

][Provide minimum thicknesses of materials for cabinet construction as follows:

a. Backs and bottoms of base cabinets and tops of wall cabinets: 4 millimeter 3/16 inch tempered hardboard. Brace bottoms with wood members glued in place.

b. Cabinet ends: 20 millimeter 3/4 inch standard veneer-core plywood with a plastic laminate covering

c. Doors: 20 millimeter 3/4 inch standard veneer-core plywood laminated on [front surface] [rear surface] [all edges]

d. Drawer fronts: 20 millimeter 3/4 inch standard veneer-core plywood laminated on all edges

e. Drawer bottoms: 3 millimeter 1/8 inch plywood or tempered hardboard. Brace drawer bottoms over 380 millimeter 15 inches wide with wood members glued in place.

f. Drawer sides and backs: 20 millimeter 3/4 inch standard veneer-core plywood

g. Interior partitions or dividers: 20 millimeter 34 inch standard veneer-core plywood

h. Shelves: Supported on ends and 600 millimeter 24 inches on centers

i. Adjustable shelves: 20 millimeter 3/4 inch standard veneer-core plywood

j. Base cabinet shelves: 20 millimeter 3/4 inch standard veneer-core plywood

k. Wall cabinet shelves: 20 millimeter 3/4 inch standard veneer-core plywood

]][2.2.4 Melamine Cabinet Fabrication

****

NOTE: Delete inapplicable paragraphs, or state appropriate options.

Tempered or high-density hardboard is suitable for drawer bottoms. In plastic laminate covered cabinets, back doors with plastic-laminate backing sheets.

Require non-ferrous metal fasteners, fittings, and hardware wherever possible, especially in high humidity areas of facilities.

****

[Construct cabinets with frame fronts and solid ends throughout. Frame members must be 20 by 40 millimeter 3/4 by 1-1/2 inch kiln-dried hardwood, using mortise and tenon, dovetailed or doweled, and glued together. Brace top and bottom corners with hardwood blocks that are glued with water-resistant glue and nailed in place. Provide base cabinets with an integral toe space at least 65 millimeter 2-1/2 inches deep and 100 millimeter 4 inches high. Mount drawers on [metal guides] [hardwood guides] [renewable plastic or fiber guides]. Provide [fixed] [removable] [and] [adjustable] shelving, as indicated on drawings.

][Provide minimum thicknesses of materials for cabinet construction as follows:

a. Backs and bottoms of base cabinets and tops of wall cabinets: 4 millimeter 3/16 inch tempered hardboard. Brace bottoms with wood members glued in place.

b. Cabinet ends: 20 millimeter 3/4 inch melamine particle board with a

plastic laminate covering

c. Doors: 20 millimeter 3/4 inch melamine particle board laminated on [front surface] [rear surface] [all edges]

d. Drawer fronts: 20 millimeter 3/4 inch melamine particle board laminated on all edges

e. Drawer bottoms: 3 millimeter 1/8 inch plywood or tempered hardboard. Brace drawer bottoms over 380 millimeter 15 inches wide with wood members glued in place.

f. Drawer sides and backs: 16 millimeter 5/8 inch melamine particle board

g. Interior partitions or dividers: 16 millimeter 5/8 inch melamine particle board

h. Shelves: Supported on ends and 600 millimeter 24 inches on centers

i. Adjustable shelves: 20 millimeter 3/4 inch melamine particle board

j. Base cabinet shelves: 16 millimeter 5/8 inch melamine particle board

k. Wall cabinet shelves: 16 millimeter 5/8 inch melamine particle board

]][2.2.5 Laminate Cabinet Fabrication

****

NOTE: Delete inapplicable paragraphs, or state appropriate options.

Tempered or high-density hardboard is suitable for drawer bottoms. In plastic laminate covered cabinets, back doors with plastic-laminate backing sheets.

Require non-ferrous metal fasteners, fittings, and hardware wherever possible, especially in high humidity areas of facilities.

****

[Construct cabinets with frame fronts and solid ends throughout. Frame members must be 20 by 40 millimeter 3/4 by 1-1/2 inch kiln-dried hardwood, using mortise and tenon, dovetailed or doweled, and glued together. Brace top and bottom corners with hardwood blocks that are glued with water-resistant glue and nailed in place. Provide base cabinets with an integral toe space at least 65 millimeter 2-1/2 inches deep and 100 millimeter 4 inches high. Mount drawers on [metal guides] [hardwood guides] [renewable plastic or fiber guides]. Provide [fixed] [removable] [and] [adjustable] shelving, as indicated on drawings.

][Provide minimum thicknesses of materials for cabinet construction as follows:

a. Backs and bottoms of base cabinets and tops of wall cabinets: 4 millimeter 3/16 inch tempered hardboard. Brace bottoms with wood members glued in place.

b. Cabinet ends: 20 millimeter 3/4 inch standard veneer-core plywood

with a plastic laminate covering

c. Doors: 20 millimeter 3/4 inch low pressure laminate

d. Drawer fronts: 20 millimeter 3/4 inch low pressure laminate

e. Drawer bottoms: 3 millimeter 1/8 inch plywood or tempered hardboard. Brace drawer bottoms over 380 millimeter 15 inches wide with wood members glued in place.

f. Drawer sides and backs: 20 millimeter 3/4 inch standard veneer-core plywood

g. Interior partitions or dividers: 20 millimeter 3/4 inch standard veneer-core plywood

h. Shelves: Supported on ends and 600 millimeter 24 inches on centers

i. Adjustable shelves: 20 millimeter 3/4 inch standard veneer-core plywood

j. Base cabinet shelves: 20 millimeter 3/4 inch standard veneer-core plywood

k. Wall cabinet shelves: 20 millimeter 3/4 inch standard veneer-core plywood

]]2.2.6 Miscellaneous Cabinets

****

NOTE: Delete inapplicable paragraphs, or state appropriate options.

Tempered or high-density hardboard is suitable for drawer bottoms. In plastic laminate covered cabinets, back doors with plastic-laminate backing sheets.

Require non-ferrous metal fasteners, fittings, and hardware wherever possible, especially in high humidity areas of facilities.

****

[2.2.6.1 Combination Sink-and-Base Cabinet

A combination sink-and-base cabinet unit may be furnished in lieu of the base cabinet and inset sink indicated provided the combination unit affords facilities and space equal to those indicated and provided the combination unit matches the adjacent units in materials and construction. Provide a sink with matching drainboards, of [corrosion-resistant steel] [porcelain-enamel steel], equipped with a chromium-plated [swinging-spout faucet, chromium-plated water-control valves,] [automatic faucet] and chromium-plated cup strainer. Ensure joints are watertight between sink and drainboard and between drainboard and counter top.

][2.2.6.2 Special Purpose Cabinets

[Provide special-purpose cabinets, such as cabinets for eye-level oven

units, countertop range units, and built-in refrigerators and desks, as indicated on drawings, of the same materials and construction as adjacent cabinets.][Provide space adjacent to sink for a dishwasher, as indicated.]

]2.3 MANUFACTURED UNITS

****

NOTE: Delete inapplicable paragraphs, or state appropriate options.

Tempered or high-density hardboard is suitable for drawer bottoms. In plastic laminate covered cabinets, back doors with plastic-laminate backing sheets.

Require non-ferrous metal fasteners, fittings, and hardware wherever possible, especially in high humidity areas of facilities.

****

2.3.1 Cabinets

Provide new factory-finished kitchen wall and base cabinets with high pressure decorative laminate (HPDL) countertops [and bathroom vanity cabinets [with HPDL countertops] [to receive combination lavatory-countertops as specified in Section 22 00 00 PLUMBING, GENERAL PURPOSE]]. Provide cabinets conforming to KCMA A161.1, requirements specified herein, bearing the "KCMA Certified Cabinet" seal of the Kitchen Cabinet Manufacturers Association, or submit manufacturer's test reports from an approval laboratory that cabinets meet requirements of KCMA A161.1. Provide countertops conforming to requirements specified herein.

2.3.1.1 Frame Type Cabinets

Provide cabinets with [frame fronts and solid ends][frame construction throughout]. Provide 19 mm 3/4 inch thick by 38 mm 1-1/2 inch wide frame members; kiln-dried hardwood, glued together, either mortised and tenoned, dovetailed or doweled, nailed, stapled or screwed. Brace top and bottom corners with either hardwood blocks that are glued together with water resistant glue and nailed in place, or metal or plastic corner braces. Use 3 mm 1/8 inch thick plywood for backs of cabinets, with tempered hardboard or 9 mm 3/8 inch thick, 20 kg 44 pound density particle board. [Provide 9 mm 3/8 inch thick hardwood or 9 mm 3/8-inch thick, 20 kg 44 pound [density particle board][plywood][melamine][laminate]for backs of cabinets.] [Provide minimum 9 mm 3/8 inch thick plywood 20 kg 44 pound density particle board or [good grade] [sound grade] plywood for bottoms of cabinets, braced with wood members glued in place.] Provide cabinet ends made with [16 mm 5/8 inch thick hardwood plywood] [16 mm 5/8 inch thick, 2 0 kg 44 pound density particle board core] [9 mm 3/8 inch thick, 20 kg 44 pound density particle board].

2.3.1.2 Frameless Type Cabinets

****

NOTE: Frameless cabinetry may be slightly oversized. When considering a frameless design, incorporate trimmable fillers to allow for any excess. This becomes increasingly important when

the design requires cabinetry to fit snugly between two walls or other confined areas.
****

Provide cabinets of frameless design and construction. Construct cabinets of minimum 16 mm 5/8 inch thick, 20 kg 44 pound [density particle board][plywood][melamine][laminate] end and floor panels. Construct cabinet back of minimum 5 mm 3/16 inch thick, 20 kg 44 pound [density particle board][plywood][melamine][laminate]. Dowel and glue hanging rails to end panels, then fastened and hot melt glued to cabinet back. Provide toe kick plates that are recessed, doweled and glued to the end panels. Brace top and bottom corners with either hardwood blocks glued together with water resistant glue and nailed in place, or fastened with metal or plastic corner braces.

2.3.2 Finish

2.3.2.1 Cabinet Finish

Provide cabinets with a factory-applied durable finish in accordance with KCMA A161.1 requirements and of a type standard with the manufacturer. Fabricate natural finish wood doors, drawer fronts, cabinet fronts, and exposed cabinet sides of wood, free of extreme color variations within each panel or between adjacent panels. For exposed exterior surfaces, provide [hardwood or grade A-A hardwood veneer with natural stain and sprayed on factory applied finish.] [melamine plastic finish.] [paint-finished wood doors, drawer fronts, cabinet fronts, and exposed cabinet sides fabricated of hardwood or grade C hardwood veneer.][0.051 mm 2 mil vinyl wrap.]

[2.3.2.2 Melamine Laminated Interior Cabinet Finish

Finish plywood, particle board or tempered hardboard cabinet backs with a melamine laminate on the exposed side. Cover particle board shelves on both sides with a laminated melamine finish. Provide Melamine laminate that conforms to the requirements of ANSI/NEMA LD 3 and laminate adhesive that is contact type applied to both surfaces.

]2.3.2.3 Backer Sheets

Provide backer sheets of high pressure plastic laminate, conforming to ANSI/NEMA LD 3, Grade BK20, applied to the underside of all core material.

2.3.3 Color, Texture, And Pattern

****
NOTE: Coordinate editing of color reference sentence(s) with the Government. Generally, Section 09 06 00 SCHEDULES FOR FINISHES or drawing is used when the project is designed by an Architect or Interior designer. Select color from manufacturers standard colors or identified as a manufacturers color in this specification only when the project is very simple and has minimal finishes.

When the Government directs that color be located in the drawings add a note that states: "Where color is shown as being specific to one manufacturer, an equivalent color by another manufacturer may be

submitted for approval. Manufacturers and materials specified are not intended to limit the selection of equal colors from other manufacturers. The word "color" as used herein includes surface color and pattern."

Prior to specifying a custom color finish, research to determine if additional cost and lead time is feasible. Note there is often a minimum order requirement; this requirement will also affect future orders.

When a manufacturer's name, stock number, pattern, and color is used, be certain that the product conforms to this specification, as edited.
****

Provide color [in accordance with Section 09 06 00 SCHEDULES FOR FINISHES.] [as indicated on the drawings.] [selected from manufacturers standard colors.] [_____.] Color listed is not intended to limit the selection of equal colors from other manufacturers.

2.4 MATERIALS

****
NOTE: Delete any of the following materials that are not applicable.
****

[Provide steel for cabinet construction conforming to ASTM A1008/A1008M.

][Provide corrosion-resistant steel conforming to ASTM A240/A240M, Type [302] [304] [316] Finish 4.

][Provide douglas-fir plywood conforming to APA E30,APA EWCG, and APA PS 1 exterior type, fully waterproof bond.

][Provide Medium Density Fiberboard (MDF) for interior applications, fully waterproof bond conforming to CPA A208.1 and CPA A208.2.

][Provide glass conforming to ASTM C1036, Type I, Class 1, Quality q3, 6 millimeter 1/4 inch thick, for unframed sliding glass doors; other glass to conform to ASTM C1036, Type II, Class 1, Quality q8, 5 millimeter 7/32 inch thick.

] Provide adhesives for application of plastic laminate consisting of a thermosetting urea-resin Type II conforming to ASTM D4690 as recommended by the manufacturer of the laminate. Provide adhesive for wood members conforming to ASTM D4689.

Provide filler material conforming to MPI 91.

[Provide hardwood conforming to FS MM-L-736, standard hardwood lumber, S2S.

][Provide hardwood plywood conforming to HPVA HP-1.

][Provide particle board conforming to CPA A208.1, Type 1, Grade M or medium density.
]

****
NOTE: Review ANSI/NEMA LD 3 and insert style, type, grade, class, and finish as required.
****

Provide plastic laminate conforming to ANSI/NEMA LD 3, Style [_____], Type [_____], Grade [_____], Class [_____], Finish [_____].

[Provide softwoods conforming to DOC/NIST PS20, factory and shop grade.

][Provide varnish conforming to MPI 28.

][Provide accessories and hardware conforming to the following requirements, as applicable:

a. Extension drawer slides: ANSI/BHMA A156.9, Type B85071

b. Semiconcealed hinges: ANSI/BHMA A156.9, Type B81201, 1-1/2 inches

c. Full surface hinges: ANSI/BHMA A156.9, Type B81131, 1-1/2 inches

d. Knob pulls: ANSI/BHMA A156.9, 1-inch diameter, Type B12132

e. Bar type pulls: ANSI/BHMA A156.9, 4-inch overall length, Type B12012

f. Semiconcealed hinges: ANSI/BHMA A156.9, Type B81201, 40 millimeter

g. Full surface hinges: ANSI/BHMA A156.9, Type B81131, 40 millimeter

h. Knob pulls: ANSI/BHMA A156.9, 25 millimeter diameter, Type B12132

i. Bar type pulls: ANSI/BHMA A156.9, 100 millimeter overall length, Type B12012

j. Locks, keying, and keys: As directed

k. Catches: Magnetic, 22 newton 5 pound pull

l. Sliding door set: Impregnated fiberboard track, Nylon glides

Provide fasteners conforming to the following:

a. Screws: ASME B18.6.1, Group, Type and Class as applicable

b. Anchoring Devices: FS FF-S-325, Group, Type, and Class as applicable

c. Toggle bolts: FS FF-B-588, Type I, Class A, Style 2

d. Nuts: ASTM F594, corrosion-resistant steel

e. Bolts: ASTM A325, heavy, hexagon head bolts corrosion-resistant steel

f. Nuts: ASTM F836M, corrosion-resistant steel

g. Bolts: ASTM A325M, heavy, hexagon head bolts corrosion-resistant steel
]

****
NOTE: Provide for sink inset-type installation as specified in Section 22 00 00 PLUMBING, GENERAL

PURPOSE.
****

[Provide corrosion-resistant steel sinks conforming to the following requirements:

[a. 1.3 millimeter 18-gage corrosion-resistant steel, integral with corrosion-resistant steel countertop

][b. 1.3 millimeter 18-gage corrosion-resistant steel, nonintegral, self-rimming

] c. Drain holes in center of bowl

d. Underside coated with 3 millimeter 1/8 inch thick sound deadener

e. Die-form, seamless, raised edges at front and ends

f. Cove corners to 13 millimeter 1/2 inch radius

g. Equip with strainers and tail pieces

][Provide service fixtures conforming to the following requirements:

a. Provide fixtures in accordance with the water conservation policy as stated in the Standard Plumbing Codes, Appendix J.

b. Faucets: splashback mounted, cast brass, chrome plated, FS WW-P-541

c. Faucets: deck mounted, cast brass, chrome plated, FS WW-P-541

d. Gas, air, and vacuum, distilled water, steam, and de-ionized water cocks: cast brass, chrome plated, ground key type

e. Drains, strainers, and taps: brass, chrome plated, FS WW-P-541

f. Index buttons: plastic, color codes in accordance with SEFA 7

g. Special items: provide nipples and locknuts with each fixture as directed.

] Provide the following coating:

****
NOTE: Delete any of the following types that are not applicable.

Type I, zinc phosphate

Type II, iron phosphate

Type III, organic-paint, varnish, lacquer
****

[a. Metal pretreatment coatings: FS TT-C-490, Type I

][b. Metal pretreatment coatings: FS TT-C-490, Type II

][c. Metal pretreatment coatings: FS TT-C-490, Type III

][d. Enamel: [MPI 10][MPI 11][MPI 119]

]2.5 ACCESSORIES AND HARDWARE

Provide accessories such as utility shelves and racks [for extracts, condiments,][and towels;][bins for sugar and flour;][breadboxes;] and trays for cutlery and flatware as indicated.

Provide corrosion resistant hardware, and all exposed hardware with a chromium-plated finish or a corrosion-resistant finish as approved. Paint semiconcealed hinges on cabinets where paint finish is required to match the cabinets. Equip doors with [bullet-type catches] [spring hinges] [magnetic-type catches]. Provide door and drawer pulls as indicated.

PART 3 EXECUTION

Submit manufacturer's instructions for wood and metal cabinet systems including special provisions required to install equipment components and system packages. Submit special notices to detail impedances, hazards and safety precautions.

3.1 INSTALLATION

3.1.1 Field Finishing of Wood Cabinets

[For painted finish, apply a prime coat and two coats of synthetic enamel of air-drying quality, conforming to [MPI 9][MPI 94], Class A. Provide colors as selected.

][For natural finish, use the applicable procedure for the type of wood selected as follows:

a. For open-grain woods: Apply one coat of paste wood filler, and remove excess filler. Then apply one coat of pale varnish thinned with turpentine, followed by one coat of pale varnish and then by one coat of satin-finish varnish, plus an additional coat of satin-finish varnish on cabinet doors and drawer fronts. Lightly sand surfaces between coats.

b. For close-grain woods: Apply one coat of pale varnish thinned with turpentine, followed by one coat of pale varnish and then by one coat of satin-finish varnish, plus an additional coat of satin-finish varnish on cabinet doors and drawer fronts. Lightly sand surfaces between coats.

] At the Contractor's option, wood cabinets with a factory finish standard set by the cabinet manufacturer may be provided.

3.1.2 Cabinet Installation

****
NOTE: Installation of sinks is per the requirements of Section 22 00 00 PLUMBING, GENERAL PURPOSE.
****

Install casework plumb with countertops level to within 1 millimeter in 3000 millimeter 1/16 inch in 10 feet. Level base cabinets by adjusting leveling screws. Scribe and fit scribe strips to irregularities of

adjacent surfaces. Gap opening is not to exceed 0.63 millimeter 0.025-inch [_____].

Secure cases permanently to floor and wall construction using 6 millimeter 1/4 inch diameter masonry anchors, spaced 760 millimeter 30 inches maximum on center, with a minimum of two for each case.

Support wall cases on continuous 1.3 millimeter 18-gage galvanized steel hanging brackets. Secure wall cases in position with screws to blocking. Bolt adjoining cases together. Ensure width of joints does not exceed 0.79 millimeter 1/32 inch. Provide closer strips, filler strips, and finish moldings as required. Align doors, adjust hardware, clean and wax surfaces.

Submit installation drawings for cabinets. Include in drawings location of cabinets, details of cabinets related and dimensional positions, and locations for roughing in plumbing, including sinks, faucets, strainers and cocks.

3.2 ADJUSTING AND CLEANING

3.2.1 Inspection

Examine casework grounds and supports for adequate anchorage, foreign material, moisture, and unevenness that could prevent quality casework installation. Ensure that electrical and plumbing rough-ins for casework are complete. Do not proceed with installation until defects are corrected.

3.2.2 Cleaning

On completion of cabinet installation, touch up marred or abraded finished surfaces. Remove crating and packing materials from premises. Wipe down surfaces to remove fingerprints and markings and leave in clean condition.

-- End of Section --