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UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated January 2009

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SECTION 12 32 00

MANUFACTURED WOOD CASEWORK 01/08

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

NOTE: This guide specification must be used in conjunction with and coordinated with the referenced sections. Multiple borrow sources may be required for large projects; in that case, more than one test fill may need to be constructed. Test fills are generally listed as a lump sum item on the bidding schedule.

Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable items(s) or insert appropriate information.

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

Comments and suggestions on this guide specification are welcome and should be directed to the technical proponent of the specification. A listing of technical proponents, including their organization designation and telephone number, is on the Internet.

Recommended changes to a UFGS 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 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 (2004) Basic Hardboard

ASME INTERNATIONAL (ASME)

ASME B18.6.1 (1981; R 2008) Wood Screws (Inch Series)

ASTM INTERNATIONAL (ASTM)

ASTM A 1008/A 1008M (2008a) Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardened

ASTM A 167 (1999; R 2004) Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip

ASTM A 325 (2007a) Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

ASTM A 325M (2008) Standard Specification for Structural Bolts, Steel, Heat Treated, 830 Mpa Minimum Tensile Strength (Metric)

ASTM A 366/A 366M (1997e1) Standard Specification for Commercial Steel, Sheet, Carbon, (0.15 Maximum Percent Cold-Rolled

ASTM C 1036 (2006) Standard Specification for Flat Glass

ASTM D 13 (2002) Standard Specification for Spirits of Turpentine

ASTM D 4689	(1999; R 2005) Standard Specification for Adhesive, Casein-Type
ASTM D 4690	(1999; R 2005) Standard Specification for Urea Formaldehyde Resin Adhesives
ASTM F 594	(2008) Standard Specification for Stainless Steel Nuts
ASTM F 836M	(2002) Standard Specification for Style 1 Stainless Steel Metric Nuts
BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)	
BHMA A156.9	(2003) Cabinet Hardware
COMPOSITE PANEL ASSOCIATION (CPA)	
CPA A208.1	(1999) Medium Density Fiberboard (MDF) For Interior Applications
HARDWOOD PLYWOOD AND VENEER ASSOCIATION (HPVA)	
HPVA HP-1	(2004) American National Standard for Hardwood and Decorative Plywood
INTERNATIONAL CODE COUNCIL (ICC)	
ICC IPC	(2006; Supplement 2007) International Plumbing Code
KITCHEN CABINET MANUFACTURERS ASSOCIATION (KCMA)	
KCMA A161.1	(2000) Performance & Construction Standards for Kitchen and Vanity Cabinets
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)	
NEMA LD 3	(2005) Standard for High-Pressure Decorative Laminates
NEMA LD 3.1	(1995) Performance, Application, Fabrication, and Installation of High-Pressure Decorative Laminates
SCIENTIFIC EQUIPMENT AND FURNITURE ASSOCIATION (SEFA)	
SEFA 7	(1996) Recommended Practice for Laboratory and Hospital Service Fittings
U.S. DEPARTMENT OF COMMERCE (DOC)	
PS1	(1995) Construction and Industrial Plywood (APA V995)
U.S. GENERAL SERVICES ADMINISTRATION (GSA)	
FS FF-B-588	(Rev E) Bolt, Toggle: and Expansion Sleeve, Screw

FS FF-S-325	(Int Amd 3) Shield, Expansion; Nail, Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonry)
FS MM-L-736	(1983c) Lumber; Hardwood
FS MM-L-751	(Rev H) Lumber; Softwood
FS TT-C-490	(1990; Am 2) Cleaning Methods for Ferrous Surfaces and Pretreatments for Organic Coatings
FS TT-C-520	(Rev B; Am 1) Coating Compound, Bituminous, Solvent Type, Underbody (for Motor Vehicles)
FS TT-E-489	(Rev J; Notice 1) Enamel, Alkyd, Glass, Low VOC Content
FS TT-E-491	(Rev C) Enamel; Gloss, Synthetic (for Metal and Wood Furniture)
FS TT-F-336	(Rev E) Filler, Wood, Paste
FS TT-V-121	(Rev H) Varnish, Spar, Water-Resisting
FS WW-P-541	(1990e; Am 1) Plumbing Fixtures

1.2 SUBMITTALS

NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control.

A "G" following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a "G". Only delete an existing "G" if the submittal item is not complex and can be reviewed through the Contractor's Quality Control system. Only add a "G" if the submittal is sufficiently important or complex in context of the project.

For submittals requiring Government approval on Army projects, a code of up to three characters within the submittal tags may be used following the "G" designation 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.

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" designation;
submittals not having a "G" designation are [for Contractor Quality Control
approval.][for information only. When used, a designation following the
"G" designation 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

Submit fabrication drawings for steel and wood cabinets in
accordance with the paragraphs entitled, "[Wood Cabinet] [Particle
Board Cabinet] [Steel Cabinet] [Counter Top and Back Splash]
Fabrication," of this section.

Submit [Installation Drawings](#) for steel and wood cabinets in
accordance with the paragraph entitled, "Installation," of this
section.

SD-03 Product Data

Submit Manufacturer's catalog data for the following items:

[Cabinets](#)
[Corrosion-Resistant Steel](#)
[Plywood](#)
[Hardwood](#)
[Glass](#)
[Adhesives](#)
[Filler Material](#)
[Particle Board](#)
[Turpentine](#)
[Varnish](#)
[Fasteners](#)
[Steel Sinks](#)
[Service Fixtures](#)
[Accessories and Hardware](#)
[Softwoods](#)
[Plastic Laminate](#)
[Countertops](#)

SD-04 Samples

Samples must include:

[Accessories and Hardware](#), one each.

Submit [Manufacturer's Standard Color Charts](#) in accordance with
paragraph entitled, "General," of this section.

SD-07 Certificates

Submit certificates for the following items showing conformance
with the referenced standards contained in this section.

Corrosion-Resistant Steel
Plywood
Hardwood
Glass
Adhesives
Filler Material
Particle Board
Turpentine
Varnish
Fasteners
Steel Sinks
Service Fixtures
Accessories and Hardware

SD-08 Manufacturer's Instructions

Submit [Manufacturer's Instructions](#) for in accordance with paragraph entitled, "General," of this section.

1.3 DELIVERY, STORAGE, AND HANDLING

Cabinets must be delivered, stored, and handled in a manner that will prevent damage and disfigurement. Provide temporary skids under units weighing more than [_____] ~~kilogram~~ pounds.

1.4 DESIGN

Cabinets must be wood, factory-fabricated and finished in the manufacturer's standard sizes and finishes of the type, design, and configuration indicated. Construct cabinets as specified and meet the requirements of [KCMA A161.1](#). Wall and base cabinet assemblies must consist of individual units joined into continuous sections. Accomplish fastenings to permit removal and replacement of individual units without affecting the remainder of the installation. Provide counters with watertight sink rim when indicated. Drawers must be removable and will be equipped with position stops to avoid accidental complete withdrawals. Fix or adjust shelves as indicated.

PART 2 PRODUCTS

2.1 GENERAL

Submit [Manufacturer's Standard Color Charts](#) for wood and metal cabinets showing the manufacturer's recommended color and finish selections.

Submit [Manufacturer's Instructions](#) for wood and metal cabinet systems including special provisions required to install equipment components and system packages. Special notices must detail impedances, hazards and safety precautions.

Cabinets must be the manufacturer's standard sizes of type and design indicated. Provide both wall and base cabinet assemblies will consisting of individual units joined into continuous sections as indicated. Provide fastenings to permit removal and replacement of individual units without affecting the remainder of the installation.

2.2 MATERIALS

Steel for cabinet construction must conform to [ASTM A 1008/A 1008M](#).

[Corrosion-Resistant Steel](#) must conform to [ASTM A 167](#), Type [302] [304] [316] Finish 4.

Douglas-fir [Plywood](#) must conform to [ICC IPC](#), exterior type, fully waterproof bond.

[Glass](#) must conform to [ASTM C 1036](#), Type I, Class 1, Quality q3, [6 millimeter 1/4 inch](#) thick, for unframed sliding glass doors; other glass must conform to [ASTM C 1036](#), Type II, Class 1, Quality q8, [5 millimeter 7/32 inch](#) thick.

[Adhesives](#) for application of plastic laminate must be a thermosetting urea-resin Type II conforming to [ASTM D 4690](#) as recommended by the manufacturer of the laminate. Adhesive for wood members will conform to [ASTM D 4689](#).

[Filler Material](#) must conform to [FS TT-F-336](#).

[Hardwood](#) must conform to [FS MM-L-736](#), standard hardwood lumber, S2S.

Hardwood plywood must conform to [ICC IPC](#).

[Particle Board](#) must conform to [CPA A208.1](#), Type 1, Grade M or medium density.

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

Provide [Plastic Laminate](#) conforming to [NEMA LD 3](#), Style [____], Type [____], Grade [____], Class [____], Finish [____].

Provide [Softwoods](#) conforming to [FS MM-L-751](#), factory and shop grade.

Provide [Turpentine](#) conforming to [ASTM D 13](#).

Provide [Varnish](#) conforming to [FS TT-V-121](#).

Provide [Accessories and Hardware](#) conforming to the following requirements, as applicable:

Extension drawer slides: [BHMA A156.9](#), Type B85071

Semiconcealed hinges: [BHMA A156.9](#), Type B81201, 1-1/2 inches

Full surface hinges: [BHMA A156.9](#), Type B81131, 1-1/2 inches

Knob pulls: [BHMA A156.9](#), 1-inch diameter, Type B12132

Bar type pulls: [BHMA A156.9](#), 4-inch overall length, Type B12012

Semiconcealed hinges: [BHMA A156.9](#), Type B81201, 40 millimeter

Full surface hinges: [BHMA A156.9](#), Type B81131, 40 millimeter

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

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

Locks, keying, and keys: As directed

Catches: Magnetic, 22 newton 5-pound pull

Sliding door set:

Impregnated fiberboard track

Nylon glides

Fasteners must conform to the following:

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

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

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

Nuts: ASTM F 594, corrosion-resistant steel

Bolts: ASTM A 325, heavy, hexagon head bolts corrosion-resistant steel

Nuts: ASTM F 836M, corrosion-resistant steel

Bolts: ASTM A 325M, heavy, hexagon head bolts corrosion-resistant steel

NOTE: Sink for inset-type installation must be as
specified in Section 22 00 00 PLUMBING, GENERAL
PURPOSE.

Corrosion-resistant Steel Sinks:

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

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

Drain holes in center of bowl

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

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

Cove corners to 13 millimeter 1/2-inch radius

Equip with strainers and tail pieces

Sound deadening must conform to FS TT-C-520.

Service Fixtures must conform to the following requirements:

Provide fixtures in accordance with the water conservation policy as

stated in the Standard Plumbing Codes, Appendix J.

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

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

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

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

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

Special items: nipples and locknuts with each fixture will be as
directed.

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

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

Metal pretreatment coatings: FS TT-C-490, Type II

Metal pretreatment coatings: FS TT-C-490, Type III

Enamel: FS TT-E-491, Class 2

2.3 WOOD CABINET FABRICATION

Wall and base cabinets must be essentially of same construction and same outside appearance. Construct cabinets with frame fronts and solid ends, or frame construction 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] [fiber guides]. Shelves must be [fixed] [removable] [and] [adjustable], as indicated.

Minimum thicknesses of materials for frame-front, solid-end cabinet construction will be as follows:

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.

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

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

Drawer fronts: 20 millimeter 3/4-inch hardwood

Drawer bottoms: 4.76 millimeter 3/16-inch plywood or tempered hardboard. Drawer bottoms over 380 millimeter 1 foot 3 inches wide will be braced with wood members glued in place.

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

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

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

Adjustable shelves: 20 millimeter 3/4-inch plywood

Base cabinet shelves: 16 millimeter 5/8-inch plywood

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

Minimum thicknesses of materials for frame-type cabinet construction must be as follows:

Cabinet ends: 6 millimeter 1/4-inch hardwood plywood

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

Materials for other components must be as specified.

2.3.1 High-Pressure Decorative Laminate (HPDL)

NEMA LD 3, satin finish, unless otherwise indicated.

2.3.1.1 Countertops

PF 42, satin finish.

2.3.1.2 Vertical Surfaces

GP 28 or PF 30, satin finish.

2.3.1.3 Backing Sheet

BK 20.

2.3.1.4 Cabinet Liner

CL 20.

2.3.2 Hardwood Plywood

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

2.3.3 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.

All exposed wood surfaces must be hardwood of species consistent with specified finish. Species used need not be that indicated by finish named, but must be similar in grain character and appearance.

2.3.4 Softwood Plywood

PS1.

2.3.4.1 Countertops

Exterior type, A-C Grade.

2.3.4.2 Elsewhere

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

2.3.5 Hardboard

AHA A135.4, tempered.

2.3.6 Steel for Cabinets

ASTM A 366/A 366M, cold rolled, commercial quality carbon steel sheet.

2.3.7 Sinks [, Lavatories] and Fittings

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

[2.4 PARTICLE BOARD CABINET FABRICATION

NOTE: Delete inapplicable paragraphs, or state appropriate options.

[Wall and base cabinets must be essentially of same construction and covered with plastic laminate as indicated. Construct cabinets with frame fronts and solid ends throughout. Frame members will 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]. Shelves must be [fixed] [removable] [and] [adjustable], as indicated.]

[Minimum thicknesses of materials for cabinet construction must be as follows:

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.

Cabinet ends: 20 millimeter 3/4-inch particle board with a plastic laminate covering

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

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

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

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

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

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

Adjustable shelves: 20 millimeter 3/4-inch particle board

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

Wall cabinet shelves: 13 millimeter 1/2-inch particle board]

] [2.5 PLYWOOD CABINET FABRICATION

NOTE: Delete inapplicable paragraphs, or state appropriate options.

[Wall and base cabinets must be essentially of same construction and covered with plastic laminate as indicated. Construct cabinets with frame fronts and solid ends throughout. Frame members will 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]. Shelves must be [fixed] [removable] [and] [adjustable], as indicated.]

[Minimum thicknesses of materials for cabinet construction must be as follows:

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.

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

a plastic laminate covering

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

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

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

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

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

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

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

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

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

] [2.6 MELAMINE CABINET FABRICATION

NOTE: Delete inapplicable paragraphs, or state
appropriate options.

[Wall and base cabinets must be essentially of same construction and covered with plastic laminate as indicated. Construct cabinets with frame fronts and solid ends throughout. Frame members will 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]. Shelves must be [fixed] [removable] [and] [adjustable], as indicated.]

[Minimum thicknesses of materials for cabinet construction must be as follows:

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.

Cabinet ends: 20 millimeter 3/4-inch melamine particle board with a plastic laminate covering

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

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

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

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

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

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

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

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

Wall cabinet shelves: 16 millimeter 5/8-inch melamine particle board]

] [2.7 LAMINATE CABINET FABRICATION

NOTE: Delete inapplicable paragraphs, or state appropriate options.

[Wall and base cabinets must be essentially of same construction and covered with plastic laminate as indicated. Construct cabinets with frame fronts and solid ends throughout. Frame members will 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]. Shelves must be [fixed] [removable] [and] [adjustable], as indicated.]

[Minimum thicknesses of materials for cabinet construction must be as follows:

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.

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

Doors: 20 millimeter 3/4-inch low pressure laminate

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

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

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

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

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

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

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

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

] 2.8 MISCELLANEOUS CABINETS

NOTE: Delete inapplicable paragraphs, or state appropriate options.

[2.8.1 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. Sink, with matching drainboards, must be [corrosion-resistant steel] [porcelain-enamel steel] and will be equipped with a chromium-plated [swinging-spout faucet, chromium-plated water-control valves,] [automatic faucet] and chromium-plated cup strainer. Make joints between sink and drainboard and between drainboard and counter top watertight.

] [2.8.2 Special Purpose Cabinets

[Special-purpose cabinets, such as cabinets for eye-level oven units, countertop range units, and built-in refrigerators and desks, must be furnished as indicated and will be of same materials and construction as adjacent cabinets. Provide space adjacent to sink for a dishwasher, as indicated.]

] 2.9 ACCESSORIES AND HARDWARE

Furnish 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.

Hardware must be corrosion resistant. Exposed hardware must have 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.

2.10 CABINETS

The work includes providing 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]]. The cabinets must conform to KCMA A161.1, requirements

specified herein, and bear the "KCMA Certified Cabinet" seal of the Kitchen Cabinet Manufacturers Association. In lieu of this, manufacturer must submit test reports from an approval laboratory that cabinets meet requirements of **KCMA A161.1**. Provide **Countertops** conforming to **NEMA LD 3.1** and requirements specified herein.

2.10.1 Frame Type Cabinets

Construct the cabinets with [frame fronts and solid ends][frame construction throughout]. Frame members must be 19 mm 3/4 inch thick by 38 mm 1-1/2 inch wide; kiln-dried hardwood, glued together, and must be 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. Backs of wall cabinets will be 3 mm 1/8 inch thick plywood, tempered hardboard or 9 mm 3/8 inch thick, 20 kg 44 pound density particle board. [Backs of base and tall cabinets must be 9 mm 3/8 inch thick hardwood or 9 mm 3/8 inch thick, 20 kg 44 pound [density particle board] [plywood] [melamine] [laminate].] [Bottoms of cabinets must be minimum 9 mm 3/8 inch thick plywood 20 kg 44 pound density particle board or [good grade] [sound grade] plywood and will be braced with wood members glued in place.] Cabinet ends must be[16 mm 5/8 inch thick hardwood plywood] [16 mm 5/8 inch thick, 20 kg 44 pound density particle board core] [9 mm 3/8 inch thick, 20 kg 44 pound density particle board].

2.10.2 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.

The cabinets must be of frameless design and construction. Construct cabinets of minimum 16 mm 5/8 inch thick, 20 kg 45 pound [density particle board] [plywood] [melamine] [laminate] end and floor panels. Construct cabinet back of minimum 5 mm 3/16 inch thick, 20 kg 45 pound [density particle board] [plywood] [melamine] [laminate]. Dowel and glue hanging rails to end panels, then fastened and hot melt glued to cabinet back. Toe kick plates must be 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.

2.11 FINISH

2.11.1 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 which will be free of extreme color variations within each panel or between adjacent panels. Exposed exterior surfaces must be [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.]

[2.11.2 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 NEMA LD 3 and laminate adhesive that is contact type applied to both surfaces.]

]2.11.3 Backer Sheets

Backer Sheets of high pressure plastic laminate, must conform to NEMA LD 3, Grade BK20 and must be applied to the underside of all core material.

2.12 COLOR, TEXTURE, AND PATTERN

NOTE: Coordinate editing of color reference sentence(s) with the Government. Generally, Section 09 06 90 COLOR SCHEDULE 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.

Color must be [in accordance with Section 09 06 90 COLOR SCHEDULE.] [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.]

PART 3 EXECUTION

3.1 FIELD FINISHING OF WOOD CABINETS

[For painted finish, apply a prime coat and two coats of synthetic enamel

of air-drying quality, conforming to FS TT-E-489, Class A. Colors must be as selected.]

[For natural finish, the applicable procedure for the type of wood must be followed:

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.

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.

3.2 INSTALLATION

NOTE: Installation of sinks must be 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 must not 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, 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. Width of joints must not exceed 0.79 millimeter 1/32 inch. Provide closer strips, filler strips, and finish moldings as required. Doors must be aligned, hardware adjusted, and surfaces cleaned and waxed.

Submit Installation Drawings for steel and wood cabinets. Drawings must include location of cabinets, details of cabinets related and dimensional positions, and locations for roughing in plumbing, including sinks, faucets, strainers and cocks.

3.3 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.

3.4 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.

-- End of Section --