

JBLM DESIGN STANDARDS

DIVISION 06

WOOD, PLASTICS, AND COMPOSITES

SECTION 06 41 16.00 10

PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS
07/20

PART 1 GENERAL

1.1 REFERENCES

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 NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A161.2 (1998) Decorative Laminate Countertops,
Performance Standards for Fabricated High
Pressure

ASTM INTERNATIONAL (ASTM)

ASTM D1037 (2012) Evaluating Properties of Wood-Base
Fiber and Particle Panel Materials

ASTM E84 (2018a) Standard Test Method for Surface
Burning Characteristics of Building Materials

ASTM F547 (2017) Standard Terminology of Nails for Use
with Wood and Wood-Base Materials

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

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

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

SCIENTIFIC CERTIFICATION SYSTEMS (SCS)

SCS SCS Global Services (SCS) Indoor Advantage

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED BD+C (2009; R 2010) Leadership in Energy and Environmental Design (tm) Building Design and Construction (LEED-NC)

UL ENVIRONMENT (ULE)

ULE Greenguard UL Greenguard Certification Program

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)

ANSI/WDMA I.S.1A (2013) Interior Architectural Wood Flush Doors

WOODWORK INSTITUTE (WI)

NAAWS 3.1 (2017; 2018 Errata Edition) North American Architectural Woodwork Standards

1.2 SYSTEM DESCRIPTION

Work in this section includes laminate clad custom casework [cabinets] [vanities] [_____] as shown on the drawings and as described in this specification. This Section includes high-pressure laminate surfacing and cabinet hardware. Comply with EPA requirements in accordance with Section 01 33 29 SUSTAINABILITY REPORTING. All exposed and semi-exposed surfaces, whose finish is not otherwise noted on the drawings or finish schedule, shall be sanded smooth and shall receive a clear finish of polyurethane. Wood finish may be shop finished or field applied in accordance with Section 09 90 00 PAINTS AND COATINGS.

1.3 SUSTAINABILITY REPORTING

Materials in this technical specification may contribute towards contract compliance with sustainability requirements. See Section 01 33 29 SUSTAINABILITY REPORTING for project LEED BD+C [local/regional materials,] [low-emitting materials,] [recycled content,] [certified wood] [____] [and] [rapidly renewable materials] LEED documentation requirements.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.] [information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submittals with an "S" are for inclusion in the [Sustainability eNotebook, in conformance to Section 01 33 29 SUSTAINABILITY REPORTING][Environmental Records Binder, in conformance with Section 01 57 19.01 20 SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS]. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

VOC Content for Panel Products; S

VOC Content for [Adhesives, Caulks, and Sealants](#); S

VOC Content for [Wood Finishes](#); S

Biobased Content for [Panel Products](#); S

[Recycled][and][BioBased] Content for [Wood Finishes](#); S

SD-02 Shop Drawings

[Shop Drawings](#)
[Installation](#)

SD-03 Product Data

[Wood Materials](#)
[Wood Finishes](#)
[Finish Schedule](#)
[Certification](#)

SD-04 Samples

[Plastic Laminates](#)
[Cabinet Hardware](#)

SD-07 Certificates

[Quality Assurance](#)
[Laminate Clad Casework](#)

SD-11 Closeout Submittals

[LEED Documentation](#)

VOC Content for [Panel Products](#); S

VOC Content for [Adhesives, Caulks, and Sealants](#); S

VOC Content for [Wood Finishes](#); S

Biobased Content for [Panel Products](#); S

[Recycled][and][BioBased] Content for [Wood Finishes](#); S

1.5 [QUALITY ASSURANCE](#)

1.5.1 [General Requirements](#)

Unless otherwise noted on the drawings, all materials, construction methods, and fabrication shall conform to and comply with the [premium] [custom] grade quality standards as outlined in [NAAWS 3.1](#), Section for laminate clad cabinets. These standards shall apply in lieu of omissions or specific requirements in this specification. Contractors and their personnel engaged in the work shall be able to demonstrate successful experience with work of comparable extent, complexity and quality to that shown and specified. Submit a quality control statement which illustrates compliance with and understanding of [NAAWS 3.1](#) requirements, in general, and the specific [NAAWS](#)

3.1 requirements provided in this specification. The quality control statement shall also certify a minimum of ten years Contractor's experience in laminate clad casework fabrication and construction. The quality control statement shall provide a list of a minimum of five successfully completed projects of a similar scope, size, and complexity.

1.5.2 Mock-ups

Prior to final approval of shop drawings, provide a full-size mock-up of a typical [vanity] [floor cabinet] [wall cabinet] [_____], including all components and hardware necessary to illustrate a completed unit with a minimum of one door and one drawer assembly. The completed mock-up shall include countertops and back splashes where specified. The mock-up shall utilize specified finishes in the patterns and colors [as indicated] [as indicated in Section 09 06 00 SCHEDULES FOR FINISHES]. Upon disapproval, rework or remake the mock-up until approval is secured. Remove rejected units from the jobsite. Approved mock-up may remain as part of the finished work. Submit shop drawings showing all fabricated casework items in plan view, elevations and cross-sections to accurately indicate materials used, details of construction, dimensions, methods of fastening and erection, and installation methods proposed. Shop drawing casework items shall be clearly cross-referenced to casework items located on the project drawings. Shop drawings shall include a color schedule of all casework items to include all countertop, exposed, and semi-exposed cabinet finishes to include finish material manufacturer, pattern, and color.

1.5.3 Sustainable Design Certification

Product shall be third party certified in accordance with ULE Greenguard[Gold], SCS Scientific Certification Systems Indoor Advantage[Gold]or equal. Certification shall be performed annually and shall be current.

1.6 DELIVERY, STORAGE, AND HANDLING

Casework may be delivered knockdown or fully assembled. Deliver all units to the site in undamaged condition, stored off the ground in fully enclosed areas, and protected from damage. The storage area shall be well ventilated and not subject to extreme changes in temperature or humidity.

1.7 SEQUENCING AND SCHEDULING

Coordinate work with other trades. Units shall not be installed in any room or space until painting, and ceiling installation are complete within the room where the units are located. Floor cabinets shall be installed before finished flooring materials are installed.

PART 2 PRODUCTS

2.1 WOOD MATERIALS

2.1.1 Lumber

- a. All framing lumber shall be kiln-dried Grade III to dimensions as shown on the drawings. Frame front, where indicated on the drawings, shall be nominal 19 mm (3/4 inch) hardwood.

- b. Standing or running trim casework components, which are specified to receive a transparent finish, shall be [_____] hardwood species, plain sawn. AWI grade shall be [premium] [custom]. Location, shape, and dimensions shall be as indicated on the drawings.

2.1.1.2 Panel Products

Provide materials and documentation meeting the requirements at Section [01 33 29 SUSTAINABILITY REPORTING][01 57 19.0 20 SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS] paragraph BIO-BASED PRODUCTS. See <https://www.biopreferred.gov/BioPreferred/faces/pages/ProductCategories.xhtml> for more information.

Provide products and documentation in conformance with paragraph REDUCE VOLATILE ORGANIC COMPOUNDS (VOC) (LOW EMITTING MATERIALS) in Section [01 33 29 SUSTAINABILITY REPORTING][01 57 19.01 20 SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS].]

2.1.2.1 Plywood

All plywood panels used for framing purposes shall be veneer core hardwood plywood, [NAAWS 3.1](#) Grade AA. Nominal thickness of plywood panels shall be as indicated in this specification and on the drawings.

2.1.2.2 Particleboard

All particleboard shall be industrial grade, medium density (640 to 800 kg per cubic meter (40 to 50 pounds per cubic foot)), 19 mm (3/4 inch) thick. A moisture-resistant particleboard in grade Type 2-M-2 or 2-M-3 shall be used as the substrate for plastic laminate covered [countertops] [backsplashes] [_____] [components as located on the drawings] and other areas subjected to moisture. Particleboard shall meet the minimum standards listed in [ASTM D1037](#) and [CPA A208.1](#).

2.1.2.3 Medium Density Fiberboard

Medium density fiberboard (MDF) shall be an acceptable panel substrate where noted on the drawings. Medium density fiberboard shall meet the minimum standards listed in [CPA A208.2](#).

2.2 SOLID POLYMER MATERIAL

Solid surfacing casework components shall conform to the requirements of Section [06 61 16](#) SOLID SURFACING FABRICATIONS.

2.3 HIGH PRESSURE DECORATIVE LAMINATE (HPDL)

All plastic laminates shall meet the requirements of [ANSI/NEMA LD 3](#) and [ANSI A161.2](#) for high-pressure decorative laminates. Design, colors, surface finish and texture, and locations shall be as indicated on [the drawings] [Section [09 06 00](#) SCHEDULES FOR FINISHES] [_____]. Submit two samples of each plastic laminate pattern and color. Samples shall be a minimum of 120 by 170 mm (5 by 7 inches) in size. Plastic laminate types and nominal minimum thicknesses for casework components shall be as indicated in the following paragraphs.

2.3.1 Horizontal General Purpose Standard (HGS) Grade

Horizontal general purpose standard grade plastic laminate shall be 1.22 mm (plus or minus 0.127 mm) (0.048 inches (plus or minus 0.005 inches)) in thickness. This laminate grade is intended for horizontal surfaces where postforming is not required.

2.3.2 Vertical General Purpose Standard (VGS) Grade

Vertical general purpose standard grade plastic laminate shall be 0.71 mm (plus or minus 0.012 mm) (0.028 inches (plus or minus 0.004 inches)) in thickness. This laminate grade is intended for exposed exterior vertical surfaces of casework components where postforming is not required.

2.3.3 Horizontal General Purpose Postformable (HGP) Grade

Horizontal general purpose postformable grade plastic laminate shall be 1.07 mm (plus or minus 0.127 mm) (0.042 inches (plus or minus 0.005 inches)) in thickness. This laminate grade is intended for horizontal surfaces where post forming is required.

2.3.4 Vertical General Purpose Postformable (VGP) Grade

Vertical general purpose postformable grade plastic laminate shall be 0.71 mm (plus or minus 0.012 mm) (0.028 inches (plus or minus 0.004 inches)) in thickness. This laminate grade is intended for exposed exterior vertical surfaces of components where postforming is required for curved surfaces.

2.3.5 Horizontal General Purpose Fire Rated (HGF) Grade

Horizontal general purpose fire rated grade plastic laminate shall be 1.22 mm (plus or minus 0.127 mm) (0.048 inches (plus or minus 0.005 inches)) in thickness. Laminate grade shall have a class 1, class A fire rating in accordance with ASTM E84.

2.3.6 Vertical General Purpose Fire Rated (VGF) Grade

Vertical general purpose fire rated grade plastic laminate shall be 0.71 mm (plus or minus 0.012 mm) (0.028 inches (plus or minus 0.004 inches)) in thickness. This laminate grade shall have a class 1, class A fire rating in accordance with ASTM E84.

2.3.7 Cabinet Liner Standard (CLS) Grade

Cabinet liner standard grade plastic laminate shall be 0.51 mm (0.020 inches) in thickness. This laminate grade is intended for light duty semi-exposed interior surfaces of casework components.

2.3.8 Backing Sheet (BK) Grade

Undecorated backing sheet grade laminate is formulated specifically to be used on the backside of plastic laminated panel substrates to enhance dimensional stability of the substrate. Backing sheet thickness shall be 0.51 mm (0.020 inches). Backing sheets shall be provided for all laminated casework components where plastic laminate finish is applied to only one surface of the component substrate.

2.4 THERMOSET DECORATIVE OVERLAYS (MELAMINE)

Thermoset decorative overlays (melamine panels) shall be used for [casework cabinet interior] [drawer interior] [all semi-exposed] [_____] surfaces.

2.5 EDGE BANDING

Edge banding for casework doors and drawer fronts shall be PVC vinyl and shall be [0.5 mm (0.020 inch)] [3 mm (0.125 inch)] [_____] thick. Material width shall be [23.8 mm (15/16 inches)] [as indicated on the drawings] [_____] . Color and pattern shall [match exposed door and drawer front laminate pattern and color] [be as indicated on the drawings] [_____] .

2.6 VINYL COUNTERTOP EDGE

Where located on the drawings, vinyl edging for countertops shall be a tee-mould anchor type with a [flat] [radiused] [_____] edge profile. Finished width shall be [as indicated on the drawings] [_____] . Color shall be as indicated on [the drawings] [Section 09 06 00 SCHEDULES FOR FINISHES] [_____] .

2.7 CABINET HARDWARE

Submit one sample of each cabinet hardware item specified to include [hinges], [pulls], [drawer glides], and [_____] . All hardware shall conform to ANSI/BHMA A156.9, unless otherwise noted, and shall consist of the following components:

2.7.1 Door Hinges

[_____] type, BHMA No. [_____] .

2.7.2 Cabinet Pulls

[_____] type, BHMA No. [_____] .

2.7.3 Drawer Slide

Side mounted [_____] type, BHMA No. [_____] with [full] [_____] extension and a minimum [34 kg (75 pound)] [45 kg (100 pound)] [_____] load capacity. Slides shall include an [integral] [positive] stop to avoid accidental drawer removal.

2.7.4 Adjustable Shelf Support System

[Recessed (mortised) metal standards, BHMA No. B04071, finish: [_____] . Support clips for the standards shall be [open type, BHMA No. B04091] [closed type, BHMA No. B04081], finish: [_____]] [Multiple holes with [metal] [plastic] [wood] pin supports].

2.8 FASTENERS

Nails, screws, and other suitable fasteners shall be the size and type best suited for the purpose and shall conform to ASTM F547 where applicable.

2.9 ADHESIVES, CAULKS, AND SEALANTS

Provide products and documentation in conformance with paragraph REDUCE VOLATILE ORGANIC COMPOUNDS (VOC) (LOW EMITTING MATERIALS) in Section [01 33 29 SUSTAINABILITY REPORTING][01 57 19.01 20 SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS].]

2.9.1 Adhesives

Adhesives shall be of a formula and type recommended by AWI. Adhesives shall be selected for their ability to provide a durable, permanent bond and shall take into consideration such factors as materials to be bonded, expansion and contraction, bond strength, fire rating, and moisture resistance. Adhesives shall meet local regulations regarding VOC emissions and off-gassing.

2.9.1.1 Wood Joinery

Adhesives used to bond wood members shall be a Type II for interior use [urea-formaldehyde resin formula] [polyvinyl acetate resin emulsion] [_____]. Adhesives shall withstand a bond test as described in ANSI/WDMA I.S.1A.

2.9.1.2 Laminate Adhesive

Adhesive used to join high-pressure decorative laminate to wood shall be [a water-based contact adhesive] [_____] [adhesive consistent with AWI and laminate manufacturer's recommendations]. PVC edgebanding shall be adhered using a polymer-based hot melt glue.

2.9.2 Caulk

Caulk used to fill voids and joints between laminated components and between laminated components and adjacent surfaces shall be clear, 100 percent silicone.

2.9.3 Sealant

Sealant shall be of a type and composition recommended by the substrate manufacturer to provide a moisture barrier at sink cutouts and all other locations where unfinished substrate edges may be subjected to moisture.

2.10 WOOD FINISHES

Paint, stain, varnish and their applications required for laminate clad casework components shall be [_____] [as indicated in Section 09 90 00 PAINTS AND COATINGS] [as indicated in Section 09 06 00 SCHEDULES FOR FINISHES]. Color and location shall be as indicated on the drawings.

Provide products and documentation in conformance with paragraphs RECYCLED CONTENT, BIO-BASED PRODUCTS, AND REDUCE VOLATILE ORGANIC COMPOUNDS (VOC) (LOW EMITTING MATERIALS) in Section [01 33 29 SUSTAINABILITY REPORTING][01 57 19.01 20 SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS].]

2.11 ACCESSORIES

2.11.1 Glass and Glazing

Glass required in laminated casework shall be referenced by type in accordance with Section 08 81 00 GLAZING. Glass shall be one of the following:

- a. Type [A] [_____].
- b. [Float] [Patterned] glass: [Clear] [pattern] quality.
- c. Safety glass: [Clear] [_____]; [heat strengthened] [fully tempered] [laminated] [_____]; [_____] mm (inches) thick minimum.
- d. Wire Glass: [Clear] [_____], polished [both sides] [one side]; [square] [diagonal] [_____] mesh woven stainless steel wire of grid [_____] mm (inches) size; [_____] mm (inches) thick.

2.11.2 Grommets

Grommets shall be [plastic] [metal] [rubber] [_____] material for cutouts with a diameter of [_____] mm (inches). Locations shall be as indicated on the drawings.

2.12 FABRICATION

Verify field measurements as indicated in the [shop drawings](#) before fabrication. Fabrication and assembly of components shall be accomplished at the shop site to the maximum extent possible. Construction and fabrication of cabinets and their components shall meet or exceed the requirements for AWI [premium] [custom] grade unless otherwise indicated in this specification. Cabinet style, in accordance with [NAAWS 3.1](#), Section 400-G descriptions, shall be [flush overlay] [reveal overlay] [flush inset without face frame] [flush inset with face frame] [as indicated on the drawings].

2.12.1 Base and Wall Cabinet Case Body

2.12.1.1 Cabinet Components

Frame members shall be glued-together, kiln-dried hardwood lumber. Top corners, bottom corners, and cabinet bottoms shall be braced with either hardwood blocks or water-resistant glue and nailed in place metal or plastic corner braces. Cabinet components shall be constructed from the following materials and thicknesses:

2.12.1.1.1 Body Members (Ends, Divisions, Bottoms, and Tops)

19 mm (3/4 inch) [particleboard] [medium density fiberboard (MDF)] [veneer core plywood] panel product

2.12.1.1.2 Face Frames and Rails

19 mm (3/4 inch) [hardwood lumber] [panel product]

2.12.1.1.3 Shelving

19 mm (3/4 inch) [particleboard] [medium density fiberboard (MDF)] [veneer core plywood] panel product

2.12.1.1.4 Cabinet Backs

6 mm (1/4 inch) [particleboard] [medium density fiberboard (MDF)] [veneer core plywood] panel product

2.12.1.1.5 Drawer Sides, Backs, and Subfronts

13 mm (1/2 inch) [hardwood lumber] [panel product]

2.12.1.1.6 Drawer Bottoms

6 mm (1/4 inch) [particleboard] [medium density fiberboard (MDF)] [veneer core plywood] panel product

2.12.1.1.7 Door and Drawer Fronts

19 mm (3/4-inch) [particleboard] [medium density fiberboard (MDF)] panel product

2.12.1.2 Joinery Method for Case Body Members

2.12.1.2.1 Tops, Exposed Ends, and Bottoms

- a. Steel "European" assembly screws (37 mm (1-1/2 inch) from end, 128 mm (5 inch) on center, fasteners will not be visible on exposed parts).
- b. Doweled, glued under pressure (approx. 4 dowels per 300 mm (12 inches) of joint).
- c. Stop dado, glued under pressure, and either nailed, stapled or screwed (fasteners will not be visible on exposed parts).
- d. Spline or biscuit, glued under pressure.

2.12.1.2.2 Exposed End Corner and Face Frame Attachment

2.12.1.2.2.1 Mitered Joint

lock miter or spline or biscuit, glued under pressure (no visible fasteners)

2.12.1.2.2.2 Non-Mitered Joint (90 degree)

butt joint glued under pressure (no visible fasteners)

2.12.1.2.2.3 Butt Joint

glued and nailed

2.12.1.2.3 Cabinet Backs (Wall Hung Cabinets)

Wall hung cabinet backs must not be relied upon to support the full weight of the cabinet and its anticipated load for hanging/mounting purposes. Method of back joinery and hanging/mounting mechanisms should transfer the load to case body members. Fabrication method shall be:

2.12.1.2.3.1 Full Bound

Full bound, captured in grooves on cabinet sides, top, and bottom. Cabinet backs for floor standing cabinets shall be side bound, captured in grooves; glued and fastened to top and bottom.

2.12.1.2.3.2 Full Overlay

Full overlay, plant-on backs with minimum back thickness of 13 mm (1/2 inch) and minimum No. 12 plated (no case hardened) screws spaced a minimum 80 mm (3 inches) on center. Edge of back shall not be exposed on finished sides. Anchor strips are not required when so attached.

2.12.1.2.3.3 Side Bound

Side bound, captured in groove or rabbets; glued and fastened.

2.12.1.2.4 Cabinet Backs (Floor Standing Cabinets)

2.12.1.2.4.1 Side Bound

Side bound, captured in grooves; glued and fastened to top and bottom.

2.12.1.2.4.2 Full Overlay

Full overlay, plant-on backs with minimum back thickness of 13 mm (1/2 inch) and minimum No. 12 plated (no case hardened) screws spaced a minimum 80 mm (3 inches) on center. Edge of back shall not be exposed on finished sides. Anchor strips are not required when so attached.

2.12.1.2.4.3 Side Bound with Rabbets

Side bound, placed in rabbets; glued and fastened in rabbets.

2.12.1.2.5 Wall Anchor Strips

Wall Anchor Strips shall be required for all cabinets with backs less than 13 mm (1/2 inch) thick. Strips shall consist of minimum 13 mm (1/2 inch) thick lumber, minimum 60 mm (2-1/2 inches) width; securely attached to wall side of cabinet back - top and bottom for wall hung cabinets, top only for floor standing cabinets.

2.12.2 Cabinet Floor Base

Floor cabinets shall be mounted on a base constructed of [nominal 50 mm (2 inch) thick lumber] [19 mm (3/4 inch) particleboard] [19 mm (3/4 inch) fiberboard] [19 mm (3/4 inch) veneer core exterior plywood]. Base assembly components shall be [treated lumber] [a moisture-resistant panel product]. Finished height for each cabinet base shall be [not less than the full height of the installed, specified wall base] [as indicated on the drawings]. Bottom edge of the cabinet door or drawer face shall [be flush with top of base] [extend below the top of the base as indicated on the drawings].

2.12.3 Cabinet Door and Drawer Fronts

Door and drawer fronts shall be fabricated from [19 mm (3/4 inch) medium density particleboard] [19 mm (3/4 inch) medium density fiberboard (MDF)]. All door and drawer front edges shall be surfaced with [high pressure plastic laminate] [PVC edgbanding], color and pattern [to match exterior face laminate] [as indicated on the drawings] [as indicated in Section 09 06 00 SCHEDULES FOR FINISHES].

2.12.4 Drawer Assembly

2.12.4.1 Drawer Components

Drawer components shall consist of a removable drawer front, sides, backs, and bottom. Drawer components shall be constructed of the following materials and thicknesses:

2.12.4.1.1 Drawer Sides and Backs For Transparent Finish

13 mm (1/2 inch) thick [solid hardwood lumber] [7-ply hardwood veneer core plywood (no voids), any species]

2.12.4.1.2 Drawer Sides and Backs For Laminate Finish

13 mm (1/2 inch) thick 7-ply hardwood veneer core substrate

2.12.4.1.3 Drawer Sides and Back For Thermoset Decorative Overlay (Melamine) Finish

13 mm (1/2 inch) thick medium density particleboard or MDF fiberboard substrate

2.12.4.1.4 Drawer Bottom

6 mm (1/4 inch) thick [veneer core panel product for transparent or plastic laminate finish] [thermoset decorative overlay melamine panel product]

2.12.4.2 Drawer Assembly Joinery Method

- a. Multiple dovetail (all corners) or French dovetail front/dadoed back, glued under pressure.
- b. Doweled, glued under pressure.
- c. Lock shoulder, glued and pin nailed.

d. Bottoms shall be set into sides, front, and back, 6 mm (1/4 inch) deep groove with a minimum 9 mm (3/8 inch) standing shoulder.

2.12.5 Shelving

2.12.5.1 General Requirements

Shelving shall be fabricated from [19 mm (3/4 inch) medium density particleboard] [19 mm (3/4 inch) medium density fiberboard (MDF)] [19 mm (3/4 inch) veneer core plywood]. All shelving top and bottom surfaces shall be finished with [HPDL plastic laminate] [thermoset decorative overlay (melamine)]. Shelf edges shall be finished in a [HPDL plastic laminate] [thermoset decorative overlay (melamine)] [PVC edgebanding].

2.12.5.2 Shelf Support System

The shelf support system shall be:

2.12.5.2.1 Recessed (Mortised) Metal Shelf Standards

Mortise standards flush with the finishes surface of the cabinet interior side walls, two per side. Position and space standards on the side walls to provide a stable shelf surface that eliminates tipping when shelf front is weighted. Install and adjust standards vertically to provide a level, stable shelf surface when clips are in place.

2.12.5.2.2 Pin Hole Method

Drill holes on the interior surface of the cabinet side walls. Evenly space holes in two vertical columns. Space the holes in each column at [25 mm (1 inch)] [_____] increments starting [150 mm (6 inches)] [_____] from the cabinet interior bottom and extending to within [150 mm (6 inches)] [_____] of the top interior surface of the cabinet. Drill holes to provide a level, stable surface when the shelf is resting on the shelf pins. Coordinate hole diameter with pin insert size to provide a firm, tight fit.

2.12.6 Laminate Clad Countertops

Construct laminate countertop substrate of 19 mm (3/4 inch) [particleboard] [medium density fiberboard (MDF)] [veneer core plywood]. The substrate shall be moisture-resistant where countertops receive sinks, lavatories, or are subjected to liquids. All substrates shall have sink cutout edges sealed with appropriate sealant against moisture. No joints shall occur at any cutouts. A balanced backer sheet is required.

2.12.6.1 Edge Style

Front [and exposed side] countertop edges shall be in shapes and to dimensions as shown on the drawings. The countertop edge material shall be:

2.12.6.1.1 Post Formed Plastic Laminate

Laminate edge shall be integral with countertop surface. Shape and profile shall be [bullnose] [waterfall] [as indicated] [_____] and to dimensions as indicated.

2.12.6.1.2 Hardwood

Species, finish, profile, shape, and dimensions shall be as indicated on the drawings. Hardwood edge shall overlap the exposed countertop laminate edge and shall be installed flush with the countertop laminate surface.

2.12.6.1.3 Vinyl

Vinyl tee-mould edge shall be in shape, thickness, and color as indicated on the drawings. Tee mould edge shall overlap the exposed countertop laminate edge and shall be installed flush with the countertop laminate surface.

2.12.6.1.4 Plastic Laminate Self Edge

Flat, 90 degree "self " edge. Edge must be applied before top. Laminate edge shall overlap countertop laminate and shall be eased to eliminate sharp corners.

2.12.6.2 Laminate Clad Splashes

Countertop splash substrate shall be 19 mm (3/4 inch) [particleboard] [MDF fiberboard] [veneer core plywood]. Laminate clad backsplash shall be [integral with countertop, coved to radius and to dimensions as indicated on the drawings] [loose, to be installed at the time of countertop installation]. Side splashes shall be straight profile and provided loose, to be installed at the time of countertop installation. Back and side splash laminate pattern and color shall match the adjacent countertop laminate.

2.12.7 Laminate Application

Laminate application to substrates shall follow the recommended procedures and instructions of the laminate manufacturer and ANSI/NEMA LD 3, using tools and devices specifically designed for laminate fabrication and application. Provide a balanced backer sheet (Grade BK) wherever only one surface of the component substrate requires a plastic laminate finish. Apply required grade of laminate in full uninterrupted sheets consistent with manufactured sizes using one piece for full length only, using adhesives specified herein or as recommended by the manufacturer. Fit corners and joints hairline. All laminate edges shall be machined flush, filed, sanded, or buffed to remove machine marks and eased (sharp corners removed). Clean up at easing shall be such that no overlap of the member eased is visible. Fabrication shall conform to ANSI A161.2. Laminate types and grades for component surfaces shall be as follows unless otherwise indicated on the drawings:

2.12.7.1 Base/Wall Cabinet Case Body

- a. Exterior (exposed) surfaces to include exposed and semi-exposed face frame surfaces: HPDL Grade [VGS] [VGP].
- b. Interior (semi-exposed) surfaces to include interior back wall, bottom, and side walls: [HPDL Grade CLS] [Thermoset Decorative Overlay (melamine)].

2.12.7.2 Adjustable Shelving

2.12.7.2.1 Top and Bottom Surfaces

[HPDL Grade HGS] [Thermoset Decorative Overlay (melamine)]

2.12.7.2.2 All Edges

[HPDL Grade VGS] [Thermoset Decorative Overlay (melamine)][PVC edgebanding]

2.12.7.3 Fixed Shelving

2.12.7.3.1 Top and Bottom Surfaces

[HPDL Grade HGS] [Thermoset Decorative Overlay (melamine)]

2.12.7.3.2 Exposed Edges

[HPDL Grade VGS] [Thermoset Decorative Overlay (melamine)][PVC edgebanding]

2.12.7.4 Door, Drawer Fronts, Access Panels

2.12.7.4.1 Exterior (Exposed) and Interior (Semi-Exposed) Faces

HPDL Grade [VGS] [VGP]

2.12.7.4.2 Edges

[HPDL Grade VGS] [PVC edgebanding]

2.12.7.5 Drawer Assembly

All interior and exterior surfaces: [HPDL Grade CLS] [Thermoset Decorative Overlay (melamine)].

2.12.7.6 Countertops and Splashes

All exposed and semi-exposed surfaces: HPDL Grade HGS

2.12.7.7 Tolerances

Flushness, flatness, and joint tolerances of laminated surfaces shall meet the [NAAWS 3.1](#) [premium] [custom] grade requirements.

2.12.8 Finishing

2.12.8.1 Filling

No fasteners shall be exposed on laminated surfaces. All nails, screws, and other fasteners in non-laminated cabinet components shall be countersunk and the holes filled with wood filler consistent in color with the wood species.

2.12.8.2 Sanding

All surfaces requiring coatings shall be prepared by sanding with a grit and in a manner that scratches will not show in the final system.

2.12.8.3 Coatings

Types, method of application and location of casework finishes shall be in accordance with the [finish schedule](#), drawings and Section 09 90 00 PAINTS AND COATINGS. All cabinet reveals shall be painted. Submit descriptive data which provides narrative written verification of all types of construction materials and finishes, methods of construction, etc. not clearly illustrated on the submitted shop drawings. Data shall provide written verification of conformance with [NAAWS 3.1](#) for the quality indicated to include materials, tolerances, and types of construction. Both the manufacturer of materials and the fabricator shall submit available literature which describes re-cycled product content, operations and processes in place that support efficient use of natural resources, energy efficiency, emissions of ozone depleting chemicals, management of water and operational waste, indoor environmental quality, and other production techniques supporting sustainable design and products.

PART 3 EXECUTION

3.1 [INSTALLATION](#)

Installation shall comply with applicable requirements for [NAAWS 3.1](#) [premium] [custom] quality standards. Countertops and fabricated assemblies shall be installed level, plumb, and true to line, in locations shown on the drawings. Cabinets and other [laminated clad casework](#) assemblies shall be attached and anchored securely to the floor and walls with mechanical fasteners that are appropriate for the wall and floor construction.

3.1.1 Anchoring Systems

3.1.1.1 Floor

[Base cabinets] [_____] shall utilize a floor anchoring system [as detailed on the drawings]. Anchoring and mechanical fasteners shall not be visible from the finished side of the casework assembly. [Cabinet] [_____] assemblies shall be attached to anchored bases without visible fasteners [as indicated in the drawings]. Where assembly abuts a wall surface, anchoring shall include a minimum [13 mm \(1/2 inch\)](#) thick lumber or panel product hanging strip, minimum [60 mm \(2-1/2 inch\)](#) width; securely attached to the top of the wall side of the cabinet back.

3.1.1.2 Wall

[Cabinet] [vanity] [_____] to be wall mounted shall utilize minimum [13 mm \(1/2 inch\)](#) thick lumber or panel product hanging strips, minimum [60 mm \(2-1/2 inch\)](#) width; securely attached to the wall side of the cabinet back, both top and bottom.

3.1.2 Countertops

Countertops shall be installed in locations as indicated on the drawings. Countertops shall be fastened to supporting casework structure with mechanical fasteners, hidden from view. All joints formed by the countertop or countertop splash and adjacent wall surfaces shall be filled with a clear silicone caulk. Loose [back] [side] splashes shall be adhered to both the countertop surface perimeter and the adjacent wall surface with adhesives appropriate for the type of materials to be adhered. Joints between the countertop surface and splash shall be filled with clear silicone caulk in a

smooth consistent concave bead. Bead size shall be the minimum necessary to fill the joint and any surrounding voids or cracks.

3.1.3 Hardware

Casework hardware shall be installed in types and locations as indicated on the drawings. Where fully concealed European-style hinges are specified to be used with particleboard or fiberboard doors, the use of plastic or synthetic insertion dowels shall be used to receive 5 mm (3/16 inch) "Euroscrews". The use of wood screws without insertion dowels is prohibited.

3.1.4 Doors, Drawers and Removable Panels

The fitting of doors, drawers and removable panels shall be accomplished within target fitting tolerances for gaps and flushness in accordance with NAAWS 3.1 [premium] [custom] grade requirements.

3.1.5 Plumbing Fixtures

Install sinks, sink hardware, and other plumbing fixtures in locations as indicated on the drawings and in accordance with [Section 22 00 00 PLUMBING, GENERAL PURPOSE] [_____].

3.1.6 Glass

Install glass and glazing in the casework using methods and materials specified in Section 08 81 00 GLAZING in locations as indicated on the drawings.

-- End of Section --