
Preparing Activity: USACE Superseding
UFGS-06 41 16.00 10 (August 2010)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated April 2026

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PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS
08/25

NOTE: This guide specification covers the requirements for laminate clad architectural casework.

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

NOTE: Designer should require materials, products, and innovative construction methods and techniques which are environmentally sensitive, take advantage of recycling and conserve natural resources.

Executive Order No. 12873, dated 20 October 1993, requires that Federal Agencies use environmentally preferable products and services and implement cost-effective procurement preference programs favoring purchase of these products and services. "Environmentally preferable" products and services are those that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same

purpose. This comparison may consider raw materials, components, acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.

Factors to consider include, but are not limited to:

- 1) Ease of repairability and high durability. A lesser frequency of replacement reduces landfill (i.e., need for more natural resources and energy) costs.
- 2) Manufacturer/fabricator programs in place that reduce energy required or re-cycle energy, water, by-products, or waste materials in production methods.
- 3) Low VOC's and off-gassing in the production, fabrication, assembly, and installation of materials and components.

Evaluation of the sustainable efforts of a manufacturer is subjective. There are no current measurable aspects of a sustainable program for casework materials which easily qualifies or disqualifies a manufacturer or fabricator. The submittal reviewer should use the information provided in the Department of Army ETL 1110-3-491 in conjunction with a common sense approach in making the evaluation.

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 NATIONAL STANDARDS INSTITUTE (ANSI)

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

ARCHITECTURAL WOODWORK INSTITUTE (AWI)

AWI AWS (2nd Edition) Architectural Woodwork
Standards

ASTM INTERNATIONAL (ASTM)

ASTM D1037 (2012; R 2020) Standard Test Methods for
Evaluating Properties of Wood-Base Fiber
and Particle Panel Materials

ASTM F547 (2022) Standard Terminology of Nails for
Use with Wood and Wood-Base Materials

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

ANSI/BHMA A156.9 (2020) Cabinet Hardware

ANSI/BHMA A156.16 (2023) Auxiliary Hardware

ANSI/BHMA A156.18 (2020) Materials and Finishes

COMPOSITE PANEL ASSOCIATION (CPA)

ANSI/CPA A208.1 (2022) Particleboard

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

GREEN BUILDING INITIATIVE (GBI)

GBI Green Globes for NC Green Globes(tm) for New Construction
Technical Reference Manual

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

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

U.S. GREEN BUILDING COUNCIL (USGBC)

LEED BD+C LEED Building Design and Construction

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)

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

1.2 SYSTEM DESCRIPTION

NOTE: The term "lamine clad architectural

casework" as used herein includes all wood assembly components and specially designed and fabricated custom casework that requires a high pressure decorative laminate finish. This should include such items as restroom vanities, cabinets, and built-in shelving as detailed and located on the drawings. Items such as running trim, moldings, wood railings, and other wood decorative components should be specified in Section 06 20 00 FINISH CARPENTRY.

Countertop components and materials will be constructed in accordance with Section 06 61 16 SOLID SURFACING FABRICATIONS and 12 35 70 HEALTHCARE CASEWORK.

Solid polymer (solid surfacing) components of laminate architectural casework, such as countertops, will be constructed in accordance with Section 06 61 16 SOLID SURFACING FABRICATIONS.

Work in this section includes laminate clad custom casework [cabinets][vanities][_____] as indicated on the drawings and as described in this Section. This Section includes high-pressure laminate surfacing and cabinet hardware. [Comply with EPA requirements in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.]

1.3 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 and Air Force projects.

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.

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. Submittals not having a "G" or "S" classification are 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

Shop Drawings

Installation

SD-03 Product Data

Recycled Content; G, [_____]

Regional Materials; G, [_____]

Certified Wood; G, [_____]

Low-Emitting Adhesives and Sealants; G, [_____]

Low-Emitting Composite Wood or Agrifiber; G, [_____]

Wood Materials; G, [_____]

Cabinet Hardware; G, [_____]

High Pressure Decorative Laminate; G, [_____]

Thermally Fused Laminates; G, [_____]

SD-04 Samples

Cabinet Hardware; G, [_____]

High Pressure Decorative Laminate; G, [_____]

Thermally Fused Laminates; G, [_____]

Edge Banding; G, [_____]

SD-07 Certificates

Quality Assurance

Fabricator and Installer Qualifications

Fabricator Shop Certification

SD-11 Closeout Submittals

Sustainable Design Requirements

1.4 QUALITY ASSURANCE

NOTE: This specification relies heavily on standards developed by the Architectural Woodwork Institute (AWI), a national not-for-profit organization of manufacturers of architectural woodwork, suppliers to the industry, and design professionals to provide specifications which accurately describe and quantify minimum standards for architectural woodwork.

AWI architectural woodwork quality standards for casework materials and fabrication lists three quality categories: premium, custom, and economy grade. The specifier must judge the level of quality required for the specific end use conditions. The specifier should become familiar with the differences between custom and premium grade quality differences before editing this specification.

To insure suitable durability and appearance it is recommended that either the custom or premium grade quality be selected. Economy grade should only be considered where severe funding limitations dictate this lesser quality be specified. AWI Sections 400G and 400B indicate the differences between grades regarding acceptable materials for substrates and components, fabrication methods, joinery, tolerances, and other factors.

1.4.1 General Requirements

Unless otherwise noted on the drawings, all materials, construction methods, and fabrication must conform to and comply with the [premium] [custom] grade quality standards in accordance with **AWI AWS**, Section for laminate clad cabinets. These standards apply in lieu of omissions or specific requirements in this specification. Contractors and their personnel engaged in the work must 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 **AWI AWS** requirements, in general, and the specific AWI AWS requirements provided in this specification. The quality control statement must also certify a minimum of ten years Contractor's experience in laminate clad casework fabrication, construction and installation. In the quality control statement, provide a list of a minimum of five successfully completed projects of a similar scope, size, and complexity.

1.4.2 Fabricator and Installer Qualifications

Shop that employs skilled workers and installers who custom fabricate and install products similar to those required for this Project.

[

- a. **Fabricator Shop Certification:** AWI's Quality Certification Program accredited participant.

]

1.4.3 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. Include countertops and back splashes where specified. 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 subject to the Contracting Officer's approval.

1.4.4 Shop Drawings

Include plan views, elevations, sections and attachment details. Show large-scale details. Show dimensions and locations and sizes of furring, blocking, and hanging strips. Show locations and sizes of cutouts and holes for items installed in architectural cabinets.[Apply AWI Quality Certification Program label to shop drawings.]

1.5 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. Ventilate the storage area and do not subject to extreme changes in temperature or humidity.

1.6 ENVIRONMENTAL LIMITATIONS WITH HUMIDITY CONTROL

NOTE: AWI 200 includes a Climate Zone map of the Continental United States with relative humidity tolerances. In the absence of a specific zone designation, AWI prescribes Zone 2.

Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between (16 and 32 deg C) 60 and 90 deg F and relative humidity between [25 and 55][43 and 70][20 and 50][_____] percent during the remainder of the construction period.

1.7 SEQUENCING AND SCHEDULING

Coordinate work with other trades. Do not install units in any room or space until painting, and ceiling installation are complete within the room where the units are located. Install floor cabinets [before][after] finished flooring materials are installed.

PART 2 PRODUCTS

2.1 SUSTAINABLE DESIGN REQUIREMENTS

See Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING for sustainable design[and][LEED BD+C][GBI Green Globes for NC] requirements.

[2.1.1 [Recycled Content](#) of Products

Provide products with post-consumer recycled content plus one-half of pre-consumer recycled content to the greatest extent possible.

Product data indicating percentage by weight of post-consumer and pre-consumer recycled content for products having recycled content included in this Section. Include statement of costs for recycled materials specified in this Section. Submit in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

][2.1.2 [Regional Materials](#) of Products

Raw or recycled materials in cabinets must be extracted, harvested, or recovered and manufactured within 100 miles of the Project site.

Product data indicating location of material manufacturer and distance from manufacturer to Project site for regional materials (materials that are extracted, harvested or recovered, and manufactured within 100 miles Project site). Include statement of costs for regional materials specified in this Section. Submit in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

][2.1.3 [Certified Wood](#) Products

Wood materials used for products specified in this Section must be Certified products by the Forest Stewardship Council (FSC). Manufacturer and vendor must be certified for chain-of-custody by a FSC-accredited certification body.

Provide chain-of-custody documentation for all Certified wood products. Include statement of costs for certified wood specified in this Section. Submit in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

][2.1.4 [Low-Emitting Adhesives and Sealants](#)

For field applications that are used on the interior of the building, adhesives and sealants must comply with low-emitting limits in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

Manufacturers' product data for sealants, sealant primers, and adhesives used on the interior of the building (defined as inside of the weatherproofing system), indicating VOC content and laboratory test reports showing compliance with requirements for low-emitting materials specified in this Section. Submit in accordance Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

][2.1.5 [Low-Emitting Composite Wood or Agrifiber](#)

For applications that are used on the interior of the building, products containing composite wood or agrifiber products or wood glues must be made with no added formaldehyde.

Manufacturers' product data for products containing composite wood or agrifiber products or wood glues used on the interior of the building (defined as inside of the weatherproofing system and applied on-site), indicating laboratory test reports showing compliance with requirements for low-emitting materials with no added formaldehyde specified in this

Section. Submit in accordance with requirements in Section 01 33 29 SUSTAINABILITY REPORTING.

2.2 WOOD MATERIALS

NOTE: Key drivers for wood species selection is the grain pattern and the hardness or density of the wood. Most common species are Maple, Ash, Oak, and Walnut. Maple is versatile and easy to stain. Ash is light, dense and easy to stain. Oak has a wide range of benefits including strong grain, durability, and attractive color. Walnut is durable, dense, and fine grained.

Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.

- a. Wood Moisture Content: 5 to 10 percent

2.2.1 Lumber

- a. Provide kiln-dried Grade III framing lumber to dimensions as shown on the drawings. Frame front, where indicated on the drawings, must be nominal 19 mm 3/4 inch hardwood.
- b. Standing or running trim casework components, which are specified to receive a transparent finish, must be [_____] hardwood species, plain sawn. AWI grade must be [premium][custom]. Indicate location, shape, and dimensions on the drawings. To prevent telegraphing, provide wood trim with similar moisture content as panel core.

2.2.2 Panel Core Products

NOTE: In accordance with AWS, veneer core will not be used for cabinet doors or drawer fronts.

2.2.2.1 Veneer Core Plywood

Plywood panels used for framing purposes must be veneer core hardwood plywood, AWI AWS Grade AA with non-telegraphing grain manufactured with Type II adhesive. Nominal thickness of plywood panels must be as indicated in this specification and on the drawings to meet AWS Quality grade specified. Minimum of 5 ply unless otherwise noted. Exterior grade moisture resistant veneer core plywood must be used at wet locations.

2.2.2.2 Particleboard

Particleboard must be industrial grade, medium density (640 to 800 kg per cubic meter 40 to 50 pounds per cubic foot), Grade M-2 or better, in thickness and types meeting AWS Quality grade specified. A moisture-resistant particleboard in grade Type 2-M-2 or 2-M-3 must be used as the substrate for plastic laminate covered [countertops][backsplashes][_____] [components as located on the drawings] and other areas subjected to moisture. Particleboard must meet the

minimum standards listed in [ASTM D1037](#) and [ANSI/CPA A208.1](#).

2.2.2.3 Medium Density Fiberboard

Medium density fiberboard (MDF), Grade 130 or better, in thickness and types meeting AWS Quality grade specified is an acceptable panel substrate where noted on the drawings. Medium density fiberboard must meet the minimum standards listed in [CPA A208.2](#).

2.3 SOLID POLYMER MATERIAL

Solid surfacing casework components must be in accordance with Section [06 61 16](#) SOLID SURFACING FABRICATIONS.

2.4 HIGH PRESSURE DECORATIVE LAMINATE (HPDL)

NOTE: The grades listed in this paragraph should be edited to include only those grades required for the specific end use of the casework and components. General characteristics and intended end uses are as follows:

Horizontal HGS grade is thicker and therefore the most durable. It is not intended to be post formed to a tight radius.

Vertical VGS grade is thinner and does not have the impact resistance of a horizontal grade.

Horizontal HGP and vertical VGP grades are thinner than their general purpose grade counterparts and are engineered specially for post forming to tight inside and outside bends.

Cabinet liner CLS grade is much thinner than general purpose vertical grade and is intended for light duty use on such surfaces as semi-exposed interior cabinet body and drawer interior surfaces.

Horizontal HGF and vertical VGF grades are specially formulated to provide a Class A flammability rating in accordance with ASTM E84-00a, where required.

Backing sheet BK grade is intended for use on the back side of laminated panels or components to prevent moisture and humidity absorption and minimize warpage, thereby maximizing dimensional stability of the laminated panel substrate material.

Plastic laminates must meet the requirements of [ANSI/NEMA LD 3](#) and [ANSI A161.2](#) for high-pressure decorative laminates, HPDL. Provide design, colors, surface finish and texture, and locations as indicated [on the drawings][in Section [09 06 00](#) SCHEDULES FOR FINISHES][_____]. Submit two samples of each plastic laminate pattern and color. Samples to be a minimum of [127 mm by 177.8 mm 5 by 7 inches](#) in size. Plastic laminate types and nominal minimum thicknesses for casework components must be as indicated in the following paragraphs.

2.4.1 Horizontal General Purpose Standard (HGS) Grade

Provide horizontal general purpose standard grade plastic laminate that is 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.

2.4.2 Vertical General Purpose Standard (VGS) Grade

Provide vertical general purpose standard grade plastic laminate that is 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.

2.4.3 Horizontal General Purpose Postformable (HGP) Grade

Provide horizontal general purpose postformable grade plastic laminate that is 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.

2.4.4 Vertical General Purpose Postformable (VGP) Grade

Provide vertical general purpose postformable grade plastic laminate that is 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.

2.4.5 Cabinet Liner Standard (CLS) Grade

Provide cabinet liner standard grade plastic laminate of 0.5 mm 0.020 inches in thickness. This laminate grade is intended for light duty semi-exposed interior surfaces of casework components.

2.4.6 Backing Sheet (BK) Grade

NOTE: All panel substrates not mechanically constrained, should be backed with a laminate manufacturer's backing sheet to minimize moisture absorption and provide substrate stabilization.

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. Provide backing sheet thickness of 0.50 mm 0.020 inches. Backing sheets must be provided for all laminated casework components where plastic laminate finish is applied to only one surface of the component substrate.

2.5 THERMALLY FUSED LAMINATES (MELAMINE)

NOTE: Thermally Fused Laminate decorative overlays are also called low pressure decorative laminate (LPDL) or melamine. This product is usually pre

laminated by thermal fusion to particleboard, medium density fiber board or other cellulosic material to form a part of the manufactured panel. Performance characteristics are equal to a 0.020 inch thick general purpose grade or liner grade LPDL laminate. Primary use is as an alternate solution for liner grade laminate for cabinet interiors. Drawback lies in limited color availability from most manufacturers compared to HPDL.

Provide Thermally Fused Laminate decorative overlays (melamine panels) for [casework cabinet interior][drawer interior][all semi-exposed][_____] surfaces.

2.6 EDGE BANDING

NOTE: PVC edge banding for cabinet door and drawer front edges is a standard, industry-wide approved and widely used alternative to using plastic laminate. Advantages include:

1) A more flexible material for better adhesion to substrate and minimization of delamination problems often occurring with laminate edges.

2) Solid color through the banding eliminates the contrasting dark line at door and drawer edges typically found when plastic laminate is used to finish the edges, especially with light and solid colored laminates.

3) PVC is more durable and less brittle under impact than laminate. Typical installation detail and product standard width allows the PVC edging to overlap the laminate edge on the front and back surfaces of the doors and drawers to protect and minimizes the chance of chipped door edges commonly seen with laminate edged installations.

The most common edge banding is 0.5 mm 0.020 inch in thickness and 24 mm 15/16 inch wide. This edge banding is available in almost all solid colors and many patterns and woodgrains to match all major laminate selections. If matching is desired, recommend coordination and selection during casework design to insure availability.

Edge banding is also available in other thicknesses for more durability, however, color selection is very limited in these greater thicknesses.

Edge banding for casework doors and drawer fronts:[PVC tape, 0.5 mm 0.020 inch minimum thickness, matching laminate in color, pattern and finish][PVC edge banding, 3 mm 0.12 inch thick, matching laminate in color, pattern, and finish][PVC T-mold, matching laminate in color, pattern and finish,] [flat][radiused] edge profile [wood materials specified herein].

Submit two samples of each edge band color. Edge banding types and nominal minimum thickness to be as indicated.

2.7 CABINET HARDWARE

NOTE: To ensure a minimum standard quality is met, every attempt should be made to utilize standard hardware components which can be found in ANSI/BHMA A156.9. Use the ANSI/BHMA numbering system to provide a BHMA number for each component which specifies the product class, base material, type of product, description, and grade.

Specially designed, custom, or proprietary hardware should be thoroughly described and defined in this paragraph.

The basic hardware components listed and described below are not inclusive. The list should be edited to modify, delete, or add hardware components as necessary to provide the specifications required for each end use and casework function.

Hinge type will depend on cabinet construction style requiring flush, inset lipped, or overlay door design, and desired appearance. Wherever possible it is highly recommended that self-closing hinges be utilized to eliminate the need for door catches, latches, or magnets which require constant adjustment and have a high failure rate after extended use.

Submit one sample of each cabinet hardware item specified to include [hinges], [pulls], [drawer glides], and [_____]. Hardware must be in accordance with ANSI/BHMA A156.9, Grade 2 requirements at a minimum.[School and Hospital applications must conform to Grade 1 testing requirements.]

2.7.1 Door Hinges

NOTE: Butt hinges are the most common and traditional door hinge. The knuckle is held together with a pin and is visible to the outside.

Concealed or 'European' hinges provide an aesthetic free from hardware. They can not be tampered with from the outside and can be adjusted to align doors after install. They are available in various degrees; typical angle is 110 or 120 degrees while wide angle hinges are radiused greater than 120 degrees. Note the higher the radius, the bulkier and more costly.

- a. Butt Hinges: 70 mm 2 3/4 inch, five knuckle steel hinges made from 0.095 inch thick metal.

- (1) Semi-concealed Hinges for Flush Doors: ANSI/BHMA A156.9, B01361.
 - (2) Semi-concealed Hinges for Overlay Doors: ANSI/BHMA A156.9, B01521.
- b. Frameless Concealed Hinges (European Type): ANSI/BHMA A156.9, B01602, [120][170][_____] degrees of opening, self-closing.

2.7.2 Back Mounted Pulls

ANSI/BHMA A156.9, B02011.

- a. Wire Pulls: Back mounted, solid metal, [102 mm4 inches long, 8 mm 5/16 inch in diameter][127 mm5 inches long, 63.5 mm 2 1/2 inches deep, and 8 mm 5/16 inch in diameter].

NOTE: See BHMA A156.9 for initial and static load weight requirements in accordance with grade. AWS calls for drawer slides to conform to a minimum load capacity of 50 lbs. at pencil drawers, 75 lbs. at general purpose drawers, 100 lbs at file drawers, except 150 lbs at lateral file drawers wider than 24 inch and less than 30 inch, 200 lbs at lateral file drawers wider than 30 inch.

Cabinet pulls come in a wide variety of styles, finishes, and sizes many of which do not fit a BHMA category. Where a BHMA number is not appropriate, provide a detailed description and commercial model number for reference.

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

2.7.3 Drawer Slide

NOTE: For drawer stability, superior support, durability, and maximum load capability, only side mounted hinges should be specified. Full extension slides provide maximum utilization of drawer space and aid in cleaning.

Bottom or top center-mounted slides should only be specified where side clearance precludes the use of side-mounted slides.

ANSI/BHMA A156.9, Side mounted, [Full][_____] extension type with positive stop; Material: [Zinc plated][Epoxy Coated][_____].

- a. For drawers not more than 76.2 mm 3 inches high and not more than 610 mm 24 inches wide, provide [Grade 1][Grade 2].
- b. For drawers more than 76.2 mm 3 inches high, but not more than 152.4 mm 6 inches high and not more than 610 mm 24 inches wide, provide [Grade 1][Grade 1HG-100].

- c. For drawers more than 152.4 mm 6 inches high or more than 610 mm 24 inches wide, provide [Grade 1HG-100][Grade 1HG-200].

2.7.4 Adjustable Shelf Support System

NOTE: Two methods for shelf support are approved by AWI. For premium grade AWI requires recessed (mortised) metal shelf standards with snap-in metal clips or multiple drilled holes with metal shelf rests. AWI custom grade allows only multiple drilled holes with shelf rests. Either system is satisfactory depending on the specifier's requirements. Surface mounted metal standards are not approved under AWI premium and custom grades. Choose a method from those shown below or permit Contractor option.

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

2.7.5 Door and Door Silencers

ANSI/BHMA A156.16, L03011.

NOTE: Grommets are available in a variety of shapes, finishes and colors. These finishes include plastic, metal, rubber and wood. Plastic grommets are the most cost effective.

2.7.6 Grommets

Grommets to be [plastic] [metal] [rubber] [_____] material for cutouts with a diameter of [50.8 mm 2 inches] [_____]. Finish: [As indicated on drawings] [_____]. Provide locations as indicated on the drawings.

2.7.7 Hardware Finishes

For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in ANSI/BHMA A156.9. For exposed hardware, provide finish that complies with ANSI/BHMA A156.18 for BHMA finish number indicated.

- [a. Dark, oxidized, Satin Bronze, Oil Rubbed: BHMA 613 for bronze base; BHMA 640 for steel base.
-]b. Bright Brass, Clear Coated: BHMA 605 for brass base; BHMA 632 for steel base.
-]c. Satin Brass, Blackened, Bright Relieved, Clear Coated: BHMA 610 for brass base; BHMA 636 for steel base.
-]d. Satin Aluminum, Clear Anodized: BHMA 628.

-]e. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
-]f. Bright Chromium Plated: BHMA 625 for brass or bronze base; BHMA 651 for steel base.
-]g. Satin Stainless Steel: BHMA 630.
-]h. Other: [_____]

2.8 FASTENERS

Provide nails, screws, and other suitable fasteners that are the size and type best suited for the purpose and conforming to **ASTM F547** where applicable.

2.9 ADHESIVES, CAULKS, AND SEALANTS

2.9.1 Adhesives

Provide adhesives of a formula and type recommended by AWI. Select adhesives for their ability to provide a durable, permanent bond and take into consideration such factors as materials to be bonded, expansion and contraction, bond strength, fire rating, and moisture resistance.

2.9.1.1 Wood Joinery

Adhesives used to bond wood members must be a Type II for interior use [polyvinyl acetate resin emulsion][_____]. Adhesives must 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 must be [a water-based contact adhesive] [adhesive consistent with AWI and laminate manufacturer's recommendations] [_____]. PVC edgbanding must 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 must be clear, 100 percent silicone.

2.9.3 Sealant

Provide sealant 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 ACCESSORIES

2.10.1 Glass and Glazing

NOTE: Specifier must select from glass types below or include specifications for other glass type as required for the project.

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

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

2.11 FABRICATION

NOTE: Fabrication as described below is for typical casework cabinetry and restroom vanity construction. Techniques, methods, and materials would also apply to other laminated architectural casework fabrications such as built-in shelving, bookcases, and cafeteria counters. Where one or more options are shown, all options are acceptable for either AWI premium or custom grade unless otherwise noted. The specification should be edited and tailored to describe the particular casework items being fabricated.

Shop fabrication and shop assembly of components should be maximized to the extent possible. Quality of fabrication and installation are generally superior when accomplished in a millwork shop facility as opposed to field work. Field fabrication and assembly should be limited to those assemblies and final adjustments necessary to finish installation of the casework.

Verify field measurements as indicated in the [shop drawings](#) before fabrication. Accomplish fabrication and assembly of components at the shop site to the maximum extent possible.

2.11.1 Plastic Laminate Casework

NOTE: Specifier must choose a material from those listed below for each component or permit Contractor option.

Face Frame is defined as components attached to the front of a cabinet body which overlay the edges of the carcass and provide an attachment point for doors and external hardware. Frameless is defined as a cabinet construction type without a face frame. Characterized by components of the cabinet box that

are usually edgebanded.

Flush Overlay method describes door and drawer faces that cover the body members of the cabinet with minimal spaces between face surfaces within the tolerances outlined in the AWI standard.

Reveal Overlay method describes door and drawer faces that partially cover the body members or face frames of the cabinet with spaces between face surfaces creating decorative reveals.

Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of cabinets indicated for construction, finishes, installation, and other requirements.

- a. Grade: AWS [Premium][Custom]
- b. Type of Construction: [Frameless][Face Frame]
- c. Door and Drawer Front Style: [Flush][Reveal] overlay
 - (1) Reveal dimension:[3.2 mm 1/8 inch][6.4 mm 1/4 inch][As indicated][_____].
- d. High Pressure Decorative Laminate (HPDL): ANSI/NEMA LD 3, grades as indicated or if not indicated, as required by AWS quality standard.
- e. Exposed Surfaces meeting requirements of AWS grade specified: HPDL
 - (1) Horizontal Surfaces: [Grade HGS]
 - (2) Vertical Surfaces: [Grade VGS][Grade HGS]

NOTE: AWS default for custom and premium grade is for doors, drawer fronts, and false fronts. Grain to run and match vertically within each cabinet unit.

- (3) Pattern Direction: Vertically for drawer fronts, doors, and fixed panels.

NOTE: AWS allows LPDL or HPDL for Custom Grade and HPDL only for Premium Grade.

- f. Exposed Interior Surfaces: [LPDL (melamine) of a color and pattern compatible with exposed surfaces] [HPDL (high pressure decorative laminate), Grade HGS, matching exposed surfaces].

NOTE: LPDL (melamine) is permitted by AWS at all grades. The other choices are in order of increased cost. Cabinet liner is generally white or almond. It is more expensive than melamine. The

HPDL or LPDL in Premium Grade will match all other semi-exposed surfaces.

- g. Semi-exposed Surfaces: [LPDL (melamine)] [CLS, Cabinet Liner] [HPDL (high pressure decorative laminate, VGS, Vertical Grade laminate)] [HPDL (high pressure decorative laminate VGS, Vertical Grade laminate matching exposed surfaces)]
- h. Edges: [Grade HGS] [Grade VGS][PVC tape, 0.5 mm 0.018 inch minimum thickness, matching laminate in color, pattern, and finish] [PVC T-mold matching laminate in color, pattern, and finish] [PVC edge banding, 3 mm 0.12 inch thick, matching laminate in color, pattern, and finish].
- i. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate (HPDL), ANSI/NEMA LD 3, Grade BK.

2.11.2 Drawers

NOTE: AWS drawer material defaults are Custom Grade - LPDL (melamine) or HPDL and Premium Grade - 7-ply veneer core with no inner voids with HPDL face.

- a. Sides and Backs: [Particle Board with melamine surfaces] [Particle board with HPDL surfaces] [MDF with HPDL surfaces] [Seven ply hardwood veneer core with no internal voids with HPDL surfaces]

NOTE: AWS calls for Veneer core plywood only in Premium Grades.

- b. Bottoms: [Tempered Hardboard] [MDF with melamine surface] [Veneer core plywood with HPDL].
- c. Joinery: Meeting requirements of AWS for Grade specified.

2.11.2.1 Wall Anchor Strips

Provide Wall Anchor Strips for cabinets with backs less than 12.7 mm 1/2 inch thick. Strips must consist of minimum 12.7 mm 1/2 inch thick lumber, minimum 63.5 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.

2.11.3 Cabinet Floor Base

NOTE: Care should be taken in the selection of cabinet floor base materials in areas subjected to moisture (for example: adjacent flooring cleaned by wet-mopping or liquid cleaners, and where the finished base material does not provide a moisture barrier. Recommend treated lumber, or panel products specifically engineered to be moisture

resistant, be used in these areas.

Mount floor cabinets 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]. Provide base assembly components that are [treated lumber][a moisture-resistant panel product]. Make finished height for each cabinet base[no less than the full height of the installed, specified wall base][as indicated on the drawings]. Make bottom edge of the cabinet door or drawer face[flush with top of base][extend below the top of the base as indicated on the drawings].

2.11.4 Shelving

2.11.4.1 General Requirements

Fabricate shelving 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]. Finish all shelving top and bottom surfaces with [HPDL plastic laminate] [thermoset decorative overlay (melamine)]. Finish shelf edges in a [HPDL plastic laminate] [thermoset decorative overlay (melamine)] [PVC edgbanding].

- a. Shelving to be a thickness of 25.4 mm 1 inch minimum when unsupported for 1067 mm 42 inches or more.
- b. Panel cores to be subject to a 40 lb per sq ft load capacity with the exception of 50 lbs per sq ft at schools, hospitals and library bookshelves.
- c. Shelving over 1219 mm 48 inches in length will be secured to back of cabinet and have a center support.

2.11.5 Laminate Application

Apply laminate to substrates following 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. Machined flush, file, sand, or buff all laminate edges to remove machine marks and ease (sharp corners removed). Clean up at easing must be such that no overlap of the member eased is visible. Perform fabrication in conformance to ANSI A161.2.

2.11.6 Finishing

2.11.6.1 Filling

Do not expose fasteners on laminated surfaces. Make all nails, screws, and other fasteners in non-laminated cabinet components countersunk and fill the holes with wood filler consistent in color with the wood species.

PART 3 EXECUTION

3.1 INSTALLATION

Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours. Installation will comply with applicable requirements for AWI AWS [premium] [custom] quality standards. Install cabinets level, plumb and true in line to a tolerance of 3.2 mm 1/8 inch in 2438 mm 96 inches using concealed shims. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts. Install cabinets without distortion so doors and drawers fit openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated. Fasten wall cabinets through back, near top and bottom, and at ends not more than 406 mm 16 inches on center with [No. 10 wafer-head screws sized for not less than 38.1 mm 1 1/2 inch penetration into wood framing, blocking or hanging strips] [No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish] [Toggle bolts through metal backing or metal framing behind wall finish].

3.1.1 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] [Section 22 00 70 PLUMBING FOR HEALTHCARE FACILITIES] [_____].

3.1.2 Countertop

Install countertop in locations as indicated on the drawings and in accordance with [Section 06 61 16 SOLID SURFACING FABRICATIONS] [Section 12 35 70 HEALTHCARE CASEWORK] [_____].

3.1.3 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.

3.2 ADJUSTING AND CLEANING

Repair damaged and defective cabinets, where possible, to eliminate function and visual defects. Where not possible to repair, replace cabinets. Adjust joinery for uniform appearance. Clean, lubricate, and adjust hardware. Clean cabinets on exposed and semi-exposed surfaces.

3.3 CONSTRUCTION WASTE MANAGEMENT

Comply with requirements of the Waste Management Plan specified in Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

-- End of Section --