

SECTION 06 41 16.00 10

LAMINATE CLAD ARCHITECTURAL CASEWORK
04/06

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

ARCHITECTURAL WOODWORK INSTITUTE (AWI)

AWI Qual Stds (8th Edition) AWI Quality Standards

ASTM INTERNATIONAL (ASTM)

ASTM D 1037 (2006a) Evaluating Properties of Wood-Base
Fiber and Particle Panel Materials

ASTM F 547 (2006) Nails for Use with Wood and
Wood-Base Materials

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)

BHMA A156.9 (2003) Cabinet Hardware

COMPOSITE PANEL ASSOCIATION (CPA)

CPA A208.1 (2002) Medium Density Fiberboard (MDF) For
Interior Applications

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

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

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

WINDOW AND DOOR MANUFACTURERS ASSOCIATION (WDMA)

WDMA I.S. 1-A (1997) Architectural Wood Flush Doors

1.2 GENERAL DESCRIPTION

Work in this section includes laminate clad custom casework cabinets as shown on the drawings and as described in this specification. This Section includes high-pressure laminate surfacing and cabinet hardware. 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 00.00 40 PAINTING AND COATING.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. All items designated with a "G", including product literature, calculations, component data, certificates, diagrams, drawings, and samples shall be submitted concurrently in one complete system submittal. Omission of any required submittal item from the package shall be sufficient cause for disapproval of the entire submittal. Unless otherwise indicated in the submittal review commentary, disapproval of any item within the package shall require a re-submittal of the entire system package, in which all deficiencies shall be corrected. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Shop Drawings; G, AE Installation

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.

SD-03 Product Data

Wood Materials; G, AE

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 AWI Qual Stds 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.

SD-04 Samples

Plastic Laminates; G, AE

Two samples of each plastic laminate pattern and color. Samples

shall be a minimum of 3 by 4 inches in size.

Cabinet Hardware; G, AE

One sample of each cabinet hardware item specified to include hinges and pulls.

SD-07 Certificates

Quality Assurance; G, AE Laminate Clad Casework

A quality control statement which illustrates compliance with and understanding of AWI Qual Stds requirements, in general, and the specific AWI Qual Stds 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.

1.4 QUALITY ASSURANCE

Unless otherwise noted on the drawings, all materials, construction methods, and fabrication shall conform to and comply with the custom grade quality standards as outlined in AWI Qual Stds, Section 400G and Section 400B 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. Contractor must demonstrate knowledge and understanding of AWI Qual Stds requirements for the quality grade indicated.

1.5 MOCK-UP

Prior to final approval of shop drawings, a full-size mock-up shall be provided of a typical floor cabinet. The mock-up shall include all components and hardware necessary to illustrate a completed unit and shall include 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 on the drawings. Upon disapproval, the Contractor shall rework or remake the mock-up until approval is secured. Rejected units shall be removed from the jobsite. Approved mock-up may remain as part of the finished work.

1.6 DELIVERY AND STORAGE

Casework may be delivered knockdown or fully assembled. All units shall be delivered 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

Work shall be coordinated 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.

1.8 PROJECT/SITE CONDITIONS

Field measurements shall be verified as indicated in the [shop drawings](#) before fabrication.

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 $3/4$ inch hardwood.

2.1.2 Panel Products

2.1.2.1 Plywood

All plywood panels used for framing purposes shall be veneer core hardwood plywood, [AWI Qual Stds](#) 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 (40 to 50 pounds per cubic foot), $3/4$ 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 D 1037](#) 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 HIGH PRESSURE DECORATIVE LAMINATE (HPDL)

All [plastic laminates](#) shall meet the requirements of [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. Plastic laminate types and nominal minimum thicknesses for casework components shall be as indicated in the following paragraphs.

2.2.1 Horizontal General Purpose Standard (HGS) Grade

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

2.2.2 Vertical General Purpose Standard (VGS) Grade

Vertical general purpose standard grade plastic laminate shall be 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.

2.2.3 Cabinet Liner Standard (CLS) Grade

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

2.2.4 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 0.020 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.

2.3 THERMOSET DECORATIVE OVERLAYS (MELAMINE)

Thermoset decorative overlays (melamine panels) shall be used for casework cabinet interior and drawer interior surfaces.

2.4 EDGE BANDING

Edge banding for casework doors and drawer fronts shall be PVC vinyl and shall be 0.020 inch thick. Material width shall be 15/16 inches. Color and pattern shall match exposed door and drawer front laminate pattern and color.

2.5 CABINET HARDWARE

All hardware shall conform to BHMA A156.9, unless otherwise noted, and shall consist of the following components:

- a. Door Hinges: Concealed type, BHMA No. B01602.
- b. Cabinet Wire Pulls: Brushed stainless steel, back mounted, 4 inches long, 5/16 inches in diameter.
- c. Drawer Slide: Side mounted type, BHMA No. B05091 with full extension and a minimum 100 pound load capacity. Slides shall include an integral stop to avoid accidental drawer removal.
- d. Adjustable Shelf Support System:
 - 1) Multiple holes with metal pin supports.

2.6 FASTENERS

Nails, screws, and other suitable fasteners shall be the size and type best suited for the purpose and shall conform to ASTM F 547 where applicable.

2.7 ADHESIVES, CAULKS, AND SEALANTS

2.7.1 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.

2.7.1.1 Wood Joinery

Adhesives used to bond wood members shall be a Type II for interior use urea-formaldehyde resin formula. Adhesives shall withstand a bond test as described in [WDMA I.S. 1-A](#).

2.7.1.2 Laminate Adhesive

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

2.7.2 Caulk

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

2.7.3 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.

2.8 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 custom grade unless otherwise indicated in this specification. Cabinet style, in accordance with [AWI Qual Stds](#), Section 400-G descriptions, shall be flush overlay.

2.8.1 Base and Wall Cabinet Case Body

2.8.1.1 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:

- a. Body Members (Ends, Divisions, Bottoms, and Tops): [3/4 inch](#) medium density fiberboard (MDF) panel product.
- b. Face Frames and Rails: [3/4 inch](#) panel product.
- c. Shelving: [3/4 inch](#) medium density fiberboard (MDF) panel product.
- d. Cabinet Backs: [1/4 inch](#) medium density fiberboard (MDF) panel product.

- e. Drawer Sides, Backs, and Subfronts: 1/2 inch panel product.
- f. Drawer Bottoms: 1/4 inch medium density fiberboard (MDF) panel product.
- g. Door and Drawer Fronts: 3/4-inch medium density fiberboard (MDF) panel product.

2.8.1.2 Joinery Method for Case Body Members

- a. Tops, Exposed Ends, and Bottoms.
 - 1) Stop dado, glued under pressure, and either nailed, stapled or screwed (fasteners will not be visible on exposed parts).
- b. Exposed End Corner and Face Frame Attachment.
 - 1) For mitered joint: lock miter or spline or biscuit, glued under pressure (no visible fasteners).
 - 2) For non-mitered joint (90 degree): butt joint glued under pressure (no visible fasteners).
- c. 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:
 - 1) Full overlay, plant-on backs with minimum back thickness of 1/2 inch and minimum No. 12 plated (no case hardened) screws spaced a minimum 3 inches on center. Edge of back shall not be exposed on finished sides. Anchor strips are not required when so attached.
- d. Cabinet Backs (Floor Standing Cabinets).
 - 1) Full overlay, plant-on backs with minimum back thickness of 1/2 inch and minimum No. 12 plated (no case hardened) screws spaced a minimum 3 inches on center. Edge of back shall not be exposed on finished sides. Anchor strips are not required when so attached.
- e. Wall Anchor Strips shall be required for all cabinets with backs less than 1/2 inch thick. Strips shall consist of minimum 1/2 inch thick lumber, minimum 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.

2.8.2 Cabinet Floor Base

Floor cabinets shall be mounted on a base constructed of nominal 2 inch thick lumber. Base assembly components shall be treated lumber. Finished height for each cabinet base shall be not less than the full height of the installed, specified wall base unless indicated on the drawings. Bottom edge of the cabinet door or drawer face shall be flush with top of base.

2.8.3 Cabinet Door and Drawer Fronts

Door and drawer fronts shall be fabricated from 3/4 inch medium density fiberboard (MDF). All door and drawer front edges shall be surfaced with

high pressure plastic laminate, color and pattern to match exterior face laminate.

2.8.4 Drawer Assembly

2.8.4.1 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:

- a. Drawer Sides and Back For Thermoset Decorative Overlay (melamine) Finish: $1/2$ inch thick medium density particleboard or MDF fiberboard substrate.
- b. Drawer Bottom: $1/4$ inch thick thermoset decorative overlay melamine panel product.

2.8.4.2 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, $1/4$ inch deep groove with a minimum $3/8$ inch standing shoulder.

2.8.5 Shelving

2.8.5.1 General Requirements

Shelving shall be fabricated from $3/4$ inch medium density fiberboard (MDF). All shelving top and bottom surfaces shall be finished with thermoset decorative overlay (melamine). Shelf edges shall be finished in a thermoset decorative overlay (melamine).

2.8.5.2 Shelf Support System

The shelf support system shall be:

Pin Hole Method. Holes shall be drilled on the interior surface of the cabinet side walls. Holes shall be evenly spaced in two vertical columns. The holes in each column shall be spaced at 1 inch increments starting 6 inches from the cabinet interior bottom and extending to within 6 inches of the top interior surface of the cabinet. Holes shall be drilled to provide a level, stable surface when the shelf is resting on the shelf pins. Hole diameter shall be coordinated with pin insert size to provide a firm, tight fit.

2.8.6 Laminate Application

Laminate application to substrates shall follow the recommended procedures and instructions of the laminate manufacturer and 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:

a. Base/Wall Cabinet Case Body.

1) Exterior (exposed) surfaces to include exposed and semi-exposed face frame surfaces: HPDL Grade VGS.

2) Interior (semi-exposed) surfaces to include interior back wall, bottom, and side walls: Thermoset Decorative Overlay (melamine).

b. Adjustable Shelving.

1) Top and bottom surfaces: Thermoset Decorative Overlay (melamine).

2) All edges: Thermoset Decorative Overlay (melamine).

c. Fixed Shelving.

1) Top and bottom surfaces: Thermoset Decorative Overlay (melamine).

2) Exposed edges: Thermoset Decorative Overlay (melamine).

d. Door, Drawer Fronts, Access Panels.

1) Exterior (exposed) and interior (semi-exposed) faces: HPDL Grade VGS

2) Edges: HPDL Grade VGS.

e. Drawer Assembly.

All interior and exterior surfaces: Thermoset Decorative Overlay (melamine).

f. Tolerances

Flushness, flatness, and joint tolerances of laminated surfaces shall meet the AWI Qual Stds custom grade requirements.

2.8.7 Finishing

2.8.7.1 Filling

No fasteners shall be exposed on laminated surfaces.

PART 3 EXECUTION

3.1 INSTALLATION

Installation shall comply with applicable requirements for **AWI Qual Stds** 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 **laminate 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. 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. Where assembly abutts a wall surface, anchoring shall include a minimum **1/2 inch** thick lumber or panel product hanging strip, minimum **2-1/2 inch** width; securely attached to the top of the wall side of the cabinet back.

3.1.1.2 Wall

Cabinet to be wall mounted shall utilize minimum **1/2 inch** thick lumber or panel product hanging strips, minimum **2-1/2 inch** width; securely attached to the wall side of the cabinet back, both top and bottom.

3.1.2 Hardware

Casework hardware shall be installed in types and locations as specified and 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 **3/16 inch** "Euroscrews". The use of wood screws without insertion dowels is prohibited.

3.1.3 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 **AWI Qual Stds** custom grade requirements.

3.1.4 Plumbing Fixtures

Sinks, sink hardware, and other plumbing fixtures shall be installed in locations as indicated on the drawings and in accordance with Section **22 00 00 PLUMBING, GENERAL PURPOSE**.

-- End of Section --