

Proposed AWI Standard for Manufactured Wood Casework

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1.0 Purpose

- a) Provide standards and tolerances for the quality and fit of Manufactured Wood Casework and related interior finishes (henceforth referred to as “Product”).
- b) Establish minimum aesthetic and performance requirements intended to provide a well defined degree of control over a project’s quality of materials and workmanship for Manufactured Wood Casework.

2.0 Scope

- a) Provides aesthetic and performance standards for Product designed and manufactured/supplied for specific construction projects. Such casework is typically produced in stock incremental measurements and typically available by manufacturer/supplier's product line catalog.

2.1 Included

- a) Product as specified under CSI MasterFormat Sections:
- 12 32 00 Manufactured Wood Casework
 - 12 32 13 Manufactured Wood-Veneer-Faced Casework
 - 12 32 16 Manufactured Plastic-Laminate-Clad Casework

2.2 Not Included

- a) Installion of Product.
- b) ~~Product as specified under CSI MasterFormat Division 06.~~
- c) Structural components, grounds, in-wall blocking, backing, furring, brackets, or other anchorage that becomes an integral part of the building's walls, floors, or ceilings are not furnished or installed under the scope of this standard's requirements.
- d) [Product as specified under CSI MasterFormat Division 06 00 00.](#)
- e) [Product as specified under CSI MasterFormat Section 12 35 00.](#)
- f) [Manufactured wood casework included in the scope of ANSI/KCMA A161.1 Performance and Construction Standard for Kitchen & Vanity Cabinets \(latest edition\).](#)

3.0 Requirements

3.1 General

- a) The following requirements shall govern unless a project's contract documents require otherwise.
- b) Should a conflict be discovered within this standard, the least restrictive requirement shall prevail.
- c) When applicable, the manufacturer/supplier shall verify field measurements.
- d) Unless otherwise indicated, requirements apply equally to all performance duty levels.
- e) Any term used herein that is defined by the AWI Glossary uses only that definition for conformance to this standard.

3.1.1 Measurements

- a) This standard is written with the metric system of measurement followed by the U.S. Customary System of measurement in brackets.
- b) The system of measurement used in the project's original contract documents and architectural drawings will dictate which system of measurement within these standards is used for verification of compliance.
- c) The U.S. Customary measurement is typically a "soft" conversion of the metric measurement. In order to make the metric number more conceptually coherent and consistent, most conversions for less than 152.4 mm [6"] in dimension are "soft" converted to the nearest 0.1 mm. For measurements above 152.4 mm [6"], the "soft" value is converted to the nearest 1 mm.
- d) "Inconspicuous," when used in this standard, means not readily visible without careful inspection at a distance of 1219 mm [48"].
- e) Gaps and flushness between components shall be tested with a feeler gauge at points where components are required to contact as indicated within this standard.

3.1.2 Special Requirements

- a) When seismic construction is required, such requirements and details shall be clearly stated in the contract documents.
- b) Requirements for Product, such as moisture resistant or fire retardant materials, shall be specified by the design professional.

3.1.3 Environmental Conditions

- a) Requirements of this standard are contingent upon maintaining proper interior environmental controls prior to, during, and after installation. See AWI 200 - Care & Storage [Standard](#) (latest edition).

3.1.4 Manufacturer/Supplier Requirements for Installation

- a) Manufacturer/supplier shall provide documented instructions for Product installation. In the absence of documented instructions, casework installation shall defer to AWI's Casework Installation Guidelines (available for download at www.awinet.org/standards).
- b) Installation of Product shall be in accordance with the ANSI/AWI 0620 - Finish Carpentry/Installation [Standard](#) (latest edition).
- c) Manufacturer/supplier shall provide drawings indicating location of blocking. See AWI 100 - Submittals [Standard](#) (latest edition).

- d) Manufacturer/supplier shall provide documented instructions for the fastening methods of adjacent cabinets. Documented instructions shall include fastener details.

3.1.5 Default Performance Requirements

- a) Product shall comply with the following minimum default:
 - Structural Performance: Duty Level 2
 - [Aesthetic Performance: As stipulated herein \(this standard does not utilize Premium, Custom, and Economy Grades\).](#)

3.2 Material

- a) Materials used for the construction of Product shall comply with tested, documented, and approved means and methods for the specified Performance Duty Level.
- b) ~~Unless otherwise indicated,~~ Materials used for the construction of Product covered within the scope of this standard shall adhere to Custom Grade ~~including but not limited to the specified aesthetic grade~~ requirements set forth in AWI 300 - Materials ~~Standard~~ (latest edition).
- c) Materials used for the same purpose, within the scope of this standard, shall be consistent throughout a project.
- d) Glass used in conjunction with casework, doors, and/or lites shall be in accordance with ANSI Z97.1 (latest edition).

3.2.1 Base, Wall, and Tall Cabinets

- a) Components and their assembly shall meet structural performance and aesthetic performance values set forth in this standard.
- b) In the absence of specified thickness values, all components and assemblies shall meet the minimum thickness and material requirements of those tested and used to establish the structural performance values set forth within this standard. Alternative materials and assemblies are permitted provided they meet the structural performance and aesthetic performance values set forth within this standard.
- c) In the absence of manufacturer/supplier's tested and approved methods and materials for casework construction, manufacturer/suppliers may fabricate to AWI's Tested and Approved Methods and Materials for Casework Construction, available at www.awinet.org/standards.

3.2.1.1 Security Panels

- a) When doors and drawers are keyed differently, security panels are required.
- b) At drawer bank cabinets, when the total opening height for drawers exceeds 762 mm [30"], an intermediate front stretcher is required.

3.2.1.2 Anchor Strips

- a) When used, anchor strips shall be composed of material adequate to support the casework and meet the specified Performance Duty Level.

3.2.1.3 Base Support Assemblies

- a) Material shall be a minimum of 17.5 mm [.688"] thick with a minimum finished installed height of 101.6 mm [4"].
- b) If specified, moisture resistant base requires base components to be fabricated from material with a thickness swell factor of 5.5% or less as tested in accordance with ASTM D1037 (latest edition) with a thickness swell factor of five percent (5%) or less.
- c) Use of leg levelers is permitted at the option of the manufacturer/supplier provided they meet the specified Performance Duty Level.

3.2.1.10 Aprons and Light Valances

- a) Material shall be a minimum of 15.9 mm [.625"] thick.

3.2.2 Doors

- a) Maximum size shall be 610 mm [24"] by 2134 mm [84"]. Larger doors may be susceptible to warp. Doors in excess of these width or height dimensions are not subject to warp/flatness tolerances and tests contained within this standard.
- b) Thicknesses of 34.9 mm [1.375"] or greater shall be governed by the ANSI/WDMA I.S.1A (latest edition) and ANSI/WDMA I.S.6A (latest edition) Architectural Door Standards, as applicable. Such doors are not subject to the tolerances and conditions contained within this AWI standard.

3.2.3 Drawer Boxes

3.2.3.1 Drawer Boxes, Decorative Laminate

- a) Material shall be HPDL or TFL.

3.2.3.2 Drawer Boxes, Solid Wood and Veneer, Transparent Finish

- a) Solid wood shall be in compliance with Custom Grade requirements set forth in AWI 300 - Materials Standard (latest edition).
- b) Surfaces shall be a minimum of ANSI/HPVA HP-1 (latest edition) Grade C species at the option of the manufacturer/supplier.

3.2.3.3 Drawer Boxes, Opaque Finish

- a) Drawer material shall be at the option of the manufacturer/supplier.

3.2.4 Shelves

3.2.4.1 Shelves, Pullout

- a) Components shall operate smoothly in channels or rigid guides.
- b) Material shall be a minimum of 19.1 mm [.750"] thick.

3.2.4.2 Shelves, Glass

- a) Glass type, thickness, color, and edge treatment shall be specified.

3.2.5 Hardware

- a) Hardware used for construction of Product covered within the scope of this standard shall adhere to the requirements set forth in applicable ANSI/BHMA Standards (latest edition).
- b) This standard has adopted ANSI/BHMA Standards (latest edition), Grade 2, as the default minimum requirement for casework hardware.
- c) Hardware types used for the same purpose, within the scope of this standard, shall be consistent throughout a project.
- d) Quantity and installation spacing shall be within the hardware manufacturer/supplier's recommendation and listed capacity.
- e) Manufacturer/supplier shall furnish hardware as required to provide a complete casework assembly without impairment of the cabinet's structural integrity and/or functionality.
- f) Keyboard trays shall conform to section 4.13 (Test 12, Drawers and Trays) of ANSI/BHMA A156.9 (latest edition).

3.2.5.1 Hardware, Doors

- a) Hinges shall be self-closing or provided with a catch.
- b) Bumper pads shall be installed at the top and bottom of each hinged door.
- c) Door size and weight shall be within the hardware manufacturer/supplier's listed capacity when using pocket hardware.

3.2.5.2 Hardware, Drawers

- a) Closing stops shall be provided at the rear of drawer sides unless the drawer slides contain integral stops that prevent the drawer face from impacting the cabinet body.

- b) When design permits, and if stops are not integral to the drawer slides, a mechanism shall be provided to prevent the drawer from pulling out of the cabinet.
- c) Drawer slides shall provide for a minimum extension of 75 percent of the length of the drawer box beyond the cabinet body.
- d) File drawer slides shall provide for a minimum extension of 100 percent of the length of the drawer box from the face of the cabinet. File drawers require clear interior height sufficient for hanging file folder tabs. Hanging file direction is at the option of the manufacturer/supplier.
- e) Stands or rails for file drawer systems shall be at the option of the manufacturer/supplier and, where legal-sized drawers are provided, the drawer system shall accommodate both legal-sized files and letter-sized files.

3.2.5.3 Hardware, Locks and Latches

- a) Locks shall be furnished and located as indicated in the contract documents only if specified.
- b) Locks shall be keyed differently and/or master keyed only if specified.
- c) Strike plates are required for installed locks and latches only if specified.

3.3 Structural

3.3.1 Product Performance Requirements

- a) Manufacturer/supplier's documented fabrication methodologies shall include joinery, material, and component details that have been tested in conformance with AWI Test Methodologies referenced within this standard. Testing shall be conducted by laboratories holding ISO 17025 accreditation or operating under an equivalent quality management system recognized by AWI.
- b) In the absence of testing, manufacturer/supplier may defer to AWI's Tested and Approved Methods and Materials for Casework Construction, available at www.awinet.org/standards
- c) Load values expressed within this standard are specific to referenced laboratory tests conducted in accordance with AWI Test Methodologies. **These load values do not suggest service loads nor shall they be construed as suggesting normal casework usage loads.**
- d) Construction methods and materials shall be consistent throughout the project.
- e) Cabinet units which will receive sinks or appliances may be modified as needed, provided structural integrity is retained.

3.3.2 Determination of Product Performance Duty Level

- a) Product Performance Duty Level is determined by the lowest tested value derived from AWI Test Methodologies referenced within this standard for joinery methods and materials or components. (Example: A Product may include a cabinet body construction meeting Performance Duty Level 2 and may also include an adjustable shelf meeting Performance Duty Level 1. The assembled casework unit would then meet Performance Duty Level 1 as the lowest tested value.)

3.3.3 Casework, General

- a) For the purposes of Base Cabinets, Wall Cabinets, Tall Cabinets, Drawer Boxes, Shelves, and Hardware of this standard, the following terms are referenced only as used within the context of the cited test methodologies:
 - Top
 - Bottom
 - Adjustable Shelf
 - Fixed Shelf
 - Drawer
 - Door

3.3.3.1 Base Cabinets

- a) Load values expressed within this standard are specific to referenced laboratory tests conducted in accordance with AWI Test Methodologies.

These load values do not suggest service loads nor shall they be construed as suggesting normal casework usage loads.

- b) Minimum performance requirements according to the AWI BC-1 Base Cabinet Assembled Unit Test Methodology:

Component	Duty Level 1	Duty Level 2
Top	219.7 kg/sq. m [45 lb./sq. ft.]	341.8 kg/sq. m [70 lb./sq. ft.]
Adjustable Shelf	122 kg/sq. m [25 lb./sq. ft.]	195.3 kg/sq. m [40 lb./sq. ft.]
Doors	45.4 kg [100 lb.] each	
Drawers	22.7 kg [50 lb.] each	

- c) Minimum performance requirements according to the AWI BC-2 Base Cabinet Structural Integrity Test Methodology:

Component	Duty Level 1	Duty Level 2
Top	659.1 kg/sq. m [135 lb./sq. ft.]	976.5 kg/sq. m [200 lb./sq. ft.]

3.3.3.2 Wall Cabinets

- a) Load values expressed within this standard are specific to referenced laboratory tests conducted in accordance with AWI Test Methodologies.

These load values do not suggest service loads nor shall they be construed as suggesting normal casework usage loads.

- b) Minimum performance requirements according to the AWI WC-1 Wall Cabinet Assembled Unit Test Methodology:

Component	Duty Level 1	Duty Level 2
Top	170.9 kg/sq. m [35 lb./sq. ft.]	244.1 kg/sq. m [50 lb./sq. ft.]
Adjustable Shelf	170.9 kg/sq. m [35 lb./sq. ft.]	244.1 kg/sq. m [50 lb./sq. ft.]

Bottom	170.9 kg/sq. m [35 lb./sq. ft.]	244.1 kg/sq. m [50 lb./sq. ft.]
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c) Minimum performance requirements according to the AWI WC-2 Wall Cabinet Structural Integrity Test Methodology:

Component	Duty Level 1	Duty Level 2
Bottom	268.5 kg/sq. m [55 lb./sq. ft.]	415 kg/sq. m [85 lb./sq. ft.]

3.3.3.3 Tall Cabinets

a) Load values expressed within this standard are specific to referenced laboratory tests conducted in accordance with AWI Test Methodologies. **These load values do not suggest service loads nor shall they be construed as suggesting normal casework usage loads.**

b) Minimum performance requirements per shelf (4 adjustable shelves and one fixed shelf) according to the AWI TC-1 Tall Cabinet Assembled Unit Test Methodology:

Component	Duty Level 1	Duty Level 2
Shelf (Adjustable and Fixed)	146.5 kg/sq. m [30 lb./sq. ft.]	219.7 kg/sq. m [45 lb./sq. ft.]

c) Minimum performance requirements according to the AWI TC-2 Tall Cabinet Structural Integrity Test Methodology:

Component	Duty Level 1	Duty Level 2
Fixed Shelf	512.7 kg/sq. m [105 lb./sq. ft.]	756.8 kg/sq. m [155 lb./sq. ft.]

3.3.4 Drawer Box

a) Load values expressed within this standard are specific to referenced laboratory tests conducted in accordance with AWI Test Methodologies.

These load values do not suggest service loads nor shall they be construed as suggesting normal casework usage loads. Tested values do not indicate a drawer slide rating.

b) Minimum performance requirements according to the AWI DB-1 Drawer Bottom Compression Test Methodology:

Duty Level 1	Duty Level 2

1112.06 Newtons [250 lbf.]

- c) Minimum performance requirements according to the AWI DF-1 Drawer Front Tension Test Methodology:

Duty Level 1	Duty Level 2
889.64 Newtons [200 lbf]	

- d) At drawer bank cabinets, when the total opening height for drawers exceeds 762 mm [30"], an intermediate front stretcher is required.

3.3.5 Shelves

3.3.5.1 Shelves, Adjustable

- a) Load values expressed within this standard are specific to referenced laboratory tests conducted in accordance with AWI Test Methodologies. **These load values do not suggest service loads nor shall they be construed as suggesting normal casework usage loads.**
- b) Performance Duty Level of shelf support system is dependent upon the combination of core material and shelf suspension hardware. Minimum performance requirements according to the AWI SS-1 Shelf Suspension Test Methodology:

Duty Level 1	Duty Level 2
1223.26 Newtons [275 lbf]	1890.49 Newtons [425 lbf]

- c) Adjustable shelves shall be supported on evenly spaced, cleanly bored holes a maximum of 64 mm [2.520"] on center with shelf rests or on shelf standards with metal shelf rests.
- d) Center line of shelf rests, from the front or the back of the interior cabinet body, shall not exceed a minimum of 25.4 mm [1"] to a maximum of 101.6 mm [4"]. The dimension between the center line of the shelf rests shall not be less than 60% of the overall shelf's depth.

3.3.6 Hardware

- a) Shall be fitted and adjusted to ensure operation without binding.

3.3.6.1 Hardware, Drawer

- a) Drawer slides shall conform to the following minimum load capacity requirements, as measured per ANSI/BHMA A156.9 (latest edition):

Drawer Type	Load Capacity
Pencil drawers	22.7 kg [50 lbs.]

General purpose drawers	34 kg [75 lbs.]
File drawers	45.4 kg [100 lbs.]
Lateral file drawers greater wider than 610 mm [24"] and less than 762 mm [30"] <u>in width</u>	68 kg [150 lbs.]
Lateral file drawers equal to or greater wider than 762 mm [30"] <u>in width</u>	90.7 kg [200 lbs.]

3.3.6.2 Hardware, Locks and Latches

- a) Locks shall withstand a minimum of 22.7 kg [50 lb.] pull force in any direction while in the locked position.
- b) At locking pairs of doors, the inactive door shall be equipped with a mechanism to prevent opening when in locked position.

3.3.7 Exposed Exterior Surfaces, Decorative Laminate Casework

- a) At exposed exterior surfaces, HPDL or TFL shall meet a Resistance to Impact by Large Diameter Ball (ISO 4586-2(E) (latest edition): Test 25) from a distance of:

Duty Level 1	Duty Level 2
375 mm [14.764"]	375 mm [14.764"]

3.4 Aesthetic

- a) Aesthetic performance, in relation to this standard, refers to and is an evaluation of surfaces that will be exposed or semi-exposed following installation.
- b) Surface terminology category examples may be found in Supplemental Information, herein (See also, Figure 86).
- c) Product default shall include:
 - Overlay is at the option of the manufacturer/supplier.
 - Doors
 - Adjustable shelves (2 per wall unit and 1 per base unit)
 - Unfinished closed-grain hardwood intended for an opaque finish or white decorative laminate (TFL or HPDL)
- d) Unless otherwise indicated or noted within this standard, materials with a defined grain and/or directional pattern shall be applied and assembled with grain and/or pattern orientation at the option of the manufacturer/supplier.
- e) At exposed exterior surfaces, exposed fasteners are not permitted except at access panels.
- f) At exposed interior surfaces, fastener cover caps of compatible color to interior finish shall be furnished by the manufacturer/supplier and are required.
- g) When fastener provision is countersunk, fasteners shall be countersunk.
- h) Final adjustments for gaps, flushness, and alignment shall be in accordance with the Custom Grade requirements set forth in AWI 0620 - Finish Carpentry/Installation Standard (latest edition).
- i) Semi-exposed surfaces require consistent color or species to be used throughout entire project.
- j) At semi-exposed surfaces, matching exposed surface is only required if specified.
- k) Concealed surface materials shall be at the option of the manufacturer/supplier.

3.4.1 Base, Wall, and Tall Cabinets

3.4.1.1 Face Frame Construction

- a) Fastening through an exposed face frame surface is permitted if inconspicuous.
- b) Grain shall run vertically on stiles and horizontally on rails.

- c) Horizontal reveal between countertop's bottom edge and overlay doors, drawer fronts, and false fronts shall be 6.4 mm [.250"] to 25.4 mm [1"] and shall be consistent across elevations. (See Figure 16)

3.4.1.2 Frameless Construction

- a) Horizontal reveal between countertop's bottom edge and overlay doors, drawer fronts, and false fronts shall be 3.2 mm [.125"] to 9.6 mm [.375"] and shall be consistent across elevations. (See Figure 15)

3.4.1.3 Tops and Bottoms

- a) Tops and Bottoms of wall-hung cabinets for exposed interior shall be uniform in thickness for the entire elevation or connected elevations except when concealed behind a minimum 38.1 mm [1.500"] face frame component.

3.4.1.4 Ends and Divisions

- a) On wall-hung cabinets, if cabinet ends or sides extend below the cabinet bottoms, the portion below the cabinet bottom is considered an exposed interior surface and shall be the same color and pattern as the exposed surface.
- b) Exposed ends shall be of integral construction or secondarily applied.
- c) When viewed from the exterior side, ends shall conceal all other cabinet body components.
- d) Secondarily applied exposed ends shall be mechanically fastened to the cabinet body. When viewed from the exterior side, fasteners shall be inconspicuous.
- e) Unless prevented by design or usage, drawer compartments within a casework unit shall be separated from shelf or open compartments by a full depth vertical division.

3.4.1.5 Backs

- a) Cabinet backs are required.
- b) At multiple-panel backs where panels intersect, joints shall be inconspicuous at exposed or semi-exposed interiors.
- c) At semi-exposed backs, vinyl overlay is permitted if matched for color to other semi-exposed materials.

3.4.1.6 Base Support Assemblies

- a) At the option of the manufacturer/supplier, base/toe kick shall be integral (constructed as an integral part of the cabinet body) or separate (constructed as a separate component).

3.4.1.7 Joints

- a) Joints in Product shall be assembled to meet the tolerances defined within this standard and be securely attached, with any adhesive residue removed from exposed and semi-exposed surfaces.
- b) Fixed horizontal cabinet components, including tops and bottoms, shall be either flush or set back a maximum of 2 mm [.078"] at their intersection with vertical components (See Figure 27).
- c) At 3 mm [.118"] thick edgebanding, radiused, beveled, or square edges and ends (See Figure 28) are permitted for horizontal and vertical components.
- d) At 3 mm [.118"] thick edgebanding, radiused, beveled, or square edges are permitted provided that the core of the square edge component is not visible and that the "V" or gap that is formed where a component with a square end meets a component with a radius (See Figure 29) does not exceed .4 mm [.016"].
- e) Flushness variations in exposed and semi-exposed surfaces (See Figure 26, D) when mitered or butted shall not exceed .4 mm [.016"].
- f) Gaps in exposed and semi-exposed surfaces, when mitered or butted (see Figure 30, A) shall not exceed .4 mm [.016"] wide by 20% of the joint length.
- g) Gaps in exposed and semi-exposed surfaces between parallel components (see Figure 30, B) shall not exceed .4 mm x 152.4 mm [.016" x 6"] and shall not occur within 1524 mm [60"] of a similar gap in the same joint.
- h) Gaps in exposed and semi-exposed surfaces, when mitered or butted (see Figure 30, C), shall not exceed .4 mm [.016"].
- i) Joint filler (putty), when used, shall be inconspicuous.
- j) Sheet and laminated wood panels shall be permitted to move, float, expand, or contract as a result of ambient humidity changes.

3.4.1.8 Decorative Laminate Casework

- a) Material, ~~Decorative Laminate~~ pattern, and color shall be as specified and, if not specified, shall be ~~of at the option of the~~ manufacturer/supplier's ~~choice~~.
- b) ~~Decorative laminate~~ Material shall be of one color or pattern per room, with a maximum of five different colors or patterns per project.

3.4.1.9 Exposed Exterior Surfaces, Decorative Laminate Casework

- a) Require HPDL or TFL of specified color or pattern.

3.4.1.10 Exposed Interior Surfaces, Decorative Laminate Casework

- a) At doors and drawer fronts, interior face shall be the same material thickness as face, color to match interior or face.
- b) Exposed interior surfaces, except at doors and drawer fronts, require HPDL or TFL compatible to exposed exterior surface for color, grain, and pattern.

3.4.1.11 Semi-Exposed Surfaces, Decorative Laminate Casework

- a) Semi-exposed surfaces shall be HPDL or TFL at the option of the manufacturer/supplier.

3.4.1.12 Transparent Finish Casework

- a) Product shall be finished with a finishing technology per AWI Finishing Standard (latest edition) of the manufacturer/supplier's choice.
- b) Hardboard is not permitted for exposed surfaces.

3.4.1.13 Exposed Exterior Surfaces, Transparent Finish

- a) Material shall be of the specified species, cut, veneer match, and solid stock and/or veneer shall be compatible for color.
- b) Veneer for transparent finish shall be a minimum of ANSI/HPVA HP-1 (latest edition) Grade B.

3.4.1.14 Exposed Interior Surfaces, Transparent Finish

- a) Surfaces at transparent finish require the same species as the exposed exterior surface.
- b) Veneer for transparent finish shall be a minimum of ANSI/HPVA HP-1 (latest edition) Grade B.
- c) Veneer at interior face of door and drawer fronts shall be a minimum of ANSI/HPVA HP-1 (latest edition) Grade B face of the same species and cut as the exposed exterior surface.

3.4.1.15 Semi-Exposed Surfaces, Transparent Finish

- a) Solid wood shall be compatible for color.
- b) Surfaces shall be a minimum of ANSI/HPVA HP-1 (latest edition) Grade C, species at the option of the manufacturer/supplier or HPDL or TFL.

3.4.1.16 Opaque Finish Casework

- a) Product shall be finished with a finishing technology per AWI Finishing Standard (latest edition) of the manufacturer/supplier's choice.

3.4.1.17 Exposed Exterior Surfaces, Opaque Finish

- a) Opaque finish permits substrates of MDF, MDO, closed-grain hardwood veneer, or solid stock.
- b) Veneer for opaque finish shall be closed-grain hardwood of manufacturer/supplier's choice of species and a minimum of ANSI/HPVA HP 1 (latest edition) Grade C.

3.4.1.18 Exposed Interior Surfaces, Opaque Finish

- a) Opaque finish permits substrates of MDF, MDO, closed-grain hardwood veneer, or solid stock.

3.4.1.19 Semi-Exposed Surfaces, Opaque Finish

- a) Opaque finish permits substrates of MDF, MDO, closed-grain hardwood veneer, or solid stock.

3.4.2 Doors

- a) This section applies to doors less than 34.9 mm [1.375"] thick.
- b) Door thicknesses of 34.9 mm [1.375"] or greater shall be governed by the ANSI/WDMA I.S.1A (latest edition) and ANSI/WDMA I.S.6A (latest edition) Architectural Door Standards, as applicable. Doors and casework utilizing such doors are not subject to the tolerances and conditions contained within this AWI standard.
- c) When veneer cores are specified for doors, they may be susceptible to warp and shall not be subject to warp/flatness tolerances contained within this standard.
- d) Grained or patterned faces on doors shall be vertical.
- e) Solid wood doors are not permitted, except at stile and rail doors.

3.4.2.1 Doors, Hinged

- a) Hinges shall align horizontally when adjacent and exposed.
- b) At flush overlay, wrap-around hinges shall be let into the edge of the door to maintain proper gap tolerance (See Figure 33). The resulting notching for hinges is not required to be finished.
- c) At reveal overlay, wrap-around hinges are not required to be let into the edge of the door (See Figure 34).
- d) At reveal overlay, the reveal shall be determined by the hinge clearance requirements (See Figure 35).

3.4.2.2 Doors, Sliding

- a) Interior and exterior faces of sliding doors shall be of the same thickness and material.
- b) Thickness of wood and/or decorative laminate doors shall be a minimum of 6.4 mm [.250"] for doors 610 mm [24"] and under in height or 19.1 mm [.750"] for doors over 610 mm [24"] in height.
- c) Sliding doors more than 1.5 times as tall as they are wide shall be mounted with an overhead metal track and roller hanger to prevent tipping and binding.
- d) In hanging track systems, exposed tracks are permitted.
- e) Frameless glass sliding doors require formed or extruded tracks.
- f) Thickness of frameless glass sliding doors shall be a minimum of 6.4 mm [.250"] tempered or laminated glass at the option of the manufacturer/supplier.
- g) Frameless glass sliding doors shall have exposed edges flat polished.

3.4.2.3 Doors, Stile and Rail

- a) Moulded profile (sticking) shall be at the option of the manufacturer/supplier.
- b) Stile and rail components shall be a minimum of 38.1 mm [1.500"] in width.
- c) Stiles shall run the full height of the door.
- d) Rails, including top, intermediate, and bottom, shall run between stiles.
- e) Grain or directional pattern shall run vertically on stiles and horizontally on rails.
- f) At panels, direction of grain or pattern shall run vertically and adjacent door panels for transparent finish shall match for color.
- g) When solid stock is used with veneer panels solid stock and veneer panel shall be compatible for color.
- h) Flat panels shall be a minimum of 6.4 mm [.250"] thick.
- i) At flat panels, edge glued solid stock is permitted if a minimum of 12.7 mm [.500"] thick and is 350 mm [13.75"] wide or less.
- j) At raised panels edge glued solid stock is permitted for panels 350 mm [13.75"] wide or less.
- k) Regardless of retention method, panels shall have adequate space to move, float, expand or contract as a result of ambient humidity changes.
- l) Applied moulding shall be securely attached. Fasteners shall be inconspicuous.
- m) Cores of panel product materials shall not be exposed.

3.4.2.4 Doors, Glazed

- a) At opaque finish and decorative laminate doors, stops shall be synthetic or solid stock and compatible color to exposed interior surfaces.
- b) At transparent finish doors, stops shall be synthetic or solid stock of compatible species to adjacent surfaces and compatible color to exposed interior surfaces.
- c) Stops shall be continuous, removable, and on the interior only.
- d) Mechanically fastened glass clips (See Figure 32) are permitted in lieu of continuous stops when installed per clip manufacturer/supplier documented instructions.
- e) Continuous silicone or glazing putty used as a stop is permitted.
- f) Exposed rabbet shall be painted or stained compatible to the exposed interior surface.

3.4.3 Drawers

- a) [Drawer box materials shall be at the option of the manufacturer/supplier provided the assembled drawer meets the specified Performance Duty Level and the requirements set forth herein.](#)
- b) Drawer boxes (including trays and sliding bins) of solid wood or veneer are required to be finished with a finishing technology per AWI Finishing Standard (latest edition), of the manufacturer/supplier's choice.
- c) Drawer box shall be fitted to the cabinet to allow no more than ~~101.6 50.8~~ mm [4~~2~~] of clearance between the back of the drawer box and the interior face of the rear panel of the cabinet body with a drawer box maximum length of 558.8 mm [22"].

Drawer boxes greater than 558.8 mm [22"] may be supplied at the option of the manufacturer/supplier. (See Figure 72-A)

- d) Drawer box shall be fitted to the cabinet to allow no more than 38.1 mm [1.500"] of clearance between the top of the drawer box and the stretcher or structural component above (See Figure 72-B).

3.4.3.1 Drawer Boxes, Decorative Laminate

- a) At HPDL or TFL drawer box joinery, visible core shall be edgebanded, painted, or stained to match drawer side.

3.4.3.2 Drawer Boxes, Systems

- a) Drawer box systems shall be assembled in accordance with manufacturer/supplier's documented instructions.

- b) Wood components shall meet semi-exposed requirements within this standard or be compatible for color with drawer box system at the option of the manufacturer/supplier.

3.4.3.3 Drawer Fronts and False Fronts Exposed Interior Surfaces, Transparent Finish

- a) Grained or patterned faces~~Drawer fronts and false fronts~~ shall run either vertically or horizontally at the option of the manufacturer/supplier and shall be consistent throughout entire project. (See Figure 20 and Figure 22)
- b) Horizontal grain for solid wood drawer fronts is permitted.

3.4.3.4 Drawer Fronts, Stile and Rail

- a) Grained or patterned faces on drawer fronts shall run either vertically or horizontally at the option of the manufacturer/supplier and shall be consistent throughout entire project. (See Figure 18 and Figure 19)

3.4.4 Shelves

- a) Grain or directional pattern of the surface shall run parallel to the width of the cabinet.

3.4.4.1 Shelves, Fixed

- a) Thickness shall be uniform at each elevation or connected elevations in open casework.

3.4.4.2 Shelves, Adjustable

- a) Minimum shelf depth shall be 6.4 mm [.250"] less than the interior cabinet depth.
- b) Minimum shelf length shall be (See Figure 36) 3.2 mm [.125"] less than the interior cabinet width plus any additional offset created by the shelf rests used.
- c) Bored-hole shelf rest systems shall extend vertically to within 152.4 mm [6"] of the interior top and bottom of the cabinet shelf space.
- d) Metal shelf standards shall be recessed in a plow with the face slightly proud of the cabinet side surface with the core not exposed.
- e) Metal shelf standards shall extend vertically to within 152.4 mm [6"] of the interior top and bottom of the cabinet shelf space.

3.4.5 Dividers

- a) Shall permit the use of hardboard if tempered and smooth on both sides.

3.4.6 Other

3.4.6.1 Presentation Panels

- a) Casework surfaces that are behind sliding presentation panels or removable presentation panels (such as marker and tack boards) shall be treated as semi-exposed surfaces.

3.4.6.2 Cut-Outs

- a) Shall have a minimum 6.4 mm [.250"] radius at inside corners.
- b) At cut-outs and corresponding access panels creating a perimeter reveal greater than 3.2 mm [.125"] wide, edges shall be painted or edgebanded.

3.4.6.3 Scribed Fillers and Closure Panels

- a) Aesthetic requirements of installed scribed fillers, scribed mouldings, scribed allowances, and closure panels shall be in accordance with ANSI/AWI 0620 Finish Carpentry/Installation (latest edition).
- b) Casework shall be scribed to finished walls and/or ceilings at voids between cabinets and adjacent walls and/or ceilings using scribed fillers, scribed mouldings, scribed allowances, scribed closure panels, scribed corner closure panels or HPDL closures.
- c) Scribed fillers (See Figure 8) and scribed mouldings (See Figure 9) shall have a maximum installed width of 76.2 mm [3"].
- d) Scribed fillers and closure panels shall be a minimum of 6.4 mm [.250"] thick, except at HPDL closures where permitted (See Figure 41). HPDL closure thickness shall be at the option of the manufacturer/supplier.
- e) Exposed material shall match exposed surfaces and be furnished by the manufacturer/supplier.
- f) For scribed allowance options, see Figure 10.
- g) Voids less than 76.2 mm [3"] in width at the top and bottom of a cabinet shall have scribed closure panels (See Figure 42). HPDL closure (See Figure 41) is permitted at the top of a cabinet when above 2032 mm [80"] unless visible from above.
- h) Voids in width greater than or equal to 76.2 mm [3"] at the top and bottom of a cabinet shall have scribed closure panel (See Figure 42) or scribed corner closure panel (See Figure 103)
- i) Voids at inside corners where two elevations of casework meet shall use scribed inside corner fillers (See Figure 104) and be equal in width and not wider than 76.2 mm [3"] unless required for cabinet operation.

3.4.6.4 Soffit and Fascia Panels

- a) Joints are not permitted in material less than 2438 mm [96"] of horizontal grain or directional pattern and 1219 mm [48"] of vertical grain or directional pattern.
- b) Soffit and fascia panels shall be a minimum of 12.7 mm [.500"] thick.
- c) At fascia panels, grain direction shall be at the option of the manufacturer/supplier and shall be consistent throughout the entire project.
- d) Where soffit and fascia panels meet, grain direction shall be continuous.

3.4.7 Edges, Exposed and Semi-Exposed

- a) Edgebanding is required.
- b) Top edge of the cabinet ends less than 2032 mm [80"] above the floor shall be edgebanded with material well matched to the exposed exterior surface.
- c) Bottom edges of wall cabinet ends and light valances shall be edgebanded with material well matched to the exposed exterior surface.
- d) Bottom edges of aprons shall be edgebanded with material well matched to the exposed exterior surface.
- e) Edgebanding grain direction shall run parallel to the long direction of the edge regardless of grain and/or pattern of the panel surface.
- f) T-moulding only if specified.
- g) At exposed surfaces, dadoes or lock joints shall not run through the edgebanding.
- h) The sequence of edge/face lamination shall be at the option of the manufacturer/supplier. Sequence of edge/face lamination shall be consistent throughout the project.

3.4.7.1 Edges, Decorative Laminate Casework (Assembled Unit Including Doors and Drawer Fronts)

- a) Edges shall be HPDL, PVC, or ABS a minimum of .5 mm [.018"] thick and maximum of 3 mm [.118"] at the option of the manufacturer/supplier.
- b) PVC and ABS edgebanding thicker than 1 mm [.039"] shall be radiused or beveled on edges and corners.
- c) PVC and ABS shall be compatible for color well-matched to the exposed exterior surface.
- d) HPDL edgebanding shall match exposed surfaces.

3.4.7.2 Edges, Transparent Finish Casework (Assembled Unit Including Doors and Drawer Fronts)

- a) Edgebanding on exposed edges is required and shall be compatible for color and grain with exposed surfaces.
- b) Exposed edges shall be edgebanded with solid wood, veneer, or veneer tape a minimum of .5 mm [.018"] thick to match the exposed exterior surface.
- c) Veneer tape edgebanding thicker than 1 mm [.039"] be shall be radiused or beveled on edges and corners.
- d) Finger joints in veneer tape used as edgebanding are permitted.

3.4.8 Edges, Doors

- a) At edgebanding thickness less than 6.4 mm [.250"], the sequence of applying edgebanding shall be at the option of the manufacturer/supplier.
- b) Wood edgebanding thickness greater than or equal to 6.4 mm [.250"] on face shall be mitered.
- c) At back-beveled edges, edgebanding shall be specified.
- d) Doors shall be edgebanded at all four edges except when back-beveled or when composed of solid wood.

3.4.8.1 Edges, Opaque Finish Doors

- a) All edges shall be filled or edgebanded.

3.4.8.2 Edges, Sliding Doors

- a) Top and bottom edges are concealed and not required to be edgebanded or filled.
- b) Vertical edges are considered exposed and shall be edgebanded.

3.4.8.3 Edges, Stile and Rail Doors

- a) Doors manufactured/supplied from panel products shall be edgebanded or finished to match exposed surfaces.

3.4.8.4 Edges, Glass Doors

- a) Exposed edges at frameless glass doors shall be flat polished.

3.4.9 Edges, Drawers

3.4.9.1 Edges, Drawer Fronts and False Fronts

- a) At edgebanding thickness less than 6.4 mm [.250"], the sequence of applying edgebanding shall be at the option of the manufacturer/supplier.

- b) Wood edgebanding thickness greater than or equal to 6.4 mm [.250"] on face shall be mitered.
- c) At back-beveled edges, edgebanding shall be specified.
- d) Drawer fronts and false fronts shall be edgebanded at all four edges except when back-beveled or when composed of solid wood.

3.4.9.2 Edges, Opaque Finish Drawer Fronts

- a) All edges shall be filled or edgebanded.

3.4.9.3 Edges, Transparent Finish Drawer Boxes

- a) Top edges of drawer box shall be edgebanded.
- b) At veneer core of seven-ply or more with no voids, edgebanding is not required.
- c) Edgebanding shall match drawer side surface.

3.4.9.4 Edges, Opaque Finish Drawer Boxes

- a) Top edges of drawer box shall be filled and sanded smooth or edgebanded.

3.4.9.5 Edges, Decorative Laminate Drawer Boxes

- a) Top edges of drawer box shall be edgebanded.
- b) Edgebanding shall match drawer box color.

3.4.9.6 Edges, Solid Wood Drawer Boxes

- a) Drawer edges shall be profiled at the option of the manufacturer/supplier.

3.4.10 Edges, Shelves

3.4.10.1 Edges, Adjustable Shelves

- a) Edges at semi exposed surfaces shall match interior or exterior surfaces at the option of the manufacturer/supplier.
- b) If the gap between the end of a shelf and the interior cabinet body exceeds 6.4 mm [.250"], both ends of the shelf shall be edgebanded.

3.4.10.2 Edges, Pullout Shelves

- a) Edges of writing or utility shelves shall be edgebanded with a material compatible for color to the exposed interior surface.

3.4.11 Tolerances

3.4.11.1 Machining, Exposed and Semi-Exposed Surfaces

- a) Machining rules for exposed and semi-exposed surfaces shall comply with the following smoothness requirements.
- b) Sharp edges shall be eased.
- c) Flat wood surfaces which can be sanded require a minimum of 120 grit sanding.
- d) Profiled and shaped wood surfaces require a minimum of 20 KMPI or 120 grit sanding.
- e) Turned wood surfaces require a minimum of 120 grit sanding.
- f) Visible sanding marks, excluding turned surfaces, shall be inconspicuous.
- g) Tear out, nicks, or hit and miss machining is not permitted.
- h) Glue or [joint](#) filler ([putty](#)) shall be inconspicuous and match the adjacent surface for smoothness.

3.4.11.2 Machining, HPDL, PVC, and Prefinished Wood

- a) Edges shall be machined flush and filed, sanded, or buffed to remove machine marks and sharp edges.

Overlap (See Figure 23, F) shall not exceed .1 mm [.004"] for a maximum length of 25.4 mm [1"] in any 610 mm [24"] run.

- c) Chip-out (See Figure 24, G) in area G shall be inconspicuous.
- d) Over-machined (See Figure 25, H) removal of color or pattern of face material shall be limited to .8 mm x 76.2 mm [.031" x 3"] and shall not occur within 1524 mm [60"] of a similar occurrence.

3.4.11.3 Edge and Face Alignment

- a) Doors, drawer fronts, and false fronts shall be properly sized to permit edge alignment between doors and adjacent drawers.
- b) Edge alignment of doors and drawers (See Figure 30-N), in both the vertical and horizontal plane, shall not exceed 1.2 mm [.047"].
- c) Doors and drawers shall align on the same flat plane as one another (See Figure 30-J) with a variance not to exceed 1.6 mm [.063"].

3.4.11.4 Maximum Uniform Gap Variance, Reveal Overlay Frameless

- a) In reveal overlay frameless construction, the maximum uniform reveal (See Figure 43) within a cabinet elevation, between any edge of a door and/or drawer and another door and/or drawer or finished end, and doors hung in pairs, shall be as specified. If not specified, the following conditions shall apply (See Figure 43):
 - "X" shall be 3.2 mm [.125"], subject to a maximum uniform variance of \pm 1.6 mm [.063"].
 - "Y" shall be determined by the hinge overlay.
 - "Z" varies from 3.2 mm [.125"] to 9.6 mm and shall be consistent across elevations (See Figure 15).

3.4.11.5 Maximum Uniform Gap Variance, Flush Overlay Frameless

- a) In flush overlay frameless construction, the maximum uniform reveal (See Figure 44) within a cabinet elevation, between any edge of a door and/or drawer and another door and/or drawer or finished end, and doors hung in pairs, shall be as specified. If not specified, the following conditions shall apply (See Figure 44):
 - "X" shall not exceed 3.2 mm [.125"].
 - "Y" shall not exceed 1.6 mm [.063"].
 - "X" and "Y" are subject to a maximum uniform variance of \pm 1.6 mm [.063"].

"Z" varies from 3.2 mm [.125"] to 9.6 mm and shall be consistent across elevations (See Figure 15).

3.4.11.6 Maximum Uniform Gap Variance, Reveal Overlay Face Frame Construction

- a) In reveal overlay face frame construction, the maximum uniform reveal (See Figure 45) within a cabinet elevation, between any edge of a door and/or drawer and another door and/or drawer or cabinet component, and doors hung in pairs, shall be as specified. If not specified, the following conditions shall apply (See Figure 45):
- “X” shall not exceed 3.2 mm [.125”], subject to a maximum uniform variance of ± 1.6 mm [.063”].
 - “Y” shall be as specified, indicated, or agreed. “Z” varies from 6.4 mm [.250”] to 25.4 mm [1”] and shall be consistent across elevations (See Figure 16).

3.4.11.7 Maximum Uniform Gap Variance, Inset Face Frame Construction

- a) At inset face frame construction, the maximum uniform reveal (See Figure 46) within a cabinet elevation, between any edge of a door and/or drawer and another door and/or drawer or cabinet component, and doors hung in pairs, for “X” shall not exceed 3.2 mm [.125”], subject to a maximum uniform variance of ± 1.6 mm [.063”].
- b) “Y” and “Z” shall be as specified, indicated or agreed.

3.4.11.8 Flatness and Warp

- a) Flatness and warp (See Figure 5-E) shall not exceed the tolerances indicated below in the diagonal or width and/or length as a linear ratio.
- b) Flatness of installed and removable sheet products (See Figure 5, E), including doors, shall not exceed 1.2 mm [.047”] per linear 305 mm [12”].
- c) Flatness and warp tolerances of cabinet doors shall not exceed a maximum of 6.4 mm [.250”] in any single door.
- d) Measurements for flatness and warp shall be taken on the concave face of the panel.

4.0 Figures / Illustrations

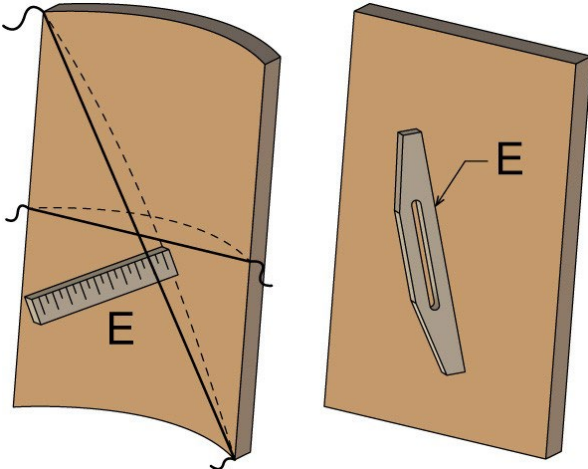


Figure 5 – Flatness and Warp Measurement

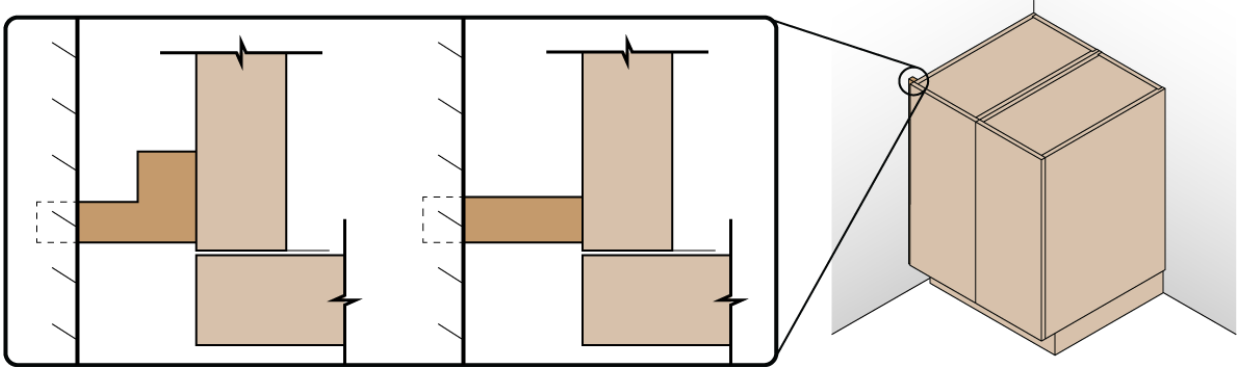


Figure 8 - Scribed Filler

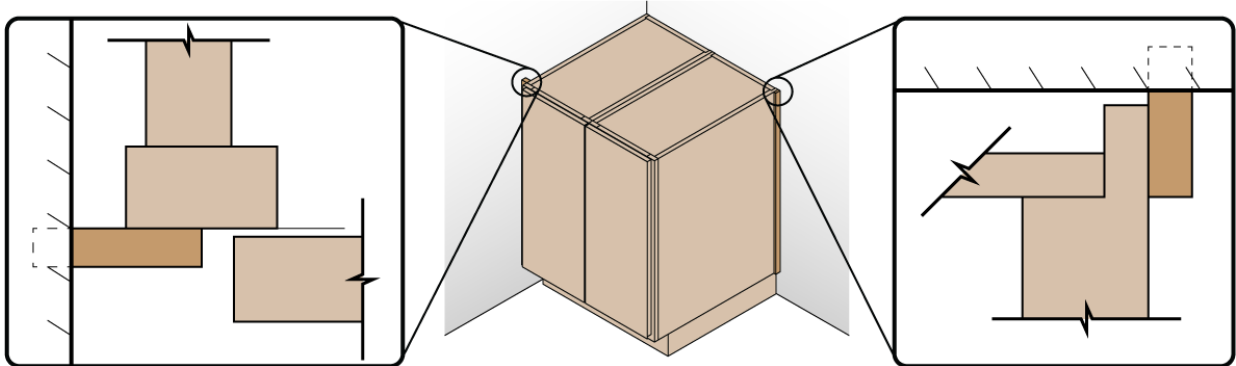


Figure 9 - Scribed Moulding

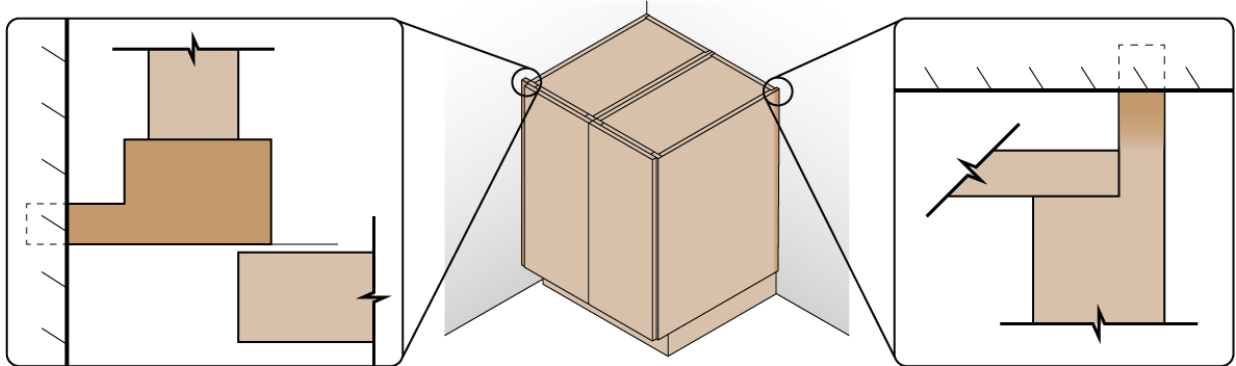


Figure 10 - Scribed Allowance

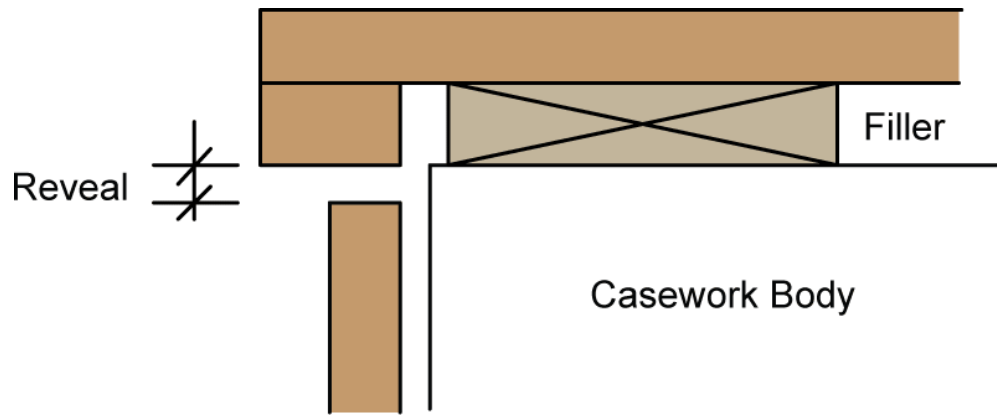


Figure 15 – Frameless Construction Reveal

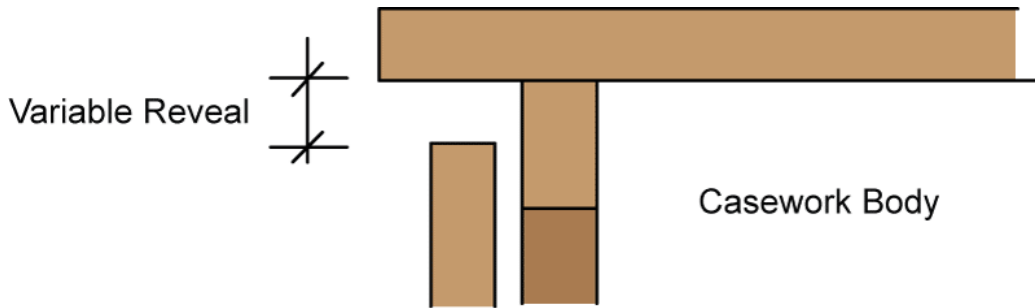


Figure 16 – Face Frame Construction Reveal

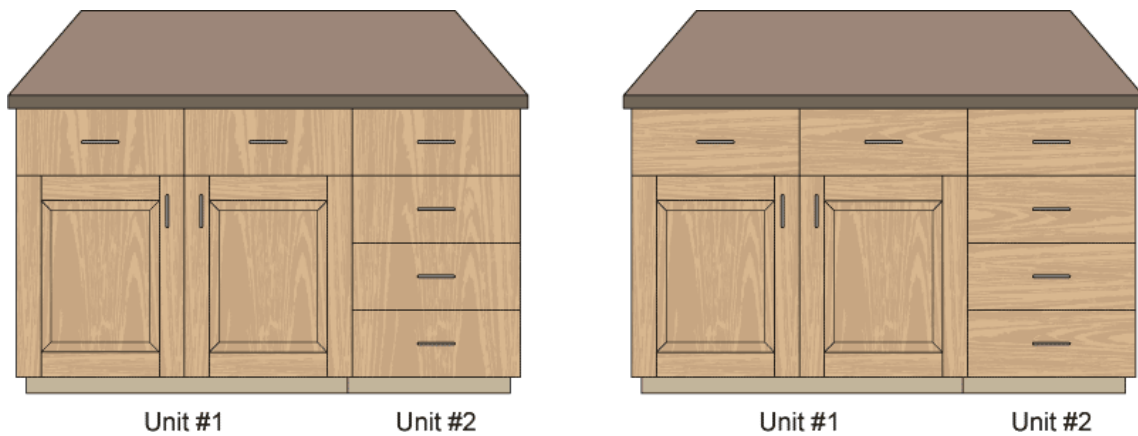


Figure 18 – Grain Layout, Stile and Rail 1



Unit #1

Unit #2

Figure 19 – Grain Layout, Stile and Rail 2



Unit #1

Unit #2

Figure 20 – Grain Layout, Flush Panel, Vertical Drawer Fronts

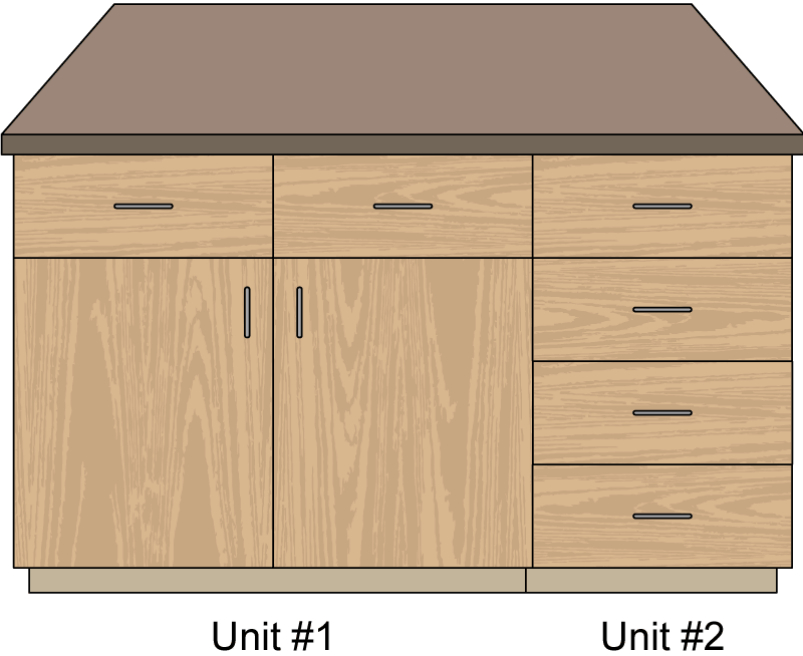


Figure 22 - Grain Layout, Flush Panel, Horizontal Drawer Fronts

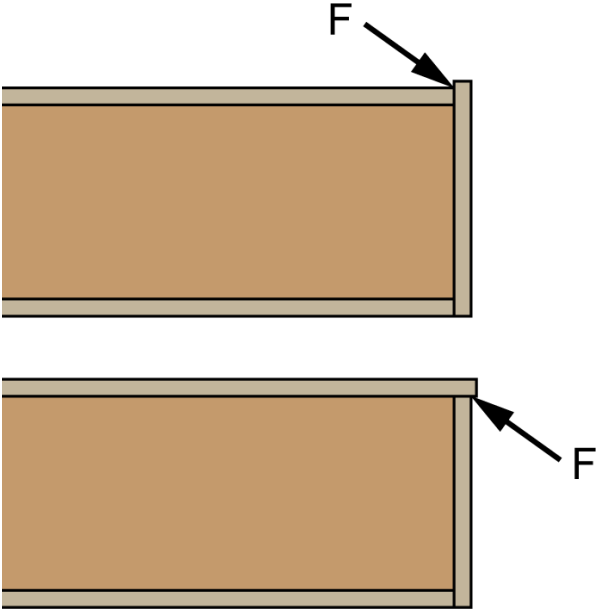


Figure 23 - Overlap

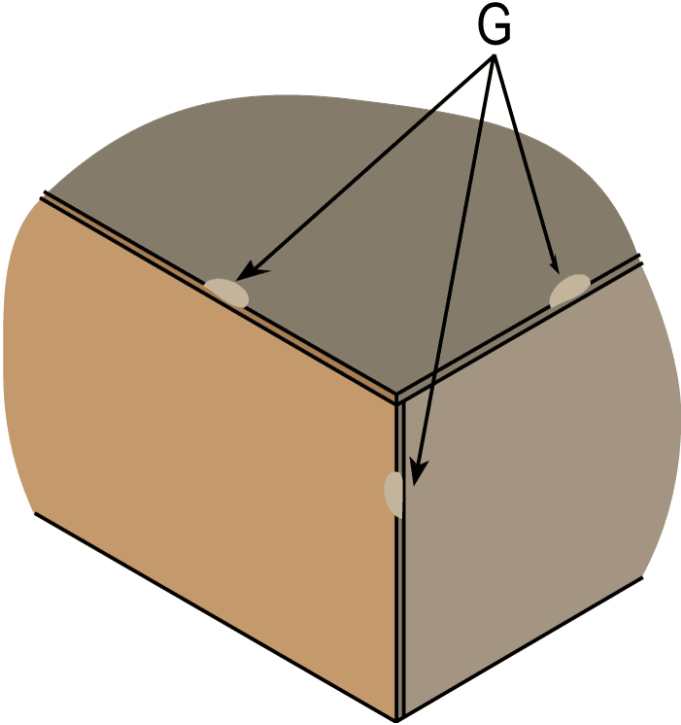


Figure 24 – Chip-Out

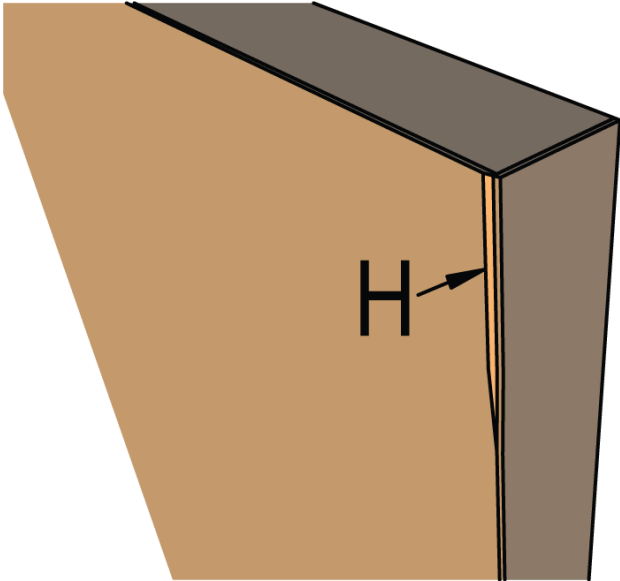


Figure 25 – Over-Filing / Over-Machining

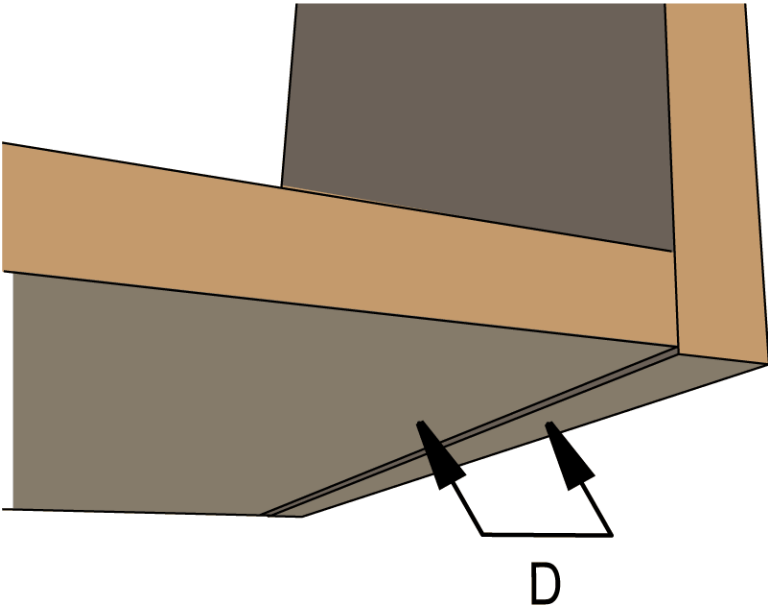


Figure 26 – Flushness Variations, Exposed and Semi-Exposed

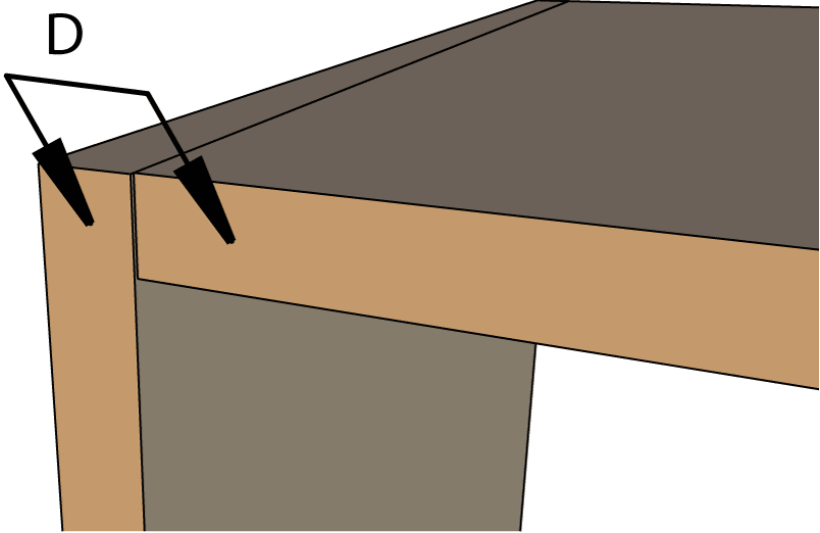


Figure 27 – Flushness, Fixed Horizontal

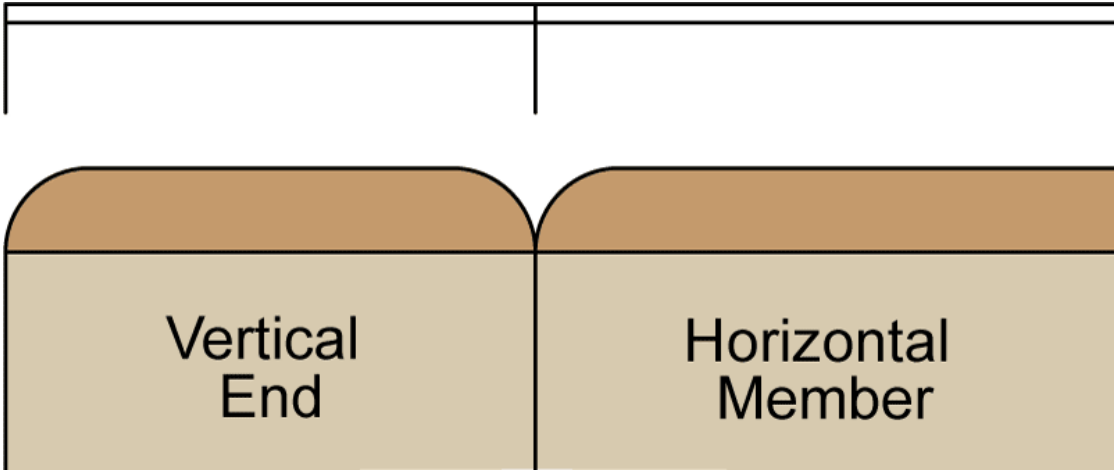


Figure 28 – Radius, Beveled, or Square Edges

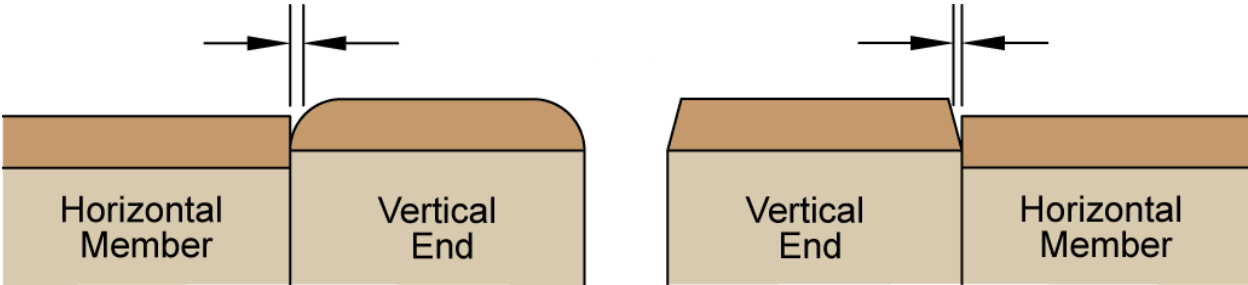


Figure 29 – Radius and Square Edges

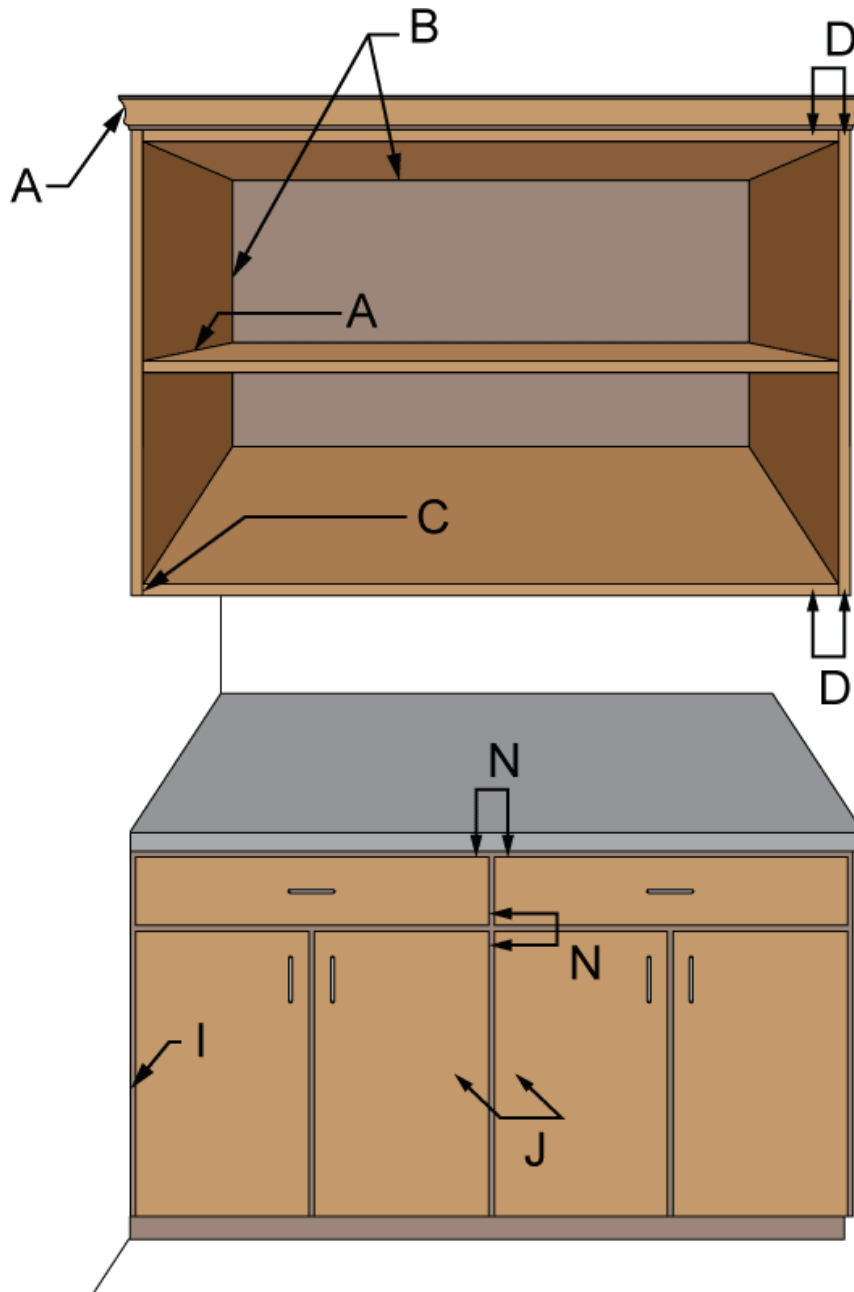


Figure 30 – Gaps and Flushness, Casework

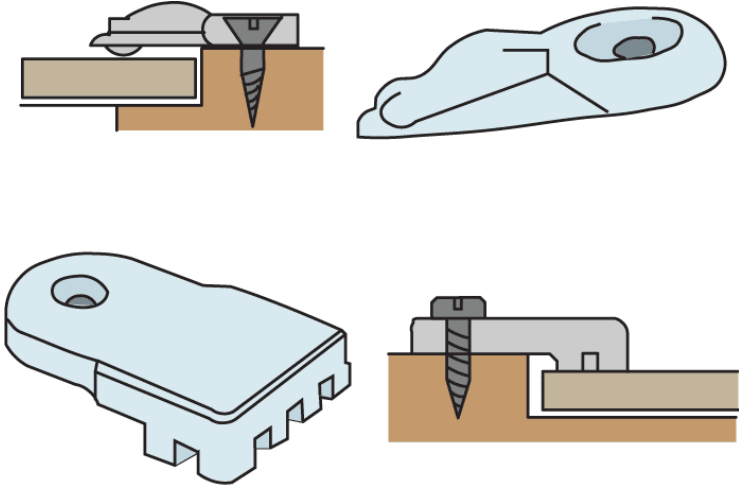


Figure 32 – Glass Clips

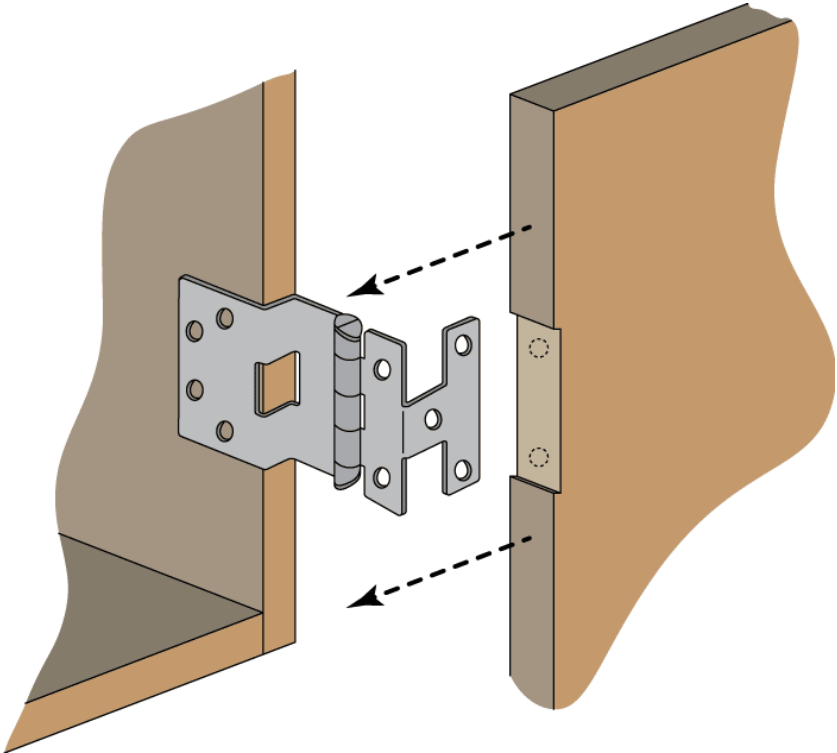


Figure 33 – Wrap-Around Hinges, Flush Overlay

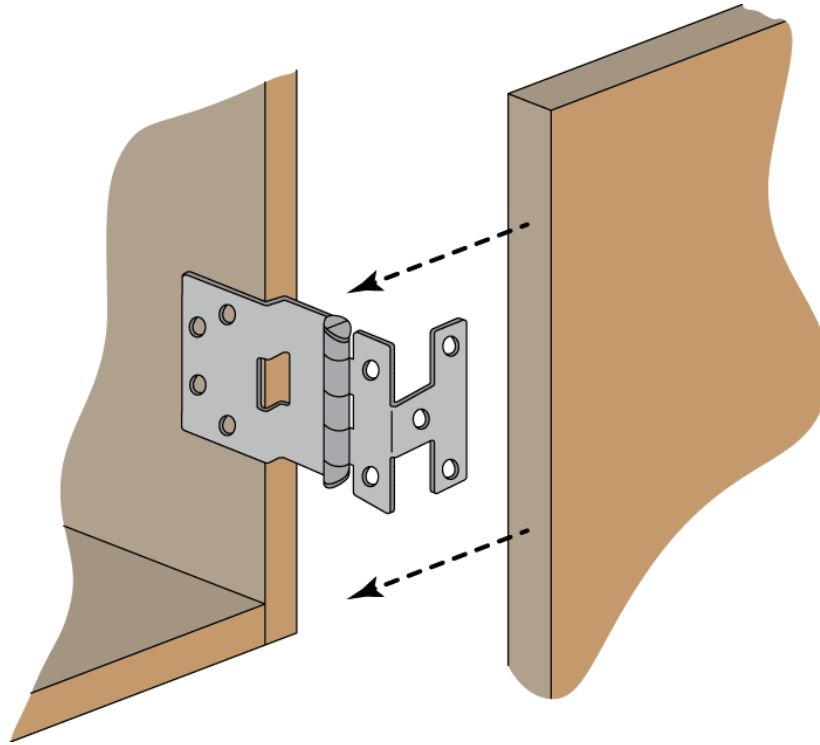


Figure 34 – Wrap-Around Hinges, Reveal Overlay

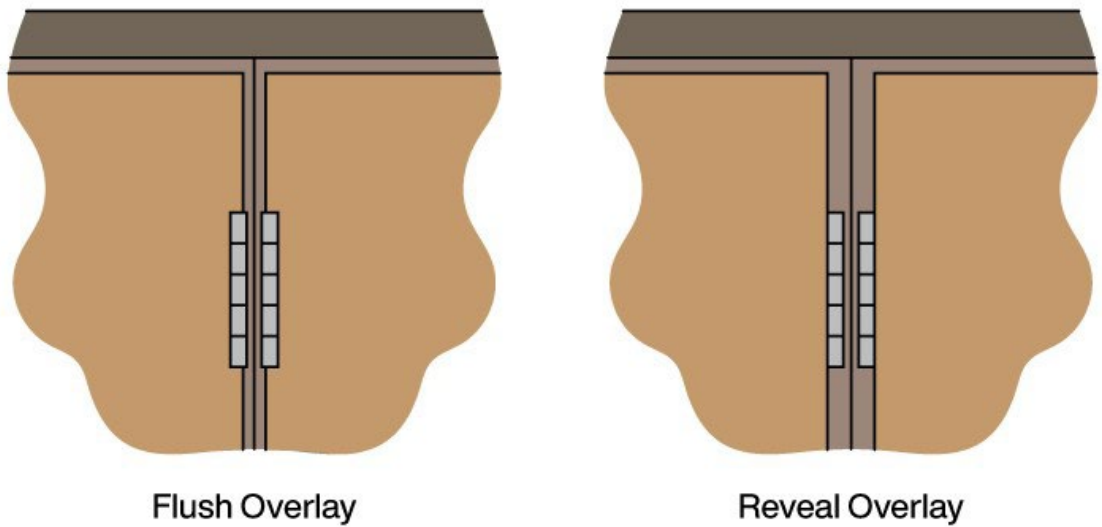


Figure 35

5.0 Supplemental Information

5.1 Glossary

- a) The Architectural Woodwork Institute Glossary can be found at:
www.awinet.org/standards/glossary

5.2 Design Professional Responsibilities

- a) Examine product technical data sheets to determine if material performance (e.g. scratch and wear resistance) is appropriate for project.

5.2.1 Requirement Specifications

- a) Glass type, thickness, and edge treatment of glass shelving.
- b) Door and drawer front Interface style.
- c) Door and drawer front edge profile.
- d) Toe kick finish.
- e) Grain direction, if other than vertical.
- f) Interior clearance.
- g) Seismic fabrication and/or installation.
- h) Flame spread rating.
- i) Moisture resistance.
- j) Insulation from adjacent heating and cooling sources.
- k) Hardware.

5.2.1.1 Wood Casework

- a) Species of veneer.
- b) Method of slicing (plain, quarter, rift, or rotary).
- c) Matching of veneer leaves (book, slip, or random).
- d) Matching of veneer leaves within the face of a cabinet unit.
- e) Matching between doors, drawers, and adjacent panels (non-sequenced, sequenced, or blueprint).
- f) End matching.
- g) Grain direction, if other than vertical.

5.3 Surface Categories

5.3.1 Exposed Exterior

- a) Defined as all exterior surfaces exposed to view, including:
- All surfaces visible when doors and drawers are closed, including knee spaces.
 - Underside of cabinet bottoms over 1067 mm [42"] above the finished floor, including cabinet bottoms behind light valances and the bottom edge of light valances.
 - Cabinet tops under 2032 mm [80"] above the finished floor, or if 2032 mm [80"] and over and visible from an upper building level or floor.
 - Front edges of stretchers, ends, divisions, tops, and bottoms. ● Sloping tops of cabinets that are visible.

5.3.2 Exposed Interior

- a) Defined as all interior surfaces exposed to view in open casework or behind transparent doors, including:
- Shelves, including edgebanding.
 - Divisions (front edge is an exposed surface).
 - Interior face of ends (sides), backs, and bottoms (including pull outs). Also included are the interior surfaces of cabinet top members 914 mm [36"] or more above the finished floor.
 - Interior face of door and applied drawer fronts.

5.3.3 Semi-Exposed

- a) Defined as those interior surfaces only exposed to view when doors or drawers are opened, including:
- Tops and bottoms of shelves, including front edgebanding.
 - Divisions (front edge is an exposed surface).
 - Interior face of ends (sides), backs, and bottoms (including a bank of drawers). Also included are the interior surfaces of cabinet top members 914 mm [36"] or more above the finished floor.
 - Drawer sides, sub fronts, backs, and bottoms.
 - The underside of cabinet bottoms between 610 mm [24"] and 1067 mm [42"] above the finished floor.
 - Security panels or drawer stretchers.

5.3.4 Concealed

- a) Defined as those exterior or interior surfaces that are covered or not normally exposed to view, including:
- Toe spaces.
 - Sleepers, stretchers, and solid sub tops.
 - The underside of cabinet bottoms less than 610 mm [24"] above the finished floor.
 - The flat tops of cabinets 2032 mm [80"] or more above the finished floor, except if visible from an upper floor or building level.
 - The three non-visible edges of adjustable shelves.
 - The underside of knee spaces, aprons and drawer boxes that are less than 914 mm [36"] above the finished floor.
 - The faces of cabinet ends of adjoining units that butt together.

5.4 References

- A. ANSI/HPVA HP-1 (latest edition)
- B. ASTM D1037 (latest edition)
- C. ANSI/WDMA I.S.1A (latest edition)
- D. ANSI/WDMA I.S.6A (latest edition)
- E. ANSI Z97.1 (latest edition)
- F. ANSI/AWI 0620 - Finish Carpentry/Installation (latest edition)
- G. AWI 300 - Materials (latest edition)
- H. AWI Finishing Standard, latest edition
- I. AWI Casework Installation Guidelines
- J. AWI Tested and Approved Methods and Materials for Casework Construction
- K. ANSI/BHMA Standards (latest edition)
- L. ANSI/BHMA A156.9 (latest edition)
- M. ISO 4586-2 (latest edition)