

Proposed AWI Standard for Wood Paneling

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1.0 Purpose

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

2.0 Scope

- a) Provides aesthetic and structural performance standards for wall and ceiling surface paneling composed of solid wood, wood veneer applied to core materials, decorative laminate clad panels, solid surface, and solid phenolic. Includes standards for matching of veneers and panels within building areas.

2.1 Included

- a) Product as specified within the following sections per CSI's MasterFormat:
 - 06 42 00 Wood Paneling
 - 06 42 13 Wood Board Paneling
 - 06 42 14 Stile and Rail Wood Paneling
 - 06 42 16 Flush Wood Paneling
 - 06 42 19 Plastic Laminate Faced Wood Paneling
- b) Additional materials:
 - Solid Surface
 - Solid Phenolic

2.2 Not Included

- a) Installation of Product.
- b) 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.
- c) Product as specified under CSI MasterFormat Section 06 25 00.
- d) Design, engineering, specifications and drawings for paneling assembly anchorage and/or suspension.

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 aesthetic grades.
- 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 International System of Units (SI) followed by the United States customary system of measurement in brackets.
- b) The system of measurement used in the project’s original contract documents and architectural drawings shall dictate which system of measurement within these standards is used for verification of compliance.
- c) The United States customary measurement is typically a “soft” conversion of the SI measurement. In order to make the SI 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:

Premium	Custom	Economy
610 mm [24”]	1219 mm [48”]	1829 mm [72”]

- 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 specified in the contract documents.
- b) Requirements for Product, such as moisture resistant or fire-retardant materials,

shall be specified in the contract documents.

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 and Storage (latest edition).

3.1.4 Manufacturer/Supplier Requirements for Installation

- a) Manufacturer/supplier shall provide documented instructions for Product installation, fastening/joinery methods, instructions, and fastener details for attachment to adjacent panels and/or components.
- b) Installation of Product shall be in accordance with ANSI/AWI 0620 - Finish Carpentry/Installation (latest edition).
- c) Manufacturer/supplier shall provide drawings indicating location of blocking. See AWI 100 - Submittals (latest edition).
- d) Expansion joints shall be provided per manufacturer/supplier's documented instructions and ANSI/AWI 0620 - Finish Carpentry and Installation (latest edition).

3.1.5 Default Performance Requirements

- a) Unless otherwise specified, Product shall comply with the following minimum defaults:
 - Aesthetic Performance: Custom Grade

3.2 Material

- a) Materials used for the construction of Product covered within the scope of this standard shall adhere to the requirements set forth in AWI 300 - Materials (latest edition).
- b) Materials used for the same purpose, within the scope of this standard, shall be consistent throughout a project.
- c) Installation furring and concealed structural framing on wall/ceiling surface, shall be used as required and be in accordance with applicable codes and regulations.
- d) Glass used in conjunction with panel products shall be in accordance with ANSI Z97.1 (latest edition).
- e) Solid wood, veneer and decorative laminate panels shall have a minimum overall thickness of 18 mm [.709"].

3.2.1 Veneer

- a) Adjacent panels shall be sequenced within a set.
- b) Panel width within a pre-manufactured set may vary at make-up/remainder panels.
- c) Made-to-order panel sets shall be required only if specified.
- d) End-matched panel sets shall be required only if specified.
- e) Blueprint-matched panel sets shall be required only if specified.

3.2.2 Stile and Rail

3.2.2.1 Stiles and Rails

- a) Shall be a minimum thickness of:

Premium	Custom	Economy
18 mm [.709"]	18 mm [.709"]	11.5 mm [.453"]

- b) At transparent finish shall be solid wood or veneer.
- c) At opaque finish shall be:

Premium	Custom	Economy
MDF, closed-grain hardwood veneer, or closed-grain solid wood	MDF, closed-grain hardwood veneer, or closed-grain solid wood	At the option of the manufacturer/supplier

3.2.2.2 Flat Panels

- a) Shall be a minimum of 11.5 mm [.453"] thick.
- b) Solid wood panels shall be:

Premium	Custom	Economy
Not permitted	Edge glued solid wood is permitted with a maximum width of 350 mm [13.780"]	Edge glued solid wood is permitted with a maximum width of 350 mm [13.780"]

- c) Veneer panels shall be:

Premium	Custom	Economy
Required at transparent finish; Permitted at opaque finish	Permitted	Permitted

- d) At opaque finish, MDF panels shall be permitted.

3.2.2.3 Raised Panel

- a) Panels shall be a minimum of 18 mm [.709"] thick.
- b) Solid wood panels shall be:

Premium	Custom	Economy
Not permitted	Edge glued solid wood is permitted with a maximum width of 350 mm [13.780"]	Edge glued solid wood is permitted with a maximum width of 350 mm [13.780"]

- c) Veneer panels shall be:

Premium	Custom	Economy
Required at transparent finish; Permitted at opaque finish	Permitted	Permitted

- d) Solid wood is permitted for rim banding raised panels if mitered and glued under pressure.
- e) At opaque finish, MDF raised panels shall be permitted.

3.2.3 Transparent Finish

- a) Solid wood and/or veneer shall be:

Premium	Custom	Economy
Of one species for the entire project	Of one species for the entire project	No species requirement

- b) Solid wood shall be:

Premium	Custom	Economy
Plain sawn	Plain sawn	At the option of the manufacturer/supplier

- c) Veneer slicing shall be:

Premium	Custom	Economy
Plain sliced	Plain sliced	At the option of the manufacturer/supplier

- d) Veneer face grade shall be:

Premium	Custom	Economy
ANSI/HPVA HP-1 (latest edition) Grade AA	ANSI/HPVA HP-1 (latest edition) Grade A	At the option of the manufacturer/supplier

- e) Veneer matching shall be:

Premium	Custom	Economy
Book matched and balanced within each panel face.	Book matched	At the option of the manufacturer/supplier

3.2.4 Opaque Finish

- a) Exposed Product shall be:

Premium	Custom	Economy
MDF, closed-grain hardwood, or closed-grain hardwood veneer ANSI/HPVA HP-1 (latest edition) minimum Grade B on MDF or particleboard core	MDF, closed-grain hardwood, or closed-grain hardwood veneer ANSI/HPVA HP-1 (latest edition) minimum Grade C on MDF or particleboard core	MDF, closed-grain hardwood, or closed-grain hardwood veneer ANSI/HPVA HP-1 (latest edition) minimum Grade D on MDF or particleboard core

3.2.5 Decorative Laminate

- a) Core material shall be particleboard, MDF, or combination core.
- b) HPDL or TFL shall meet a Resistance to Impact by Large Diameter Ball (ISO 4586-2-2018(E): Test 25) from a distance of 600 mm [23.622"].

3.2.6 Solid Surface

- a) Wall and ceiling surface applications shall be a minimum nominal thickness of:

Premium	Custom	Economy
12.7 mm [.500"]	6.4 mm [.250"]	6.4 mm [.250"]

3.2.7 Solid Phenolic

- a) Wall and ceiling surface applications shall be a minimum nominal thickness of 3.2 mm [.125"].

3.3 Structural

- a) Construction methods and materials shall be consistent throughout the project.
- b) Panels shall have adequate space to move, float, expand, and/or contract as a result of temperature and/or relative humidity changes.
- c) Retention mouldings are permitted at field joints and shall be secured to wall framing and/or in-wall blocking or sheathing.
- d) Assembled joints shall be securely attached with glue and/or mechanical fasteners.
- e) Cut outs and/or other related alterations shall maintain the structural integrity of sheet and panel products.
- f) Inside corners shall be furnished oversized for field fitting and installation.

3.3.1 Veneer

- a) Butt joints shall be Factory prepared with eased edges and required mechanical fasteners supplied.

- b) Reveal joints and corners shall be:

Premium	Custom	Economy
Factory prepared and machined for furnished reveal strips	Factory prepared and machined for furnished reveal strips	Factory prepared at the option of the manufacturer/supplier

- c) Field joints shall be:

Premium	Custom	Economy
Factory prepared with feature strips and joint trim furnished oversize for jobsite fitting	Factory prepared with feature strips and joint trim furnished oversize for jobsite fitting	Factory prepared at the option of the manufacturer/supplier

- d) Outside corner joinery, veneer faced, and MDF shall be:

Premium	Custom	Economy
Mitered	Mitered	At the option of the manufacturer/ supplier

e) Outside corners, when mitered, shall be:

Premium	Custom	Economy
Factory prepared and required mechanical fasteners supplied	Factory prepared and required mechanical fasteners supplied	Factory prepared at the option of the manufacturer/supplier

f) Mouldings incorporated onto individual panel faces shall be:

Premium	Custom	Economy
Factory applied	Factory applied	Applied at the option of the manufacturer/supplier

3.3.2 Stile and Rail

a) Panel assembly shall be factory assembled in sections as large as practical for field installation.

b) Butt joints shall be:

Premium	Custom	Economy
Factory prepared with eased edges and required mechanical fasteners supplied	Factory prepared with eased edges and required mechanical fasteners supplied	Factory prepared at the option of the manufacturer/supplier

c) Reveal joints and corners shall be:

Premium	Custom	Economy
Factory prepared and machined for furnished reveal strips	Factory prepared and machined for furnished reveal strips	Factory prepared at the option of the manufacturer/supplier

d) Field joints shall be:

Premium	Custom	Economy
Factory prepared	Factory prepared	Factory prepared at the option of the manufacturer/supplier

e) Solid wood outside corner joinery shall be:

Premium	Custom	Economy
Mitered	Mitered	At the option of the manufacturer/ supplier

f) Veneer faced and MDF outside corner joinery shall be:

Premium	Custom	Economy
Mitered	Mitered	At the option of the manufacturer/ supplier

g) Panel face veneer on raised panels may be applied before or after rim banding.

h) Outside corners, when mitered, shall be:

Premium	Custom	Economy
Factory prepared and required mechanical fasteners supplied	Factory prepared and required mechanical fasteners supplied	Factory prepared at the option of the manufacturer/supplier

i) Mouldings incorporated onto individual panel faces shall be:

Premium	Custom	Economy
Factory applied	Factory applied	Applied at the option of the manufacturer/ supplier

3.3.3 Decorative Laminate

a) Panel sizing shall be:

Premium	Custom	Economy
Factory sized, except where required for field fitting and installation	Factory sized, except where required for field fitting and installation	Factory sized at the option of the manufacturer/ supplier

b) Butt joints shall be:

Premium	Custom	Economy
Factory prepared with eased edges and required mechanical fasteners supplied	Factory prepared with eased edges and required mechanical fasteners supplied	Factory prepared at the option of the manufacturer/supplier

c) Reveal joints and corners shall be:

Premium	Custom	Economy
Factory prepared and machined for furnished reveal strips	Factory prepared and machined for furnished reveal strips	Factory prepared at the option of the manufacturer/supplier

d) Outside corners shall be:

Premium	Custom	Economy
Factory prepared and required mechanical fasteners supplied, with edges eased after assembly	Factory prepared and required mechanical fasteners supplied with edges eased after assembly	Factory prepared at the option of the manufacturer/supplier with edges eased after assembly

e) Inside corners of cut outs shall have a minimum 6.4 mm [.250"] radius.

3.3.4 Solid Surface

- a) Shall be fabricated according to sheet material manufacturer's recommendations.
- b) Expansion clearances shall be furnished where required by building design or by sheet material manufacturer's recommendations.
- c) Cutouts and inside corners shall be radiused in accordance with sheet material manufacturer's recommendations.
- d) Seamed joints shall be machined and assembled in accordance with sheet material manufacturer's recommended seaming procedures.

e) Joints shall be:

Premium	Custom	Economy
Seamed with compatible hard seam adhesive, where permitted by building design and sheet material manufacturer recommendations	Caulked with compatible color matched sealant, where permitted by building design and sheet material manufacturer recommendations	At the option of the manufacturer/ supplier, as permitted by building design and sheet material manufacturer recommendations

f) Where used, battens shall be a minimum of 6.4 mm [.250"] x 25.4 mm [1"].

3.3.5 Solid Phenolic

- a) Shall be fabricated according to sheet material manufacturer's recommendations.
- b) Seamed joints shall be machined and assembled in accordance with sheet material manufacturer's recommended seaming procedures.
- c) Seamed joints shall provide panel movement in both horizontal and vertical directions.

3.4 Aesthetic

- a) Aesthetic performance, in relation to this standard, refers to and is an evaluation of surfaces exposed following installation.
- b) The three levels of aesthetic grades are Premium, Custom, and Economy:

Premium Grade	Custom Grade	Economy Grade
The aesthetic grade defining the highest degree of control over materials, workmanship, and manufacture	The aesthetic grade defining a high degree of control over materials, workmanship, and manufacture	The aesthetic grade defining the minimum degree of control over materials, workmanship, and manufacture

- c) Cores shall not be exposed.
- d) Delamination and separation is not permitted.
- e) Final adjustments for gaps, flushness, and alignment shall be in accordance with ANSI/AWI 0620 - Finish Carpentry/Installation (latest edition).
- f) Vertical surfaces with a defined grain and/or directional pattern shall be fabricated and installed with the grain or pattern oriented vertically.
- g) Ceiling surfaces with a defined grain and/or directional pattern shall be fabricated and installed with the grain or pattern oriented parallel to the longest room dimension.
- h) Exposed surfaces shall be consistent for color, pattern, and/or wood species throughout the entire project.
- i) Exposed fasteners are not permitted, except at access panels. All other fasteners shall be inconspicuous.
- j) Fasteners, at exposed surfaces, shall be kept to a minimum, countersunk, filled, and compatible for color. Wherever possible, penetrate through quirks and/or reliefs.
- k) A maximum of 19.1 mm [.750"] reveal is permitted at the top of wall panels to allow lift on clearance of panel.
- l) Surfaces requiring factory finish shall be finished in accordance with ANSI/AWI 0400 Factory Finishing (latest edition).

3.4.1 Veneer, Transparent Finish

- a) Exposed surfaces of adjacent veneer panels shall be:

Premium	Custom	Economy
Well matched for color and grain	Compatible for color and grain	Compatible for color and grain

- b) Exposed surfaces of adjacent veneer and solid wood components shall be:

Premium	Custom	Economy
Well-matched for color and grain	Compatible for color and grain	Compatible for color and grain

- c) Visible end grain at exposed surfaces shall be:

Premium	Custom	Economy
Not permitted	Compatible for color and grain	At the option of the manufacturer/supplier

- d) Panels, when divided with veneer grain, shall be:

Premium	Custom	Economy
Aligned vertically and/or horizontally, with a maximum grain alignment variance of 3.2 mm [.125"]	Aligned vertically and/or horizontally, with a maximum grain alignment variance of 6.4 mm [.250"]	Aligned vertically and/or horizontally, at the option of the manufacturer/supplier

- e) Figure and/or heart progression shall be:

Premium	Custom	Economy
Uniform and natural between adjacent panels and shall not exceed 12.7 mm [.500"]	Uniform and natural between adjacent panels and shall not exceed 25.4 mm [1"]	At the option of the manufacturer/supplier

- f) Where veneer is machined through to create a reveal in the body of a panel, panels shall have solid wood let into the core before the veneer is applied; however, reveals of 3.2 mm [.125]" or less in width let into MDF to a maximum depth of one third of the core thickness do not require solid wood if finished same as exposed finish (See Figure 150).
- g) Bleed-through of adhesive at veneer joints that visually affect an applied finish are not permitted.
- h) Cathedral-type grain pattern shall be achieved by a single component in "AA" face grade or the split heart method in face grades "A - D" and each half of a split heart shall be subject to the minimum component width requirements for face grade "B."

3.4.1.1 Pre-Manufactured Veneer Panel Sets

- a) When more than one panel set (six to twelve panels) is required, sequence matching between sets is not required.
- b) When end-matched, full width panel sets shall maintain balance match.
- c) Panel sets that are selectively reduced in width are not required to maintain balance match.

3.4.1.2 Made-to-Order Veneer Panel Sets

- a) Shall be balance matched.
- b) When veneer flitch quantity does not allow for sequence matching of all panels within the entire room, then a flitch transition shall be at changes in plane (e.g. corners) and/or wall openings.
- c) Panel(s), when reduced in width, shall maintain balance match, including make-up/remainder panels.
- d) Sequencing doors to adjoining panels shall be specified and single sourced. Door shall be manufactured to meet ANSI/WDMA I.S.1A (latest edition)
- e) Side veneer loss between sequenced adjacent panels shall not exceed:

Premium	Custom	Economy
25.4 mm [1"]	38.1 mm [1.500"]	At the option of the manufacturer/supplier

- f) After edge trimming, width of trimmed edge remainder leaf shall not exceed:

Premium	Custom	Economy
12.7 mm [.500"] less than the adjoining leaf	25.4 mm [1"] less than the adjoining leaf	At the option of the manufacturer/supplier

- g) When end matching is required, veneer misalignment shall not exceed:

Premium	Custom	Economy
4.8 mm [.188"]	9.5 mm [.375"]	At the option of the manufacturer/supplier

3.4.1.3 Blueprint-Matched Panel Sets

- a) Blueprint-matched panel sets that are selectively reduced in width shall be balance-matched with veneer alignment at common size panels, makeup/remainder panels, and components.
- b) When veneer flitch quantity does not allow for sequence matching of all panels within the entire room, then a flitch transition shall be at changes in plane (e.g., corners) and/or wall openings.
- c) Sequencing doors to adjoining panels shall be specified and single sourced. Door shall be manufactured to meet ANSI/WDMA I.S.1A (latest edition).
- d) Side veneer loss between sequenced adjacent panels shall not exceed:

Premium	Custom	Economy
25.4 mm [1"]	38.1 mm [1.500"]	At the option of the manufacturer/supplier

- e) When end matching is required, veneer misalignment shall not exceed:

Premium	Custom	Economy
4.8 mm [.188"]	9.5 mm [.375"]	At the option of the manufacturer/supplier

- f) At doors and other components adjoining panels, the figure and/or heart progression shall be uniform between adjacent panels and not exceed:

Premium	Custom	Economy
38.1 mm [1.500"]	50.8 mm [2"]	At the option of the manufacturer/supplier

3.4.2 Stile and Rail

- a) Where veneer is machined through to create a reveal in the body of a panel, panels shall have solid wood let into the core before the veneer is applied; however, reveals of 3.2 mm [.125"] or less in width let into MDF to a maximum depth of one third of the core thickness do not require solid wood if finished same as exposed finish (See Figure 150).
- b) Applied moulding shall be securely attached.
- c) Cores of panel product materials shall not be exposed.

3.4.3 Decorative Laminate

- a) Material, pattern, and color shall be as specified and, if not specified, shall be at the option of the manufacturer/supplier.
- b) Material shall be of one color or pattern per room, with a maximum of five different colors or patterns per project.
- c) Patterned or wood grain material shall be matched, provided the total length or width does not exceed the maximum length or width of the available sheet. Match may not be obtainable for lengths or widths greater than available sheet size.
- d) If face joints are required, the number of joints shall be determined by the largest size available from the sheet material manufacturer.
- e) Plumbness at patterns shall not exceed:

Premium	Custom	Economy
3.2 mm [.125"] in 2440 mm [96"]	4.8 mm [.188"] in 2440 mm [96"]	6.4 mm [.250"] in 2440 mm [96"]

- f) Alignment variations at patterns shall not exceed:

Premium	Custom	Economy
1.6 mm [.063"]	3.2 mm [.125"]	6.4 mm [.250"]

- g) Gaps at butted edges (See Figure 47, D) glued to the same piece of core shall not exceed:

Premium	Custom	Economy
1 occurrence of .2 mm [.008"] x 127 mm [5.0"] in any 6 sq. meters [65.0 sq./ft.]	2 occurrences of .4 mm [.016"] x 127 mm [5.0"] in any 6 sq. meters [65.0 sq./ft.]	3 occurrences of .8 mm [.031"] x 127 mm [5.0"] in any 6 sq. meters [65.0 sq./ft.]

- h) Flushness at butted edges (See Figure 52, I) shall not exceed:

Premium	Custom	Economy
.1 mm [.004"]	.2 mm [.008"]	.3 mm [.012"]

3.4.4 Solid Surface

- Color shall be selected from manufacturer/supplier's standard product line.
- Finish shall be selected from manufacturer/supplier's standard product line.
- Exposed edges shall be finished to match panel face.

3.4.5 Solid Phenolic

- Color shall be selected from manufacturer/supplier's standard product line.
- Finish shall be selected from manufacturer/supplier's standard product line.

3.4.6 Edges

3.4.6.1 Transparent Finish

- a) Panel parts, visible splines, and reveals shall be edgebanded with solid wood, veneer, or veneer tape a minimum of .5 mm [.018"] thick and:

Premium	Custom	Economy
Same species as panel face and well matched for color and grain	Same species as panel face and compatible for color and grain	Same or compatible species at the option of the manufacturer/supplier

- Edgebanding may be applied before or after the face material.
- Finger joints in veneer tape used as edgebanding are permitted.

d) Solid wood when applied as an exposed edge, finger joints are:

Premium	Custom	Economy
Not permitted	Permitted at one per 2438 mm [96"] of edge length	Permitted

3.4.6.2 Opaque Finish

a) Panel parts, visible splines, and reveals shall be filled and sanded MDF; or edgebanded with paintable PVC, paintable ABS, closed-grain hardwood veneer, or closed-grain solid wood.

b) Solid wood when applied as an exposed edge, finger joints are:

Premium	Custom	Economy
Not permitted	Permitted at one per 2438 mm [96"] of edge length	Permitted

3.4.6.3 Decorative Laminate

a) Panel parts, visible splines, and reveals shall be edgebanded or MDF core painted compatible to exposed face, to preclude show-through of core.

b) Edgebanding may be applied before or after the face material.

c) Edges shall be HPDL, PVC, or ABS a minimum of .5 mm [.018"] thick and a maximum of 3 mm [.118"] at the option of the manufacturer/supplier.

d) PVC and ABS edgebanding thicker than 1 mm [.039"] shall be radiused or beveled on edges and corners.

e) PVC and ABS shall be compatible with the exposed face.

f) HPDL edgebanding shall match exposed surfaces.

3.4.8 Tolerances

3.4.8.1 Machining, Exposed Surfaces

a) Sharp edges shall be eased.

b) Flat wood surfaces require a minimum of:

Premium	Custom	Economy
150 grit sanding	120 grit sanding	15 KMPI or 100 grit sanding

c) Profiled and shaped wood surfaces require a minimum of:

Premium	Custom	Economy
120 grit sanding	20 KMPI or 120 grit sanding	15 KMPI or 100 grit sanding

d) Turned wood surfaces require a minimum of:

Premium	Custom	Economy
180 grit sanding	120 grit sanding	15 KMPI or 100 grit sanding

e) Visible sanding marks, excluding turned surfaces, shall be inconspicuous.

f) Tear out, nicks, and/or hit and miss machining is not permitted when visible after installation.

g) Glue or joint filler (putty), when used, shall be inconspicuous and match the adjacent surface for smoothness.

3.4.8.2 Machining, HPDL, PVC, and Prefinished Wood

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

b) Overlap (See Figure 23, F) shall not exceed:

Premium	Custom	Economy
.1 mm [.004"] for a maximum length of 25.4 mm [1"] in any 1219 [48"] run	.1 mm [.004"] for a maximum length of 25.4 mm [1"] in any 610 mm [24"] run	.1 mm [.004"] for a maximum length of 50.8 mm [2"] in any 305 mm [12"] run

c) Chip-out shall be inconspicuous (See Figure 24).

- d) Over-machined (See Figure 25, H) removal of color or pattern of face material shall be limited to:

Premium	Custom	Economy
.8 mm x 38.1 mm [.031" x 1.500"] and shall not occur within 1829 mm [72"] of a similar occurrence	.8 mm x 76.2 mm [.031" x 3"] and shall not occur within 1524 mm [60"] of a similar occurrence	2.4 mm x 152.4 mm [.094" x 6"] and shall not occur within 1219 mm [48"] of a similar occurrence

3.4.8.3 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 surfaces.
- b) Gaps at factory joints not exceeding the widths indicated shall be permitted if filled with color compatible material.

- c) Gaps at miter or butt joinery shall not exceed:

Premium	Custom	Economy
.3 mm [.012"] by 20% of the joint length	.4 mm [.016"] by 20% of the joint length	.6 mm [.025"] by 20% of the joint length

- d) Gaps at parallel surface joints shall not exceed:

Premium	Custom	Economy
.3 mm x 101.6 mm [.012" x 4"] and shall not occur within 1829 mm [72"] of a similar gap in the same joint	.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	.6 mm x 229 mm [.025" x 9"] and shall not occur within 1219 mm [48"] of a similar gap in the same joint

- e) Gaps at exposed surface edge joints shall not exceed:

Premium	Custom	Economy
.3 mm [.012"]	.4 mm [.016"]	.6 mm [.025"]

- f) Seams in panel face shall be plumb within:

Premium	Custom	Economy
3.2 mm [.125"] in 2440 mm [96"]	4.8 mm [.188"] in 2440 mm [96"]	6.4 mm [.250"] in 2440 mm [96"]

3.4.8.4 Flushness Variations

- a) Wood to wood at miter or butt joinery shall not exceed:

Premium	Custom	Economy
.1 mm [.004"]	.2 mm [.008"]	.3 mm [.012"]

- b) Wood to non-wood at miter or butt joinery shall not exceed:

Premium	Custom	Economy
.3 mm [.012"]	.4 mm [.016"]	.6 mm [.025"]

- c) Non-wood to non-wood at miter or butt joinery shall not exceed:

Premium	Custom	Economy
.3 mm [.012"]	.4 mm [.016"]	.6 mm [.025"]

3.4.8.5 Warp

- a) As a lineal ratio, per 305 mm [12"] in the diagonal, width, and/or length, warp of Product (See [Figure 5, E](#)) shall not exceed:

Premium	Custom	Economy
.8 mm [.031"] or portion thereof	1.2 mm [.047"] or portion thereof	1.6 mm [.063"] or portion thereof

(Measurements for warp shall be taken on the concave face of the panel.)

- b) Example: A panel with dimensions of 813 mm [32"] x 1219 mm [48"], as illustrated (See [Figure 5-E](#)) will have a diagonal measurement of 1465 mm [57.689"]. In custom grade, the maximum distance between the string and the face of the panel will be 5.8 mm. ($1465 \text{ mm} / 305 \text{ mm} \times 1.2 \text{ mm} = 5.8 \text{ mm}$ [$57.689" / 12" \times .047" = .226"$])

4.0 Figures / Illustrations

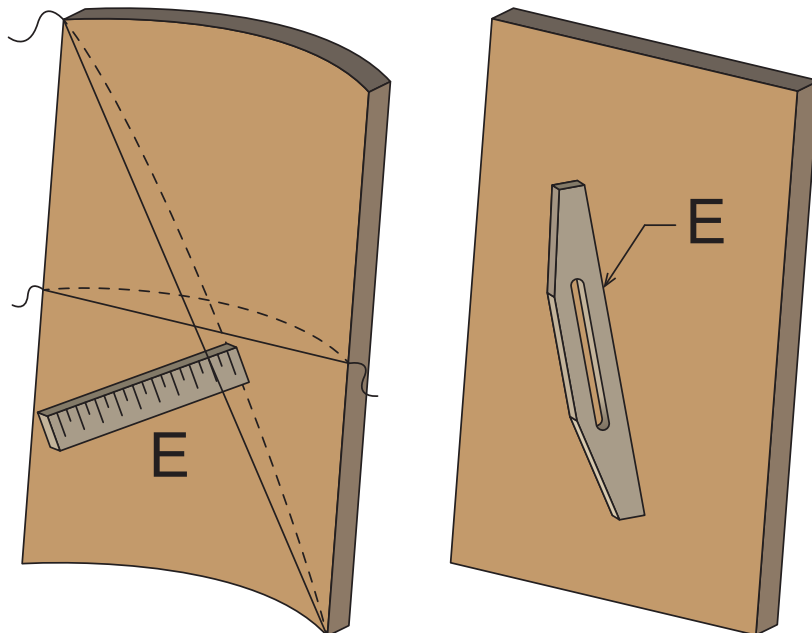


Figure 5 - Compliance Testing Measurement

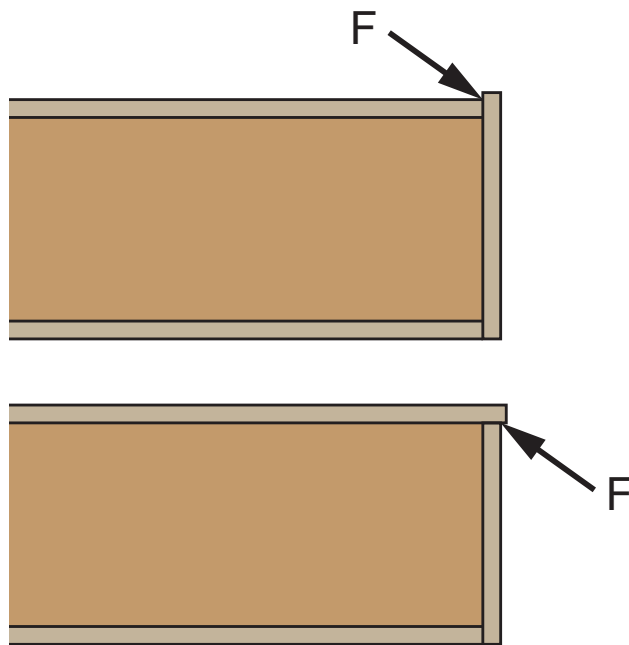


Figure 23 - Overlap

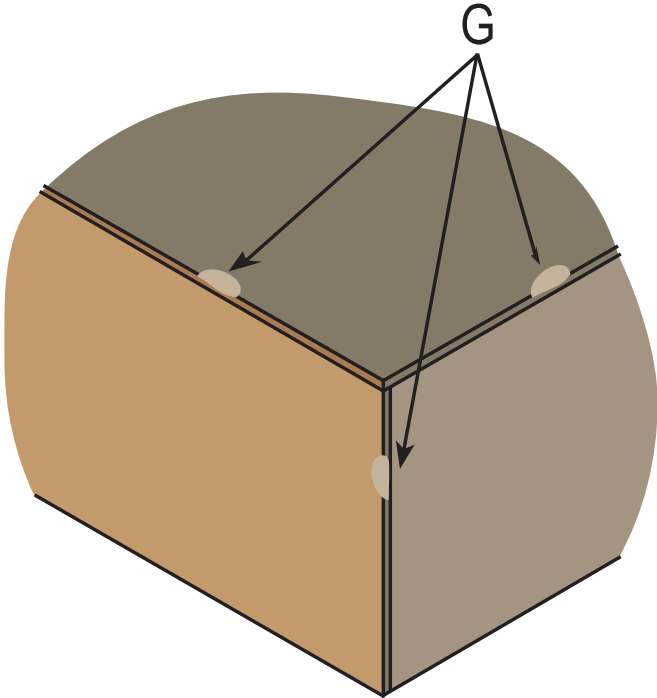


Figure 24 - Chip-Out

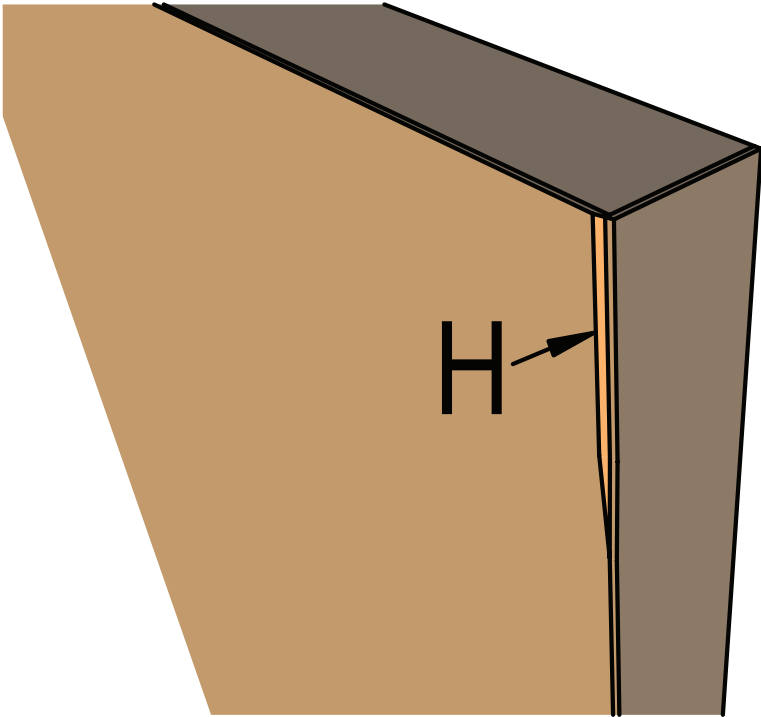


Figure 25 - Over-Filing / Over-Machining

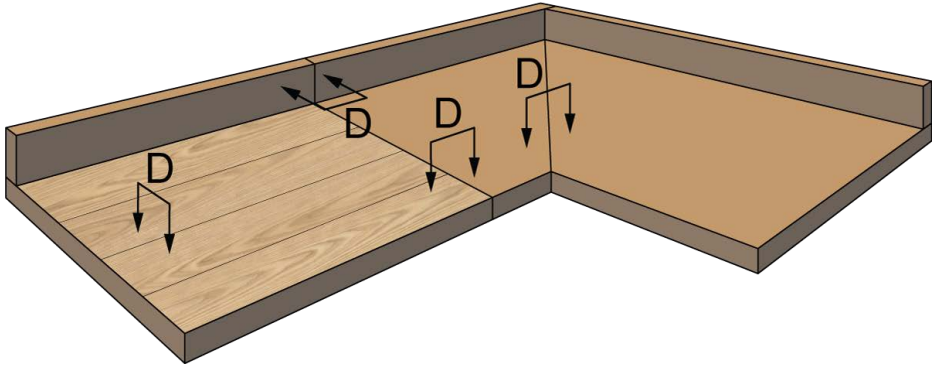


Figure 47 - Gaps at Butted Edges

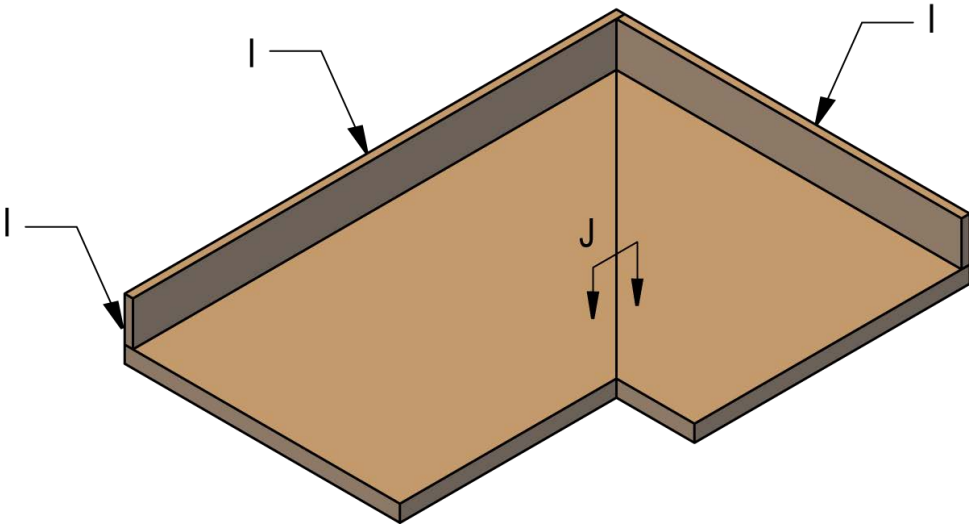


Figure 52 - Flushness at Butted Edges



Figure 150 – Machining Through Veneered Panels

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 the project.
- b) A single source manufacturer/supplier specializing in architectural panels and veneer faces is highly recommended to coordinate and manufacture each paneling elevation consisting of end-matched and/or architectural blueprint-matched veneer panels.

5.2.1 Contract Document Requirements

- a) Accessories, cutouts, and locations
- b) Support bracket placement, quantity, manufacturer, and model number
- c) Grain or pattern direction
- d) Chemical resistant finish or surfaces
- e) Flame spread rating
- f) Moisture resistance
- g) Seismic fabrication and/or installation
- h) Insulation from adjacent heating and cooling sources
- i) Interior clearance
- j) Illustrate/identify specific trim and/or moulding profiles required
- k) Overall Product finished thickness
- l) Color requirements for opaque finish
- m) Glass type, thickness, edge treatment and glazing requirements
- n) Unique panel surface patterns on elevation illustrations
- o) Design, engineering, specifications and drawings for paneling assembly anchorage and/or suspension
- p) Specific installation hardware and/or related paneling mounting systems, including design, engineering, specifications and drawings for paneling suspension

5.2.2 Wood Specifications

- a) Species or engineered material (e.g., reconstituted)
- b) AWI Finishing System Number or Finishing Technology
- c) Staining requirements for transparent finishes
- d) Grain direction

5.2.2.1 Solid Wood

- a) Cut (plain, quartered, rift)

5.2.2.2 Veneer

- a) Method of slicing (plain, quartered, rift, or rotary)
- b) Core type
- c) Veneer matching requirements
- d) Veneer figure and other unique visual characteristics are not a function of a veneer species and/or its grade. If required, Design Professional/Specifier shall identify such veneer figure and visual characteristics in the contract documents.
- e) If the Design Professional has pre-selected/identified specific veneer(s) for project, then the project specifications are to identify the veneer supplier and the flitch number(s).

5.2.3 Decorative Laminate Specifications

- a) Pattern and color
- b) Pattern direction
- c) Core type
- d) Material grade
- e) Laminate finish

5.3 Surface Categories

5.3.1 Exposed

- a) Surfaces normally visible after installation

5.3.2 Concealed

- a) Surfaces not normally visible after installation

5.4 References

- a) AWI 100 - Submittals (latest edition)
- b) AWI 200 - Care & Storage (latest edition)
- c) AWI 300 - Materials (latest edition)
- d) ANSI/AWI 0400 - Factory Finishing (latest edition)
- e) ANSI/AWI 0620 - Finish Carpentry/Installation (latest edition)
- f) ISO 4586 (latest edition)
- g) ANSI/HPVA HP-1 (latest edition)
- h) ANSI Z97.1 (latest edition)
- i) ANSI/WDMA I.S.1A (latest edition)