

Table of Contents: _____

1. Purpose	3
2. Scope and Classifications	
Classifications	
Long Grain & Short Grain Definitions	
3. General Requirements	3
4. Packing and Marking	3
Packaging	
Pieces Per Crate	
5. Product Standard for Rotary Cut	
Hardwood Long Grain Veneers	3–5
General Notes	
Grades AB, C, D, and E	
6. Product Standard for Rotary Cut	
Hardwood Short Grain Veneer Corestock	6
General Notes	
Number One Core	
Number Two Core	
Number Three Core	
Rainbow Splicing (diagram)	8
Staggered Splicing (diagram)	8
7. Grading Rules for Sliced	
Imported Veneer Faces	9
Sliced Flitch Stock Face Veneer	
8. Platform Grading Specifications (Veneercore)	10
9. Platform Grading Specifications (Lumbercore)	11
10. Two-Ply Core Specifications	12
11. Definitions	13

This *Product Standard for Imported Wood Veneer and Platforms (IHPA–2000)* was adopted by the Board of Directors of **International Wood Products Association (IWPA)** on April 28, 2000. *The Platform Grading Specifications (Veneercore)*, *Platform Grading Specifications (Lumbercore)*, and *2-ply Core Specifications* on pages 10–12 were adopted by the same on October 20, 1998.

For further questions, or additional information, please contact IWPA at the following address:

4214 King Street, West/Alexandria, Virginia 22302 USA
tel: 703.820.6696/fax: 703.820.8550
email: info@iwpawood.org/www.iwpawood.org



Product Standard for Imported Wood Veneer and Platforms (IHPA-2000)

Foreword:

This Standard supersedes IHPA Product Standard for Imported Hardwood Veneer (Rev. 1987); Specification originally issued in 1973, as published by the International Wood Products Association (formerly the International Hardwood Products Association), 4214 King Street, West, Alexandria, Virginia 22302 U.S.A.

Abstract:

This Product Standard for Imported Wood Veneer and Platforms describes the grades made from various wood species. The Standard contains quality criteria; provisions for packing; and definitions. It is intended for voluntary use by North American buyers, distributors, architects, and world suppliers of wood veneer products and platforms.

Requirements are described for wood species; veneer types, grades and sizes; sanding; and finishing. A glossary of trade terms is provided for better communication and understanding, and provisions are included for crate and panel marking to indicate compliance with this Product Standard.

The Metric System of Measurement:

The 1975 Metric Conversion Act, as amended by the Omnibus Trade and Competitiveness Act of 1988 sets forth that the metric (SI) is the preferred system of measurement in the U.S.A. This Product Standard contains English (inch-pound) units first with metric units in parenthesis. The metric number in almost all cases is the "soft" conversion number for the accepted inch-pound system requirement. In order to make the metric number more conceptually coherent and for consistency, most conversions for less than 3" (76 mm) in dimensions are "soft" converted to the nearest 0.1 mm. For measurements above 3" (76 mm), the "soft" value is converted to the nearest 1 mm.

How to Measure: Dimensions and Tolerances:

Thickness shall be measured to the nearest 0.001" (0.025mm) using a dial thickness gauge or conventional micrometer. Sufficient pressure shall be applied to insure that the anvils of the instrument are in firm and square contact with, but do not compress the veneer surface. One measurement shall be taken at approximate mid-width of one end of the sheet. This measurement shall represent the panel thickness unless the measurement is below the minimum or above the maximum requirements. If the measurement is below or above the applicable requirements, three additional measurements shall be taken, one at approximate mid-width on the opposite end and one at approximate mid-length on each side of the sheet. (Ref: HP-1 Standard)

1. Purpose

The purpose of this Product Standard is to establish internationally recognized quality criteria for the principal types, grades, and sizes of hardwood veneer. The principal wood species used for veneer are hardwoods; however, certain softwood species are also used.

The Standard is intended to provide producers, distributors, architects, and users with a basis for common understanding of the Grade Standards of this product.

2. Scope and Classifications

This Standard applies only to veneers manufactured outside the territorial limits of the United States and Canada, and imported for consumption in North America.

The classifications used are "Long Grain" and "Short Grain" veneers; further sub-classified in grades based on the wood veneer quality. All paper work regarding these products must always have the letter "W" (for width) and "L" (for length) following the dimensions to show direction of the grain within the sheets.

Long Grain:

The grain runs with the longer dimension of the veneer sheet and must be expressed dimensionally as 50" W X 99/100" L (1270 mm X 2515/2540 mm), invoiced as 48" W X 96" L (1220 mm X 2440 mm).

Further subclassification in grades is expressed and identified alphabetically as AB, C, D, and E grades.

Short Grain:

The grain runs with the shorter dimension of the veneer sheet and must be expressed dimensionally as 99/100" W X 50" L (2515/2540mm X 1270mm), invoiced as 96" W X 48" L (2440mm X 1220mm).

Further subclassification in grades is expressed and identified numerically as Number One, Two, and Three grades.

3. General Requirements

All veneers sold under specifications of this product standard shall be well manufactured and free from all characteristics or defects, which are not expressly permitted within a specified grade.

It should be noted that the detailed specifications set out in this standard establish the minimum acceptable requirements for each grade.

4. Packing & Marking

Pieces per Crate, or as agreed:

1/6" (4.2mm)	145 Pieces per Crate
1/7" (3.6mm)	160 Pieces per Crate
1/8" (3.2mm)	180 Pieces per Crate
1/10" (2.5mm)	235 Pieces per Crate
1/12" (2.1mm)	250 Pieces per Crate
1/16" (1.6mm)	375 Pieces per Crate
1/20" (1.3mm)	440 Pieces per Crate
1/24" (1.1mm)	500 Pieces per Crate
1/28" (0.9mm)	600 Pieces per Crate
1/36" (0.7mm)	800 Pieces per Crate

Veneer should be packed tight side up and loose side down. All packages must be palletized with pallet boards and skids.

Crate Height:	As mutually agreed
Length:	Maximum 101" (2565mm);
Width:	Maximum 52" (1320mm).

- Skids must be nailed or firmly attached to pallet boards and should not be less than 2" (50mm). The combined thickness of the pallet board and attached skid should not exceed 3" (76mm).

5. Product Standard for Rotary Cut Hardwood Long Grain Veneers

General Notes:

1. **Ends should be taped** on 1/16" (1.6mm) and thinner veneers except by mutual agreement. Tape to be placed outside net dimensions. Repair tape should be on same side as lathe tape.
2. **Thickness: As agreed.**
3. **Size: As agreed.**
Typically, 50" W X 99" L (1270mm X 2515mm), invoiced as 48" W X 96" L (1220mm X 2440mm).
4. **Species: As agreed.**
5. **Percentage of natural whole sheet and spliced: As agreed.**
6. **Splicing: Edge glued spliced unless mutually agreed.** Tight and parallel to edges, no excessive glue residue.

{Product Standard for Rotary Cut Hardwood Long Grain Veneer}

Grades	AB Grade	C Grade	D Grade	E Grade
1. Tolerance in thickness within sheets of veneer .059" (1.5mm) and thinner	Plus/minus 0.002" (.05mm); but no variations within sheets.	Plus/minus 0.002" (.05mm); but no variations (within sheets).	Plus/minus 0.002" (.05mm); variations within sheets.	Plus/minus 0.002" (.05mm); variations.
2. Tolerance in thickness within sheets of veneer .0625" (1.6mm) and thicker	Plus/minus 0.005" (.13mm); but no variations within sheets.	Plus/minus 0.005" (.13mm); but no variations within sheets.	Plus/minus 0.005" (.13mm); variations within sheets.	Plus/minus 0.005" (.13mm); variations.
3. Moisture at time of shipment.	6 - 10 %	6 - 10%	6 - 10%	6 - 10%
4. Dimensions of sheets: Long Grain	50" W X 99/100" L (1270mm X 2515/2540mm) invoiced as 48" W X 96" L (1220mm X 2440mm)	50" W X 99/100" L (1270mm X 2515/2540mm) invoiced as 48" W X 96" L (1220mm X 2440mm)	50" W X 99/100" L (1270mm X 2515/2540mm) invoiced as 48" W X 96" L (1220mm X 2440mm)	50" W X 99/100" (1270mm X 2515/2540mm) invoiced as 48" W X 96" L (1220mm X 2440mm)
Width	Plus 1" (25.4mm) minus 0	Plus 1" (25.4mm) minus 0	Plus 1" (25.4mm) minus 0	Plus 1" (25.4mm) minus 0
Length	Plus 1" (25.4mm) minus 0	Plus 1" (25.4mm) minus 0	Plus 1" (25.4mm) minus 0	Plus 1" (25.4mm) minus 0
Tolerance	Maximum 1" (25.4mm) on diagonal	Maximum 1" (25.4mm) on diagonal	Maximum 1" (25.4mm) on diagonal	Maximum 1" (25.4mm) on diagonal
5. Squareness	Within 1/4" (6.3mm)	Within 1/4" (6.3mm)	Within 1/4" (6.3mm)	Within 1/4" (6.3mm)
6. Brittleness, due to incorrect drying	None	None	None	None
7. Stepping/Staggering of spliced veneers, rainbow effect (see Figure on page 8)	None	Maximum 1" (25.4mm) on diagonal	Maximum 1" (25.4mm) on diagonal	Maximum 1" (25.4mm) on diagonal
8. End Taping: Outside the net dimensions of sheets if 1/24" (1mm) or thinner.	Yes	Yes	Yes	Yes
9. Closed Splits	Maximum 12" (305mm) long, end taped, one per piece.	Maximum 18" (455mm) long, end taped, two at each end.	Maximum 24" (610mm) long, end taped, three at each end.	Maximum 1/3 of length sheet, four at each end.
10. Open Splits, non-closing	None	1/16" (1.6mm) X Maximum 10" (255mm) long, end taped, one at each end.	1/16" (1.6mm) X 14" (355mm), end taped, one at each end	1/8" (3.2mm) X 1/3 length of sheet, limit one each at end.
11. Open Joints (Convex/Concave)	None	1/16" (1.6mm) X Maximum 12" (305mm) long, end taped, one at each end.	1/16" (1.6mm) X 18" (455mm), end taped, one at each end	1/8" (3.2mm) X 1/3 length of sheet, limit one at each end.
12. Glue Failure in joints	None	None	18" (455mm) maximum, one per piece.	1/3 of length, limit two per piece
13. Sound Pin Knots	Occasional	Occasional and blending but not clustered.	Occasional and can be conspicuous but not clustered.	No limit.

{Product Standard for Rotary Cut Hardwood Long Grain Veneer—continued}

Grades	AB Grade	C Grade	D Grade	E Grade
14. Sound Tight Knots	None	None	Allowed	Allowed
15. Sound Burls	Allowed if blending	Allowed if blending	Allowed, and can be conspicuous	Allowed
16. Mineral Streaks, discoloration	None	Very slight	Allowed	Allowed
17. Knot Holes	None	None	None	Maximum 1-1/4" (30mm) diameter: few to scattered, but not to impair utility of sheet.
18. Punkiness, Decay, Pitch, Rot, Shake Wane Doze, Spike Holes, Bark, Brashiness, Cross Break, Resin Streaks	None	None	Slight	Slight
19. Color & Heart/Sapwood Mixed	Uniform Color by mutual agreement. No mixed heart/sap except by agreement	By mutual agreement. "C" grade to be matched of good appearance.	Mill's option, except by mutual agreement.	Mill's option.
20. Rough Cut	None	Inconspicuous and shallow.	Allowed, up to two areas not to exceed 3% of sheet.	Allowed, if not interfering with glue spreading or hot pressing.
21. Washboard	None	None	Slight.	Allowed, if not interfering with glue spreading or hot pressing
22. Vine Marks, Sapwood	None	Slight, inconspicuous	Allowed	Allowed
23. Worm Holes	None	None	1/8" (3.2mm) or smaller, occasional and scattered	Allowed
24. Pin Worm Holes: 1/16" (1.6mm) diameter or smaller)	None	Scattered, inconspicuous	Scattered	Allowed
25. Patches	None	None	None	Allowed, if not interfering with glue spreading or hot pressing.
26. Color Match	Spliced sheets matched for color and grain	Spliced sheets matched for color and grain	Not necessary, except by mutual agreement	Not necessary
27. Worm tracks	None	None	Maximum four per piece, maximum 1/8" X 2" (3.2mm X 50mm)	Allowed
28. Chalk	No	No	Allowed	Allowed
29. Grease	No	No	No	No
30. Staples	No	No	No	No

{6. Product Standard for Rotary Cut Hardwood Short Grain Veneer Corestock}

General Notes:

1. **Thickness:** By mutual agreement.

Tolerance: 0.005" (.13mm) and thicker
2. **Size:** By agreement. Typically 99/100" (2515/2540mm) W X 50" (1270mm) L invoiced as 96" (2440mm) W X 48" (1220mm)L.

Tolerance: In the width, length, or diagonal, plus 1" (25.4mm), minus 0.
3. **Species:** As agreed.
4. **Color:** Color variations between joints in spliced stock should be kept to a minimum.
5. **Percentage of natural whole pieces and spliced:** As agreed.



{6. Product Standard for Rotary Cut Hardwood Short Grain Veneer Corestock—continued}

Number One Core	Number Two Core
Quality:	
<p>Sound—no open defects of any kind except as noted.</p> <p>Free of decayed wood. Worm hole permitted up to 1/8" (3.2mm) in diameter.</p> <p>Sound knots are also permitted. Closed splits up to 18" (455mm) long and open splits 1/16" (1.6mm) wide closing within 12" (305mm), maximum one at each end.</p> <p>In general: No defect allowed that will telegraph through a 1/50" (0.5mm) face veneer in pressing.</p>	<p>Sound - no open defects of any kind except as noted.</p> <p>Free of decayed wood. Worm hole permitted up to 1/4" (6.3mm) in diameter.</p> <p>Sound knots are permitted. Closed splits up to 24" (610mm) long and open splits 1/8" (3.2mm) wide that taper to point not to exceed 18" (455mm) in length allowed.</p> <p>In general: No defect allowed that will telegraph through a 1/36" (0.7mm) face veneer in pressing.</p>
Manufacture:	
<p>By rotary lathe peeling. Cut should be smooth and of uniform thickness, flat and free of buckles. No rough cut.</p>	<p>By rotary lathe peeling. Cut should be smooth and of uniform thickness, flat and free of excessive buckles. Slight rough cut allowed, not sufficient to cause delamination, and not to exceed four areas of not more than 18 square inches each per sheet.</p>
Moisture Content:	
6-10% at time of shipment.	6-10% at time of shipment.
Sanding:	
Not required unless mutually agreed.	Not required unless mutually agreed.
Joints:	
<p>Any stock which is joined will be tapeless spliced with joints at right angles to side. Thickness of pieces jointed will be the same and joint will be flat and even with not more than five pieces per sheet. No thick and thin spliced joints or excessive glue on joints.</p>	<p>Any stock which is joined will be edge glued spliced with joints at right angles to side. Thickness of pieces jointed will be the same and joint will be flat and even with no more than ten pieces per sheet.</p>
Other Defects:	
<p>Will allow any other sound defect such as discoloration, stain, pin knots, etc. that will not inhibit laminating face and back to the core.</p>	<p>Will allow any sound defect such as discoloration, stain, pin knots, etc. that will not inhibit laminating face and back core.</p>
Glue Failure in Joint:	
<p>Not sufficient to impair easy handling through glue spreader and into press.</p>	<p>Not sufficient to impair easy handling through glue spreader and into press.</p>

Number Three Core:

Veneer grade not falling under the **Quality Grade Number One** or the **Number Two Core** shall be defined as:

Number Three Core, and may include:

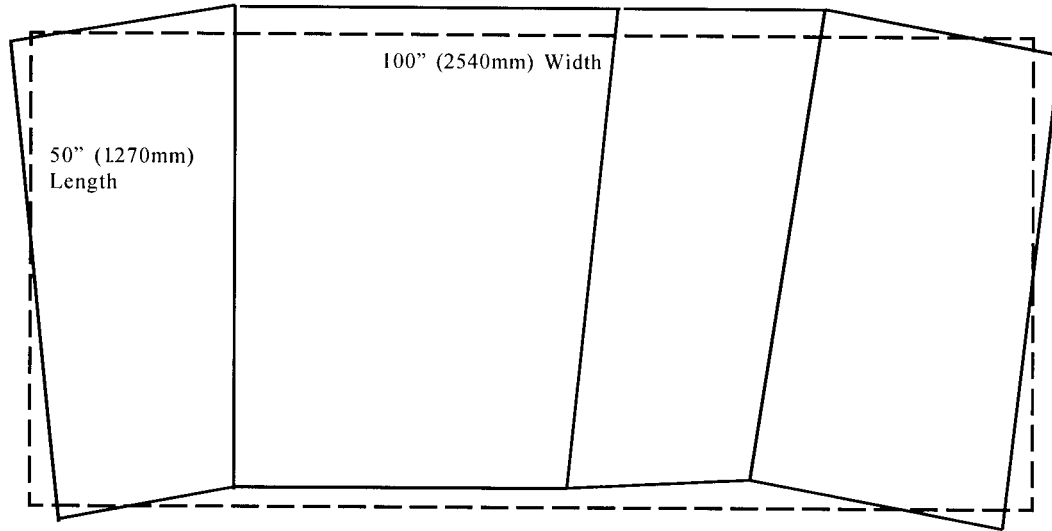
- Maximum number of spliced pieces is 16 components (15 joints) with no excessive glue on joints.
- Closed splits up to 36" (915mm) long.
- Open splits 1/8" (3.2mm) wide tapering

to a point not exceeding 24" (610mm) in length.

- Rough cut not to exceed six areas of more than 24 square inches each.
- Minor amount of buckling allowed.
- Pinworm holes, shotholes, and scattered grub worm holes allowed unless restricted by agreement.
- Moisture content 6-10 % at time of shipment.
- Sanding not required unless specified on contract.

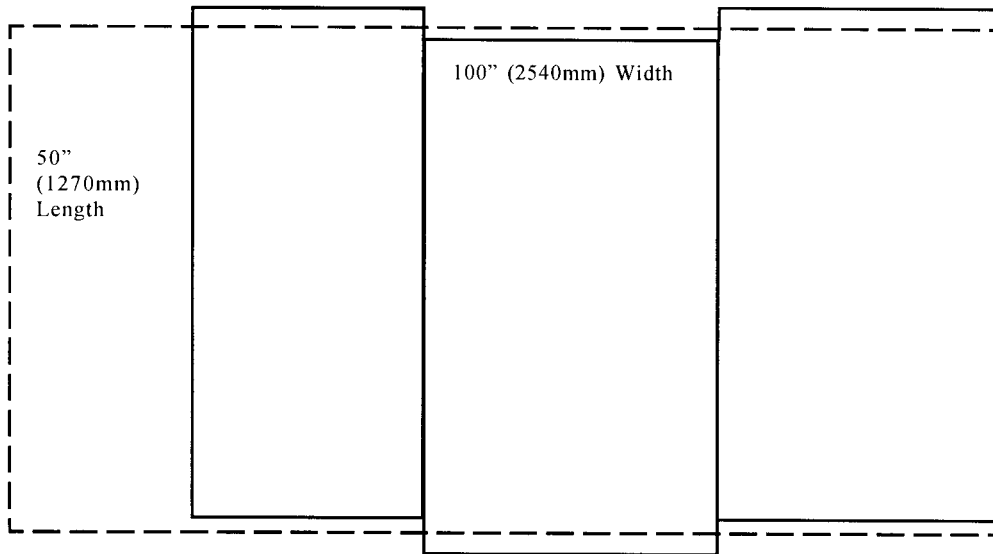
Rainbow Splicing:

Will cut out only about 95" (2413mm) Width X 47" (1194mm) Length.
Broken line denotes 100" (2540mm) Width X 50" (1270mm) Length.



Staggered Splicing:

Will cut out only about 100" (2540mm) Width X 47" (1194mm) Length.
Broken line denotes 100" (2540mm) Width X 50" (1270mm) Length.



**** Note that the Standard is 99/100" (2515/2540mm) Width X 50" (1270mm) Length. Diagram shows 100" (2540mm) only.**

7. Grading Rules for Sliced Imported Veneer Faces, also known as Layons.

Moisture

Content: 6-10 % at mill.

Splicing: All joints tightly spliced. Excess glue not allowed. All joints parallel.

Quality: Tightly sliced veneer, flat, sound, smooth, with no open defects permitted. Buckle, doze, rot, or brash grain not permitted.

Color: Uniform in color and as mutually agreed.

Grades: **AB:** Quarter sliced or plain sliced pieces should be spliced without any sharp contrast in grain or color. The veneer must be free of sapwood, spike knots, large burls, pitch pockets or pitch seams, worm holes, splits or other open defects.

A very slight amount of color streak or spot and mineral streaks are allowed with a few small burls and occasional pin knots and some cross-bars.

CD: Not necessarily matched for grain or color; allows pin knots, sound tight knots, mineral streaks, slight discoloration and sapwood.

Not allowable:

Knot holes, doze, brashness, shake and decay.

Rejects:

Not necessarily matched for grain or color; allows unlimited pin worm holes not to exceed 1/16" (1.6mm); pin knots, sound tight knots, mineral streaks, discoloration and sap wood.

Not allowable:

Knot holes, doze, brashness, shake or decay.

End Taping:

Veneer faces (layons) must be end taped to prevent handling splits. This end tape must be confined to the extreme ends of the sheet. Tape repairs within the body of the sheet must be as short as possible and placed across the grain. All tape must be confined to one side only.

Sliced Flitch Stock Face Veneer

Flitch stock veneer grades are determined largely on eye appeal upon sample or book by book inspection.

In general, however, face veneers should be:

1. Flat and smooth cut.
2. With balanced heart for plain sliced veneers.
3. Vertical grains for quarter sliced veneers.
4. Of good color and texture
5. Of uniform thickness within the sheet and within the flitch.

Lower grades of character marked veneers shall be determined by mutual agreement.

8. Platform Grading Specifications (Veneercore)

Scope

Veneercore platforms are used as substrates in high quality hardwood plywood manufacturing in which face and back veneers typically range in thicknesses from 1/64"-1/32" (0.4mm to .8mm). Consequently, uniformity in thickness and sanding of the platform is imperative.

The ultimate end-use is typically for cut-to-size components, which requires a virtually sound, voidfree construction, with a good glue bond.

Nominal Thickness

3/16" (4.8mm)	(3 PLY)
5/16" (7.9mm)	(3 PLY)
7/16" (11.1mm)	(3 PLY OR 5 PLY MILL OPTION)
9/16" (14.3mm)	(5 PLY OR 7 PLY MILL OPTION)
11/16" (17.5mm)	(5 PLY OR 7 PLY MILL OPTION)
15/16" (23.8mm)	(5 PLY OR 7 PLY MILL OPTION)
1-1/8" (28.6mm)	(7 PLY OR 9 PLY MILL OPTION)
1-3/16" (30.2mm)	7 PLY OR 9 PLY MILL OPTION

Manufactured Sizes

73" X 49" (1855mm X 1245mm)
73" X 61" (1855mm X 1550mm)
85" X 49" (2160mm X 1245mm)
85" X 61" (2160mm X 1550mm)
97" X 49" (2465mm X 1245mm)
97" X 61" (2465mm X 1550mm)
109" X 49" (2770mm X 1245mm)
109" X 61" (2770mm X 1550mm)
121" X 49" (3075mm X 1245mm)
121" X 61" (3075mm X 1550mm)
145" X 49" (3685mm X 1245mm)
145" X 61" (3685mm X 1550mm)

Invoiced Sizes

6' X 4' (1830mm X 1220mm)
6' X 5' (1830mm X 1525mm)
7' X 4' (2135mm X 1220mm)
7' X 5' (2135mm X 1525mm)
8' X 4' (2440mm X 1220mm)
8' X 5' (2440mm X 1525mm)
9' X 4' (2745mm X 1220mm)
9' X 5' (2745mm X 1525mm)
10' X 4' (3050mm X 1220mm)
10' X 5' (3050mm X 1525mm)
12' X 4' (3660mm X 1220mm)
12' X 5' (3660mm X 1525mm)

Or, as agreed between buyer and seller.

Manufactured Tolerance

Thickness: Nominal thickness to be construed as the average thickness, allowing +/- 0.010" (0.25mm) variance.

Width: Minus 0 plus 1/4" (6.3mm)

Length: Minus 0 plus 1/4" (6.3mm)

Squareness

Panels 4' (1220mm) or greater in length and width shall be square within 3/32" (2.4 mm). Panels less than 4'

(1220mm) in length or width shall be square within 1/16" (1.6mm). Squareness shall be determined by measuring the length of the two diagonals of the panel.

Sanded Finish

Cross bands should be sanded multiple times, with the last sanding using a 120 grit or equivalent. Panels must be uniform in thickness with no low or high areas permitted beyond allowable tolerance +/-0.010" (+/-0.25mm).

Crossband Grading

Color face and back—Pleasingly color matched with no sharp contrasts.

Burl—Permitted provided completely smooth (no torn grain).

Sound and Pin Knot—Permitted if sanded smooth.

Knot hole, worm track & wormhole—Permitted if filled and sanded smooth; maximum diameter 1/2" (12.7mm); no sunken putty.

Vine streak, stain mineral streak—Permitted provided that it is sound and smooth.

Bark and Pitch Pocket—None allowed.

Splits Puttied—1/4" (6.35mm) wide tapering to a point and up to 24" (610mm) long maximum four per panel.

Putty smears—Permitted if sanded smooth.

Interlocked grain—Permitted if completely smooth (no torn grain)

Edge glue face joints—Permitted.

Core laps—None allowed.

Shims—None allowed.

Face Patch—None allowed.

Core Grade

Solid wood veneers. Width of voids not to exceed the thickness of the core veneer. Short core or center is not permitted.

Glue

Type I	Exterior, phenolic
Type II	Interior, Urea Formaldehyde
Type II LFE	Interior, Low Formaldehyde Emissions per HUD Standards

Moisture Content

To be within 6 -12% at time of shipment.

Platform Grading Specification (Veneercore) was Adopted by the IWPA Board of Directors, October 20, 1998, and supercedes revision of March, 1993.

9. Platform Grading Specifications (Lumbercore)

Scope

Lumbercore platforms are used as substrates in high quality hardwood plywood manufacturing in which face and back veneers typically range in thickness from 1/64" to 1/32" (0.4-0.8mm). Consequently, uniformity in thickness and sanding is imperative.

The ultimate end-use is typically for cut-to-size components, which requires virtually sound void-free construction with a good glue bond.

Nominal Thickness

11/16" (17.5mm) 3-Ply; 9/16" (14.3mm) 3-Ply

Sizes

Gross	Net Invoiced
97" X 49"; 49" X 97" (2465mm x 1245mm) (1245mm X 2465 mm)	8' X 4'; 4' X 8' (2440mm x 1220mm) (1220mm X 2440mm)

Or, as agreed upon between buyer & seller.

Manufactured Tolerance

Thickness—Nominal thickness to be construed as the average thickness, allowing +/- 0.010" (0.25mm) variance.

Width—minus 0 plus 1/4" (6.3mm)

Length—minus 0 plus 1/4" (6.3mm)

Squareness

Panels 4' (1220mm) or greater in length or width shall be square within 3/32" (2.4mm). Panels less than 4' (1220mm) in length or width shall be square within 1/16" (1.6mm). Squareness shall be determined by measuring the length of the two diagonals of the panel.

Sanded Finish

Cross bands should be sanded multiple times, with the last sanding using a 120 grit or equivalent. Panels must be uniform in thickness with no low or high areas permitted beyond allowable tolerances +/-0.010" (+/- 0.38mm).

Crossband Grade

Color face and back—pleasingly color matched with no sharp contrasts.

Burl—permitted provided completely smooth (no torn grain).

Sound and Pin Knot—Permitted if sanded smooth.

Knot hole, worm track and worm hole—Permitted if filled and sanded smooth; maximum diameter 1/2" (12.7mm). No sunken putty.

Vine streak, stain mineral streak—Permitted provided that it is sound and smooth.

Bark and Pitch—None allowed.

Splits puttied—1/4" (6.35mm) wide tapering to a point and up to 24" (610mm) long maximum four per panel.

Putty smears—Permitted if sanded smooth.

Interlocked grain—Permitted if completely smooth (no torn grain).

Edge glued face joints—Permitted.

Core laps—None allowed.

Shims—None allowed.

Face patch—None allowed.

Core Grade

- Sound and solid staves are required.
- Absolutely no punky/rotten wood allowed.
- Species selection of core should be uniform in characteristics to avoid tension, twisting and similar problems.
- All staves must be tightly end-buttet.
- All staves must be straight to eliminate the possibility of openings between staves.
- Once blockboard is assembled prior to application of crossboards, it must be able to withstand manual handling without breaking apart.
- All staves must be edge-glued.
- Assembled blockboard must be surfaced to uniformity before crossband application.
- The finished blockboard must contain one and preferably two staves on each side of the full length 97" (2465mm).
- It is recommended that staves be cut no less than 3/4" (19mm) and maximum 1- 1/2" (38mm) wide to eliminate any tension problem in finished panels.

Glue

Type I: Exterior, phenolic

Type II: Interior, Urea Formaldehyde

Type II LFE: Interior, Low Formaldehyde Emissions per HUD Standards

Moisture Content

To be within 6–12% at time of shipment

Platform Grading Specification (Lumbercore) was Adopted by the IWPA Board of Directors, October 20, 1998, and supercedes revisions of February, 1990 and March, 1993.



10. Two-Ply Core Specifications

Two-Ply Core consists of two surfaces of veneer laminated to each other at right angles. The surface with the grain running in the long direction is substantially thinner than the surface with the grain running in the short direction.

Standard Thickness

2.7 mm; 3.5 mm; 4.7mm

Species

Subject to mutual agreement.

Glue Type

MR, LFE, or Phenolic -Subject to mutual agreement.

Moisture Content

Subject to mutual agreement, but to be within 6 -12% at time of shipment.

Thickness

Thickness to be subject to mutual agreement, but tolerance to be maintained at $\pm 5/1000$ " (.127mm).

Size

Minimum 49.5" x 98" (1255mm x 2490mm). Tolerance minus 0 plus $1/4$ " (6.3mm). Billed on 4' x 8' (1220mm x 2440mm) basis, unless otherwise specified.

Short Grain Veneer Grade

Color of face and back—Mill option or subject to mutual agreement. Limit color contrast when using multiple piece short grain. Should be pleasingly color matched.

Burl—Permitted provided completely smooth (no torn grain).

Sound and pin knot—Permitted if sanded smooth.

Knot hole, worm track, and worm hole—Permitted if filled and sanded smooth. Knot hole maximum diameter is $1/2$ " (12.7mm). No sunken putty.

Vine streak, mineral streak—Permitted if sound.

Bark and Pitch Pocket—Not allowed.

Splits— $1/4$ " (6.35mm) wide and tapering to a point up to 24" (610mm) long. Maximum 4 per panel all putty filled and sanded smooth. No sunken putty.

Putty smears—Permitted if sanded smooth.

Interlocked grain—Permitted if completely smooth (no torn grain).

Spliced core—Permitted. Limit color contrast with multiple piece short grain. Should be pleasingly color matched.

Core laps, shims, and face patches—Not allowed

Long Grain Veneer Grade

Veneers are to be sanded smooth, but need not be matched for color or grain. The veneer should be of thickness sufficient to provide stability and structural strength to the final product. Purchase orders should specify agreed upon construction. No holes over $1/2$ " (12.7mm) diameter.

Flatness

Flatness shall be maintained at no more than 3" (76mm) of bow along the 98" (2490mm) diameter length.

Packing

Panels are to be taped at the corners back to back with short grain sides exposed.

Glue Type

Subject to mutual agreement

Squareness

Panels 4' (1220mm) or greater in length or width shall be square within $3/32$ " (2.4mm). Panels less than 4' (1220 mm) in length or width shall be square within $1/16$ " (1.6mm). Squareness shall be determined by measuring the length of the two diagonals of the panel.

Two-Ply Core Specification was Adopted by the IWPA Board of Directors, October 20, 1998, and supercedes revisions of March, 1992, and March, 1993.

11. Definitions:

The terms used in this Standard are defined as follows:

Adhesive—A substance capable of holding materials together by surface attachment. It is a general term and includes cements, mucilage and paste, as well as glue.

Back—The side reverse to the face of a panel, or the poorer side of a panel in any grade of plywood calling for a face and back.

Blending—Color change that is detectable at a distance of 6 feet to 8 feet (1.8 m to 2.4 m) but which does not detract from the overall appearance of the panel.

Blister—Spot or area where veneer does not adhere. Blisters are considered a bond line failure.

Bond—Grip of adhesive on wood at the line of application; bond line or glue-line.

Book Match—Adjacent pieces of veneer from a flitch or log are opened like a book and spliced to make up the face with matching occurring at the spliced joints. The fibers of the wood, slanting in opposite direction in the adjacent sheets, create a characteristic light and dark effect when the surface is seen from an angle.

Brashness—Condition of wood characterized by low resistance to shock and by abrupt failure across the grain without splintering (see ruptured grain).

Burl, Conspicuous—A swirl, twist or distortion in the grain of the wood which usually occurs near a knot or crotch. A conspicuous burl is associated with abrupt color variation and/or a cluster of small dark piths caused by a cluster of adventitious buds.

Burl, Blending—A swirl, twist or distortion in the grain of the wood which usually occurs near a knot or crotch but does not contain a knot and does not contain abrupt color variation. A blending burl is detectable 6 feet to 8 feet (1.8 m to 2.4 m) as a swirl or roundel.

Component (of face)—An individual piece of veneer

that is jointed to other pieces to achieve a full length and width face. Terms used interchangeably with component in the context of the face and *piece* and *leaf*.

Core—The inner part of plywood between face and back, usually veneer. Sawn lumber, particle-board, MDF, hardboard or other material is also used as cores.

Core, Banded—Core that has been made with banding on one or more sides.

Crossbanding—Veneer used in the construction of plywood with five or more plies. Crossbands are placed at right angles to the grain of the faces and are typically placed adjacent to the face and back. Also refers to all inner layers of veneer whose grain direction runs perpendicular to that of the outer plies and includes parallel laminated plies.

Cross Break—Separation of the wood cells, often appearing as barely distinct fine irregular lines across the grain. Such breaks are often due to internal strains resulting from unequal longitudinal shrinkage or to external forces.

Decay—The decomposition of wood substances by fungi. The incipient stage is characterized by discoloration, and sometimes accompanied by a softening of the wood substance. The final or ultimate stage is characterized by the partial or complete collapse of the wood structure and the destruction of the wood substance.

Defect, Open—Open checks, splits, joints, knot-holes, cracks, loose knots, wormholes, gaps, voids, or other openings interrupting the smooth continuity of the wood surface.

Delamination—Separation of plies or layers of wood or other material through failure of the adhesive bond.

Discoloration—Stains in wood substances. Common veneer stains are sap stains, blue stains, stain produced by chemical action caused by the iron in the cutting knife coming in contact with the tannic acid of the wood, and those resulting from exposure of natural wood extractives to oxygen and light, to chemical action of vat treatments or the adhesive components, and/or to the surface finish.

Doze (Synonymous with Dote)—A form of incipient decay characterized by a dull and lifeless appearance of the wood, accompanied by a loss of strength and softening of the wood substance.

Face—The better side of any plywood panel in which the outer plies are of difference veneer grades. Also either side of a panel in which there is no difference in the veneer grade of the outer lies.

Few—A small number without regard to their arrangement in the panel.

Fill—A repair to an open defect, usually made with fast drying plastic putty.

Gap—Open slits in the inner plies or improperly joined veneers.

Grain—The direction, size, arrangement and appearance of the fibers in wood or veneer.

Grain Rupture—Veneer with slight breaks from improper cutting or irregular grain.

Gum Pockets—Well defined openings between rings of annual growth, containing gum or evidence of prior gum accumulations.

Gum Spots and Streaks—Gum or resinous material or color spots and streaks caused by prior resin accumulations sometimes found on panel surfaces.

Hairline—A thin, perceptible line showing at the joint of two pieces of wood.

Hardwood—General term used to designate lumber or veneer produced from temperate zone deciduous or tropical broad-leaved trees in contrast to softwood, which is produced from trees which are usually needle bearing or coniferous. The term does not infer hardness in its physical sense.

Heartwood—The nonactive or dormant center of a tree generally distinguished from the outer portion (sapwood) by its darker color.

Inconspicuous—Barely detectable with the naked eye at a distance of 6 feet to 8 feet (1.8 m to 2.4 m)-(see blending).

Joint—The common edge between two adjacent materials in the same plane.

Joint, Edge—Joint running parallel to the grain of the wood.

Joint, Open—Joint in which there is a space between two adjacent pieces of veneer in the same plane.

Knot—Cross section of tree branch or limb with grain usually running at right angles to that of the piece of wood in which it occurs.

Knot, Open—Opening produced when a portion of the wood substance of a knot has dropped out, or where cross checks have occurred to produce an opening.

Knotholes—Openings produced when knots drop from the wood in which they were embedded.

Knots, Blending Pin—Sound knots 1/4" (6.4mm) or less that generally do not contain dark centers. Blending pin knots are barely detectable at a distance of 6 feet to 8 feet (1.8 m to 2.4m), do not detract from overall appearance of the panel, and are not prohibited from appearing in all grades.

Knots, Conspicuous Pin—Sound knots 1/4" (6.4mm) or less in diameter containing dark centers.

Knots, Sound, Tight—Knots that are solid across their face and fixed by growth to retain their place.

Lap—A condition where one piece of veneer in the same ply overlaps another piece.

Lauan—species of the same genera as Philippine mahogany, but not specifically limited to trees of the Philippine origin. (See *Philippine mahogany*).

Layer—A single veneer ply or two or more plies laminated with grain direction parallel (see *ply*). Two or more plies laminated with grain direction parallel is a parallel laminated layer.

Loose Side—In knife-cut veneer, the side of the sheet that was in contact with the knife as the veneer was being cut, and containing cutting

checks (lathe checks) because of the bending of the wood at the knife edge.

Mismatched (MM)—Mismatched refers to a face where adjacent veneers are joined at random without regard to grain figure and/or color. Most commonly produced mismatched faces consist of six to eight separate pieces of plain sliced or rotary cut veneer, selected at random, joined, then grooved upon the joint to simulate lumber paneling.

Moisture Content—The weight of the moisture in wood, expressed as a percentage of its oven-dry weight.

Occasional—A small number of characteristics that are arranged somewhat diversely within the panel face.

Patches—Insertions of fillers or sound wood placed and glued into panels from which defective portions have been removed or are missing.

Philippine Mahogany—A trade term used to describe any of the seven species of woods grown in the Philippine Archipelago (tanguile, red lauan, white lauan, tiaong, almon, mayapis, batikan). Use of the term “mahogany” without the qualifying work “Philippine”, or use of the term “Philippine mahogany” to describe Philippine woods other than those named above or to describe woods not grown in the Philippine Archipelago although of the same genera or family, may be an unfair trade practice with prohibition of Section 5 of the Federal Trade Commission Act.

Plain-Sliced (Flat-Cut)—Veneer sliced parallel to the pith of the log and approximately tangent to the growth rings to achieve a flat-cut veneer. Plain sliced veneer is cut using either a horizontal or vertical slicing machine or by the half-round method using a rotary lathe.

Pleasingly Matched—A face containing components which provide a pleasing overall appearance. The grain of the various components need not be matched at the joints. Sharp color contrasts at the joints of the components are not permitted.

Ply—A single sheet of veneer, or several strips laid

with adjoining edges, that may or may not be glued, which forms one veneer lamina in a glued panel (see layer). In some constructions, a ply is used to refer to other wood components such as particleboard or MDF.

Plywood, Hardwood—A panel composed of an assembly of layers or plies of veneer, or veneers in combination with lumber core, particleboard, MDF core, hardboard core, or of special core material, joined with an adhesive. Except for special construction, the grain of alternate plies is at right angles, and the face veneer is a hardwood species.

Putty—A plastic substance used to fill open defects (see *fill*).

Random Matched—see *mismatched*.

Repairs—A patch, shim, or filler material inserted and/or glued into veneer or a panel to achieve a sound surface.

Repairs, Blending—Wood or filler insertions similar in color to adjacent wood so as to blend well.

Ribbon Striped (Ribbon Grain)—The ribbon effect produced by quarter slicing woods with interlocking grains.

Rotary Cut—Veneer produced by centering the log in a lathe and turning it against a broad cutting knife which is set into the log at a slight angle.

Rough Cut—Irregular shaped areas of generally uneven corrugation on the surface of veneer, differing from the surrounding smooth veneer and occurring as the veneer is cut by the lather or slicer.

Sapwood—The living wood of lighter color occurring in the outer portion of a tree, sometimes referred to as sap.

Shake—A separation or rupture along the grain of wood in which the greater part occurs between the rings of annual growth.

Shim—A thin, often tapered piece of wood used to fill in the space between things.

Sliced—Veneer produced by thrusting a log or

sawed flitch into a slicing machine which shears off the veneer in sheets.

Slight—Visible on observation, but does not interfere with the overall aesthetic appearance with consideration of the applicable grade of the panel.

Smooth—Of even and level surface.

Smooth, Tight Cut—Veneer cut to minimize lathe checks.

Species (Commercial Species Groups)—Species generally grouped for marketing convenience and identified with a single commercial name. See ASTM D 1165, Standard Nomenclature of Domestic Hardwoods and Softwoods for commercial practice in the United States and Canada which contains an appendix listing of foreign species and trade groups of woods commonly used in the U.S. and Canada.

Species (Trees)—An internationally established Latin botanical classification of trees.

Splits—Separations of wood fiber running parallel to the grain.

Streaks, Mineral—Natural discoloration of the wood substance.

Swirls—Irregular grain usually surrounding knots or crotches.

Tape—Strips of gummed paper or cloth sometimes placed across the grain of large veneer sheets to facilitate handling and sometimes used to hold the edges of veneer together at the joint prior to gluing.

Telegraphing—Visible irregularities in the surface of the face of plywood caused by corresponding irregularities in the underlying plies such as core laps, voids, or extraneous matter.

Tight side—In knife-cut veneer, the side of the sheet that was farthest from the knife as the sheet was being cut and containing no cutting checks (lathe checks).

Veneer—A thin sheet of wood, rotary cut, sliced or sawed from a log, bolt, or flitch.

Vine Streaks (Marks)—Scars in the wood generally caused by the stems of clinging vines or by their hair-like air roots which cling to the tree trunk. Live vine streaks produce sound scars. Dead vine streaks contain either dead residue of the vine, or the remaining pocket similar to bark pocket. Also referred to as chicken tracks.

Wood Filler—An aggregate of resin and strands, shreds, or flour of wood which is used to fill openings in wood and provide a smooth, durable surface.

Wormholes—Holes resulting from infestation of worms.

Worm Track or Scar—The groove or resulting scar tissue in the wood caused by worms or other borers.

Definition References:

Procurement Standard for Imported Hardwood Plywood (IHPA-1997)—International Wood Products Association-Alexandria, Virginia.

The Hardwood Plywood Reference Guide and Salesbook-1993—Hardwood Plywood and Veneer Association-Reston, Virginia.