

NWFA/NOFMA

International Standards for Unfinished Solid Wood Flooring



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This document replaces all editions and revisions of the “Official Flooring Grading Rules” published by The Wood Flooring Manufacturers Association.

Where discrepancies or ambiguities between this document and NWFA Technical Publication No. A500 (Grading & Packaging, copyright 1999) arise, this document shall be considered the definitive source.

Two Types of NWFA/NOFMA Certification

- Standard NWFA/NOFMA configuration, grade rules, and names
- Proprietary or special products (must be supplied to the NWFA office)
 - Configuration of product(s)
 - Name of product(s)
 - Grade rules of product(s)

The standards mentioned on the following pages are the compliance standards that all NWFA/NOFMA certified flooring manufacturers have agreed to adhere to.

Machining tolerances are measured at time of manufacture only. After manufacturing, flooring will gain or lose moisture, thus changing the measurements.

NWFA/NOFMA Standard for Unfinished Solid Flooring Products

Configuration Guidelines

<u>Item</u>	<u>Standard</u>
<u>Width</u>	Actual width, $\pm .010''$ (.25 mm)
<u>Match Position</u> (Measuring from face of flooring)	
.547''	$\leq .008''$ (.20 mm) difference or space between bottom of tongue & top of lower groove lip
<u>Match Fit</u>	
Tongue thickness	.250'' (6.35 mm) $>.003''$ (.08 mm) to $\leq .016''$ (.41 mm) difference or space between the thickness of the tongue, and the width of the groove
Groove width	.250'' (6.35 mm)
<u>End Match (squareness)</u>	
Square	$<3''$ (76.2 mm) Width – No more than 5% of product $>.016''$ (.41 mm) un-square $\geq 3''$ (76.2 mm) Width – No more than 5% of product $>.005''$ (.13 mm) per inch of width un-square
<u>Thickness</u>	
Unfinished	.750'' (19.05 mm), $\pm .015''$ (.38 mm)
<u>Over-wood</u>	
Unfinished	NOFMA #1 Common & Better - .020'' (.51 mm) max. NOFMA #2 Common ----- .030'' (.76 mm) max.

Moisture Content Guidelines

The NWFA/NOFMA Moisture Content Standard

Flooring is manufactured at a 6% to 9% MC with a 5% allowance for pieces outside that range up to 12% MC.

Board Length Guidelines

The NWFA/NOFMA Average Board Length Minimum Standard

Less than 3" (76.2 mm) Width (Strip)

Grade	Standard
NOFMA Clear	36" (914.4 mm)
NOFMA Select	33" (838.2 mm)
NOFMA #1 Common	30" (762.0 mm)
NOFMA #2 Common	24" (609.6 mm)

3" (76.2 mm) to 5" (127 mm) Width (Plank)

Grade	Standard
NOFMA Clear	36" (914.4 mm)
NOFMA Select	32" (812.8 mm)
NOFMA #1 Common	28" (711.2 mm)
NOFMA #2 Common	24" (609.6 mm)

Board length guidelines apply to the following species: Red Oak, White Oak, Hard Maple, Beech, Birch, Hickory/Pecan, Ash, American Black Cherry, and American Black Walnut.

There is no NWFA/NOFMA board length compliance for flooring greater than 5" (127 mm) in width (wide plank).

The Average Board Length Minimum Standard applies to the total footage of any one shipment consisting of 1,000 sq. ft. (92.9 sq. m.) or greater amounts.

No individual piece of flooring shall be shorter than 9" (228.6 mm) in length.

Square Footage Guidelines

Square footage (coverage area) per bundle should meet or exceed the stated square footage (coverage area) per bundle, based on the average of any one shipment consisting of 1,000 sq. ft. (92.9 sq. m.) or greater amounts. An end match allowance shall not be utilized in square footage (coverage area) calculations.

Packaging Guidelines

All NWFA/NOFMA certified flooring shall be identified on the back by company name, identifying logo, mark, and/or identifying number.

All bundles of standard grade flooring are required to be marked/designated by the official grade and color (or species, if applicable). Example: NOFMA Select RO.

General Grading Guidelines

Solid Unfinished Flooring Products:

NWFA/NOFMA certified flooring is graded in accordance with the NWFA/NOFMA specifications set forth on the following pages.

Appearance alone determines the grades of hardwood flooring since all grades are equally strong and serviceable in any application.

All characters included in a higher grade are automatically accepted in lower grades.

Grades are sometimes combined (i.e. SELECT & BETTER, NO. 1 COMMON & BETTER, and NO. 2 COMMON & BETTER). When done so, the lowest grade pieces admissible shall not be less than the lowest grade listed. And, the Average Board Length Minimum Standard for the lowest grade listed serves as the Standard for the combined grade.

All strip/plank/wide plank flooring designated by a NOFMA certified grade name must conform to that grade description. Proprietary or special products may be certified.

The NWFA/NOFMA Grading Target – 100% on Grade

The NWFA/NOFMA Grading Standard – There is an allowance of not greater than 5% of the pieces to be mis-graded or off grade pieces (includes only below grade pieces).

NWFA/NOFMA OAK GRAIN DESCRIPTIONS

PLAIN SAWN: flooring that is marked or specified as PLAIN SAWN or PLAIN, may contain any combination of the following types of grain classification (also, flooring without a grain designation may contain any combination of the types of grain classification): Plain Sawn, Rift Sawn, and Quarter Sawn.

QUARTER SAWN: flooring that is marked or specified as QUARTER SAWN, or QUARTERED; at least 50% of the piece must contain Quartered characteristics.

Quartered characteristics as defined by NWFA-NOFMA are: in cross section the angle of the annual ring tangent to the face of the piece to be between 45 and 90 degrees; grain lines to be mostly parallel to the length of the pieces, and medullary ray flecks present and more than 1/16" (.0625") (1.59 mm) wide.

RIFT SAWN: flooring that is marked or specified as RIFT SAWN or RIFT; at least 75% of the piece must contain Rift characteristics.

Rift characteristics as defined by NWFA-NOFMA are: in cross section the angle of the annual ring tangent to the face of the piece between 30 and 60 degrees; grain lines to be mostly parallel to the length of the pieces and medullary ray flecks less than 1/16" (.0625") (1.59 mm) wide.

QUARTER/RIFT SAWN: flooring that is marked or specified as QUARTER/RIFT SAWN or QUARTER/RIFT, is a combination of QUARTER SAWN and RIFT SAWN.

NWFA/NOFMA GRADING RULES

OAK FLOORING

NWFA-NOFMA CLEAR: A flooring product of mostly heartwood with a minimum number of character marks and discoloration, providing a uniform appearance while allowing for all heartwood natural color variations.

Will admit the following: 3/8" (.3750") (9.53 mm) wide bright sapwood entire length of the piece or equivalent if not more than 1" (25.4 mm) wide for 1/3 the length of piece; small burls and fine pin worm holes; and equivalent characters such as small tight checks; in the absence of these, one thin brown streak 3" (76.2 mm) long to be allowed every 6' (1828.8 mm) of piece.

NWFA-NOFMA SELECT OAK: A flooring product with coloration variations produced by differences of natural heartwood and sapwood, along with characters described.

The face may contain: unlimited sound sapwood; slight imperfections in milling; one (1) small tight knot every 3' (914.4 mm) of piece; pin worm holes; burls and a reasonable amount of slightly open checks. Brown streaks should not extend the entire length of a piece. Two (2) flag worm holes to every 8' (2438.4 mm) of the piece are permitted. Slight imperfections in face work (torn grain) admitted. An intermittent, brown machine burn across the face not exceeding 1/4" (.250") (6.35 mm) in width admitted. Also, a slight quantity of bark on the back or sides admitted. Will admit pieces with one-half (1/2) tongue, full length of the piece. Spot filling is generally required for open characters.

NWFA-NOFMA NO. 1 COMMON OAK: A flooring product which contains prominent variations in coloration and varying characters.

The following are not admitted: broken knots over 1/2" (.500") (12.7 mm) in diameter, large grub worm holes; and splits extending through the piece. Open characters such as checks and knot holes are admitted, but must be sound and readily fill. Not more than 20" (508 mm) scant stock in thickness allowed to every 5' (1524 mm) of length. Minor imperfections in machining permitted. Shall admit sticker stain; varying wood characteristics, such as flag worm holes, heavy streaks, checks, and worm holes; and an occasional dark machine burn across the face not exceeding 1/2" (.500") (12.7 mm) wide, 1/64" (.0156") (.40 mm) deep and not more than two (2) to every 3' (914.4 mm) of length admitted. One-quarter (1/4) tongue, full length of the piece admitted. Extremely dark pieces are not to be included.

NWFA-NOFMA NO. 2 COMMON OAK: May contain sound natural variations of the forest product and manufacturing imperfections. The purpose of this grade is to furnish a floor suitable for homes, general utility use, or where character marks and contrasting appearance is desired.

The following are not admitted: shattered or rotten ends, large broken knots, excessive bad millwork, shake, advanced rot, and similar unsound defects. Dark machine burns exceeding 3/64" (.0469") (1.19 mm) deep not admitted. Knot holes and open characters which will readily fill are admitted. Occasional scant thickness (hit or miss) on the back of the flooring board the entire length of the piece admitted, providing there is full bearing across the board at some point within three inches of the ends. A limited number of pieces with no tongue admitted.

NWFA-NOFMA 1 1/4' (15") (381 mm) SHORTS OAK: Pieces 9" (228.6 mm) to 18" (457.2 mm) long may be bundled together and designated as NWFA-NOFMA 1 1/4' (15") (381 mm) SHORTS. Pieces in SHORTS bundles are graded using the same grading rules as pieces in standard bundles. Product can be graded and bundled as CLEAR, SELECT, NO. 1 COMMON, NO. 2 COMMON, or in combination grades (i.e. NO 1 COMMON and BETTER).

The Average Board Length Minimum Standard for NWFA-NOFMA 1 1/4' (15") (381 mm) SHORTS is 15" (381 mm), regardless of the width or grade of the product.

HARD MAPLE, BEECH, & BIRCH FLOORING

NWFA-NOFMA SELECT & BETTER HARD MAPLE, BEECH, & BIRCH: Shall have the face practically free of all defects, but the natural color of the wood shall not be considered a defect. The highest standard grade, combines appearance and durability.

Will admit the following: variations in the natural color of the wood (with use of some finishes, slight shadows and color variation may appear); an occasional small, firm pin knot, not over 1/8" (.125") (3.18 mm) in diameter, provided it does not occur on edges or ends of the piece; occasional dark green or black spots or streaks not over 1/4" (.250") (6.35 mm) wide and 3" (76.2 mm) long (or its equivalent) which may contain a tight check not over 1/2" (.500") (12.7 mm) long, provided it is boxed within the piece; bird's eyes and small burls; slightly torn grain; or similar defect which can be readily removed by the ordinary method of sanding the floor after it is laid; a slightly shallow place not over 12" (304.8 mm) long on the underside of the flooring if it does not extend to either end of the piece. Pieces with one-half (1/2) tongue for no more than 25% of the length are allowed. The wood must be sound and free of shake. Bark streaks shall not be permitted.

NWFA-NOFMA NO. 1 COMMON HARD MAPLE, BEECH, & BIRCH: A floor with varying wood characteristics and colors to include distinct color variations, numerous streaks, stained sapwood, sound knots, and checks. All defects must readily fill.

Will admit the following: sound tight knots, provided they do not occur on edges or ends of pieces; slight imperfections in machining; distinct color variations; sticker stain/shadow; numerous dark green or black spots or streaks, provided they do not occur in combination with predominantly dark heartwood; slight checks not exceeding 3" (76.2 mm) in length (may be slightly open) and running parallel with and well inside the edges and ends of the pieces; dark spots or streaks with slight checks in center; small rough spots (torn grain) which cannot be wholly removed by ordinary method of sanding the floor after it is laid; slightly torn edges; short tongue if sufficient to hold properly in the floor; shallow or waney back, if piece has sufficient bearing of full thickness to support it in the floor; small bark streaks where bark is as sound as surrounding wood; and slight variation in angle of end matching. The face shall be free of shake and wood must be sound.

NWFA-NOFMA NO. 2 COMMON HARD MAPLE, BEECH, & BIRCH: Must be of such character as will lay and give a good serviceable floor. The wood must be firm, serviceable and may contain all defects common to Maple.

Will not admit: Knot holes over 3/8" (.375") (9.53 mm) in diameter or unsound knots where the unsound portion is over 1" (25.4 mm) in diameter; voids on ends or edges; or shake, heart checks, badly split ends and imperfections in manufacture which would materially impair the serviceability of the floor. Occasional scant thickness (hit or miss) on the back of the flooring board the entire length of the piece admitted, providing there is full bearing across the board at some point within three inches of the ends. A limited number of pieces with no tongue admitted.

SPECIAL GRADES FOR BEECH, BIRCH & HARD MAPLE FLOORING

NWFA-NOFMA CLEAR HARD MAPLE: Is special stock, selected for uniformity of color. It is almost ivory white and is the finest grade of Hard Maple flooring that can be produced. Sapwood/heartwood pieces must have 95% sapwood on the face. Pieces must be free from stain and heartwood portion must be nearly white.

All NWFA-NOFMA-NOFMA Select & Better rules apply. Except: streaks should be light brown or light green, not over 1/4" (.250") (6.35mm) wide and 3" (76.2 mm) long (or equivalent), one (1) per 3' (914.4 mm) in length. Black spots and sticker stain/shadow are not admitted.

NWFA-NOFMA CLEAR BEECH & BIRCH: Are special grades produced from all red faced stock, and are specially selected for color. The color is rich, being a soft tint which lends these woods individuality found in no other species. Strips must have 95% red faced characteristics. All NWFA-NOFMA Select & Better rules apply. Except: streaks should be light brown. Black spots, sticker stain/shadow, not admitted.

HICKORY/PECAN FLOORING

NWFA-NOFMA SELECT HICKORY/PECAN: Shall have the face practically free of all defects, but the natural color of the wood shall not be considered a defect. The highest standard grade combines a nearly uniform appearance with exceptional durability.

The following characters are admitted: variations in the natural color of the wood, heartwood and sapwood; an occasional small knot or bird peck not over 1/4" (.250") (6.35mm) in diameter, provided it does not occur on edges or ends of the piece; dark streaks not over 1/4" (.250") (6.35mm) wide and 3" (76.2 mm) long (or its equivalent one (1) to every 3' (914.4 mm) in length); slight checks not over 1/2" (.500") (12.7 mm) long, provided check is boxed within the piece; small burls; slight torn grain or slight intermittent machine burn, or similar defect which can be readily removed by the ordinary method of sanding the floor after it is laid; slight scant back. Pieces with one-half (1/2) tongue, full length of the piece. The wood must be free from shake. Bark streaks shall not be permitted.

NWFA-NOFMA NO. 1 COMMON HICKORY/PECAN: A floor with varying wood characteristics and colors to include heavy streaks, stained sapwood, sound knots, checks and small splits. All defects must readily fill and be sound.

The following characteristics are admitted: Broken knots up to 1/2" (.500") (12.7 mm) in diameter; distinct color variations (predominantly dark, discolored pieces not allowed); sticker stain/shadow; numerous dark streaks or black spots; checks to 1/16" (.0625") (1.59 mm) in width, not exceeding 3" (76.2 mm) in length, and running parallel and well inside the strip edges; small end split 1/16" (.0625") (1.59 mm) wide x 1/2" (.500") (12.7 mm) in length showing no movement; bird pecks to 1/2" (.500") (12.7 mm) in diameter where bark is sound and as hard as surrounding wood. Minor imperfections in machining permitted; torn grain (less than 1/16" (.0625") (1.59 mm) deep in an area 2" (50.8 mm) wide x 2" (50.8 mm) wide); slightly torn edges; and an occasional dark machine burn 1/2" (.500") (12.7 mm) in width (no more than two (2) per 3' (914.4 mm) of length). Pieces with one-quarter (1/4) tongue, full length of the piece.

NWFA-NOFMA NO. 2 COMMON HICKORY/PECAN: Must be of such character as will lay and give a good serviceable floor. The wood must be firm, and may contain defects of every character. This grade is intended to give a "rustic" appearance.

The following defects are not allowed: Knot holes over 3/8" (.375") (9.53 mm) in diameter or unsound knots where the unsound portion is over 1" (25.4 mm) in diameter (the unsound portion cannot extend through piece); shake, soft rot, splits and open defects which extend through piece or show movement, torn grain more than 1/4" (.250") (6.35mm) deep, edge splinters, and imperfections in manufacture which would materially impair the serviceability of the floor.

Knot holes, bird pecks, worm holes, and the like which will readily fill are admitted. Occasional scant thickness (hit or miss) on the back of the flooring board the entire length of the piece admitted, providing there is full bearing across the board at some point within three inches of the ends. A limited number of pieces with no tongue admitted.

SPECIAL GRADES FOR HICKORY/PECAN FLOORING

NWFA-NOFMA CLEAR RED HICKORY/PECAN: Is a special stock selected for its deep red/brown color with the minimal contrast of the lighter sapwood. Face of pieces shall be Heartwood (95%). All NWFA-NOFMA SELECT HICKORY/PECAN grade rules apply.

NWFA-NOFMA CLEAR WHITE HICKORY/PECAN: Is special stock selected for its creamy color with the minimal contrast of the darker heartwood. The face of pieces shall be bright sapwood (95%). All NWFA-NOFMA SELECT HICKORY/PECAN grade rules apply. Except: streaks should be light brown not over 1/4" (.250") (6.35mm) wide and 3" (76.2 mm) long (or equivalent) one (1) per 3' (914.4 mm) of length. Black spots not allowed, sticker stain/shadow not allowed.

NWFA-NOFMA SELECT & BETTER HICKORY/PECAN: A combination of NWFA-NOFMA Clear Red, NWFA-NOFMA Clear White, and NWFA-NOFMA Select. NWFA-NOFMA Select grade rules apply for this grade.

ASH FLOORING

NWFA-NOFMA CLEAR ASH: The face shall be practically free of defects.

The following characters are admitted: Small burls (less than 1/8" (.125") (3.18 mm) in diameter); fine pin worm holes with no discoloration (one (1) for every 3' (914.4 mm) in length), or in the absence of these, one (1) thin light brown streak (3" (76.2 mm) long to be allowed for every 6' (1828.8 mm) of length or equivalent).

Brown heartwood is allowed as follows: 3/8" (.375") (9.53 mm) wide entire length or 1" (25.4 mm) wide for one-third (1/3) the length of the piece.

Clear Ash is usually chosen for its light color.

NWFA-NOFMA SELECT ASH: The face shall contain mostly sapwood, unstained.

The following characters are admitted: narrow streaks not running entire length of the piece; pin worm holes (up to three (3) every 3' (914.4 mm) in length); imperfections in milling (torn grain) which will sand out; one (1) small tight knot (1/4" (.250") (6.35mm) in diameter) to every 3' (914.4 mm) in length, small pith fleck (less than 1/4" (.250") (6.35mm) diameter), an intermittent brown machine burn across the face not exceeding 1/4" (.250") (6.35mm) in width; and unlimited cambium miners.

Brown heartwood is allowed as follows: 3/8" (.375") (9.53 mm) wide the entire length of the piece or 1" (25.4 mm) wide for one-third (1/3) the length of the piece.

Will admit pieces with one-half (1/2) tongue, full length of the piece.

Most defects are lost sight of after the floor is laid and finished, giving a good appearance.

NWFA-NOFMA NO. 1 COMMON ASH: A floor with varying wood characteristics such as heavy streaks, stained sapwood, and sound knots typical of this grade. All defects must readily fill and be sound.

The following characters are admitted: Broken knots up to 1/2" (.500") (12.7 mm) in diameter, pith flecks less than 3/16" (.1875") (4.76 mm) in diameter, worm holes up to 3/16" (.1875") (4.76 mm); checks and end splits less than 1/16" (.0625") (1.59 mm) wide and not extending through the piece, and sticker stain.

Minor imperfections in machining permitted; torn grain (not over one-fourth (1/4) of the surface, less than 1/16" (.0625") (1.59 mm) in depth); one (1) dark machine burn across the face for every 3' (914.4 mm) of length, not exceeding 1/2" (.500") (12.7 mm) in width, and 1/64" in depth.

Will admit pieces with one-quarter (1/4) tongue, full length of the piece.

NWFA-NOFMA NO. 2 COMMON ASH: Defects of every character admitted, but should lay a serviceable floor.

The following defects are NOT allowed: soft rot, broken knots where the unsound portion extends through piece, torn grain over 3/16" (.1875") (4.76 mm) in depth, splits and open defects extending through the piece, shake and pith flecks that are soft if over 1/4" (.250") (6.35mm) in diameter.

Knot holes and defects which will readily fill are admitted. Occasional scant thickness (hit or miss) on the back of the flooring board the entire length of the piece admitted, providing there is full bearing across the board at some point within three inches of the ends. A limited number of pieces with no tongue admitted.

AMERICAN BLACK CHERRY FLOORING (*Prunus serotina* Ehrh.)

NWFA-NOFMA CLEAR AMERICAN BLACK CHERRY: A flooring product selected for its rich red-brown coloration and minimal character marks. The face is composed of 100% naturally colored heartwood.

Will admit the following and other similar characters: small tight checks; a minimal number of slight edge defects

(indentations); small burls; limited pin knots; fine pin worm holes; a thin black streak, 3" (76.2 mm) long in 2' (609.6 mm) of length; a sound gum pocket 1/16" (.0625") (1.59 mm) wide x 1" (25.4 mm) long per foot of length (304.8 mm) and three-fourths (3/4) tongue, full length of the piece.

NWFA-NOFMA SELECT AMERICAN BLACK CHERRY: A flooring product with natural coloration variations found in heartwood and a small amount of contrasting sapwood, along with allowable characters.

Will admit the following and other similar characters: 1/2" (.500") (12.7 mm) wide bright sapwood entire length of piece or equivalent; a small tight 1/4" (.250") (6.35mm) wide knot every 3' (914.4 mm) of length; slightly open shallow checks, 1/2" (.500") (12.7 mm) long per foot (304.8 mm) of length; edge defects (indentations) less than 1/16" (.0625") (1.59 mm) wide x 1/2" (.500") (12.7 mm) long for every 2' (609.6 mm) of length; intermittent machine burn; narrow black streaks not running the entire length; a gum pocket 1/8" (.1250") (3.18 mm) wide x 1" (25.4 mm) long per foot (304.8 mm) of length; a slight amount of scant thickness where ends are full thickness; and one-half (1/2) tongue, full length of the piece.

NWFA-NOFMA NO. 1 COMMON AMERICAN BLACK CHERRY: A flooring product which may contain prominent color variation between the light sapwood and dark heartwood, along with prominent natural and machine produced characters.

Will admit the following and other similar characters: broken knots up to 1/2" (.500") (12.7 mm) wide with no loose pieces, must readily fill; numerous checks up to 1/16" (.0625") (1.59 mm) wide and not extending through the piece; edge defects (indentations) up to 3/32" (.0938") (2.38 mm) wide x 1 1/2" (38.1 mm) long in aggregate for every 3' (914.4 mm) of length; occasional solid machine burns; a small area of rough face showing minor saw marks; unlimited sapwood; sapwood may be stained, splotchy, and include unlimited sticker-stain; up to 20" (508 mm) scant stock (hit or miss) for every 5' (1524 mm) of length, with full thickness within 3" (76.2 mm) of ends; may have heavy streaks and dark discoloration up to 50%; open fillable gum pockets; worm holes 1/8" (.125") (3.18 mm) in diameter, one (1) per foot (304.8 mm) of length; pin worm holes, six (6) per foot (304.8 mm) of length; one (1) area of torn grain to 1/16" (.0625") (1.59 mm) deep per 3' (914.4 mm) of length; and one-quarter (1/4) tongue, full length of the piece.

NWFA-NOFMA NO. 2 COMMON AMERICAN BLACK CHERRY: A flooring product which contains sound natural variations and manufacturing imperfections of the forest product, all imperfections and open characters must be fillable.

Will admit the following and other similar characters: knots and knot holes where openings and loose areas do not extend through pieces; edge defect 1/4" (.250") (6.35mm) wide x 1/4" (.250") (6.35mm) wide if irregular, not to extend in depth through the tongue and groove engagement; dark machine burns not more than 3/64" (.046875") (1.19 mm) deep; prominent open checks not extending through the piece; incipient decay which is not softer than surrounding wood; a small un-planed area with radiating saw marks; split ends with no movement across the split; an area of torn grain up to 1/8" (.125") (3.18 mm) deep x 3" (76.2 mm) in length for the full width of the piece permitted for every 2' (609.6 mm) of length; angled grub worm holes 3/16" (.1875") (4.76 mm) wide x 1/2" (.500") (12.7 mm) long with all other worm holes if sound; unlimited dark discoloration and streaks to include stained sapwood and unlimited sticker stain; open gum pockets to 1/8" (.125") (3.18 mm) wide; Occasional scant thickness (hit or miss) on the back of the flooring board the entire length of the piece admitted, providing there is full bearing across the board at some point within three inches of the ends. A limited number of pieces with no tongue admitted.

BLACK WALNUT FLOORING

(*Juglans nigra* L.)

NWFA-NOFMA CLEAR WALNUT: A flooring product selected for its dark rich coloration and minimal character marks. The face is 100% true heartwood coloration.

Will admit the following and other similar characters: one (1) small tight knot up to 1/4" (.250") (6.35mm) in diameter every 3' (914.4 mm) of length; small tight checks; a minimal number of slight edge defects (indentations); small burls and fine unstained pinworm holes or a thin brown streak 3" (76.2 mm) long in 2' (609.3 mm) of length; and three-quarters (3/4) tongue, full length of the piece.

NWFA-NOFMA SELECT WALNUT: A flooring product with natural coloration variations found in heartwood and steamed dark sapwood. The steamed sapwood should not show a prominent color contrast to the heartwood.

Will admit the following and similar characters: broken knots up to 3/8" (.375") (9.53 mm) in diameter with no loose pieces; narrow slightly open checks; edge defects (indentations) up to 1/16" (.0625") (1.59 mm) wide x 1/2" (.500") (12.7 mm) long in aggregate for every 2' (609.6 mm) of length; intermittent machine burn; torn grain (must sand out); pinworm holes two (2) per foot (304.8 mm) of length and/or two (2) flag worm holes per 8' (2438.4 mm) of length; a slight amount of scant thickness where ends are full thickness; and one-half (1/2) tongue, full length of the piece.

NWFA-NOFMA NO. 1 COMMON WALNUT: A flooring product which may contain prominent color variation between the light sapwood and dark heartwood, along with prominent natural and machine produced characters.

Will admit the following and other similar characters: broken knots, if the unsound open area does not extend through the piece; numerous checks up to 1/16" (.0625") (1.59 mm) wide; edge defects (indentations) up to 3/32" (.09375") (2.38 mm) wide x 1 1/2" (38.1 mm) long in aggregate for every 3' (914.4 mm) of length; occasional solid machine burns; rough face showing minor saw marks; heartwood coloration must be 25% of piece or an equivalent; sapwood may be stained, blotchy or speckled; worm holes, up to 1/8" (.125") (3.18 mm) in diameter, one (1) per foot (304.8 mm) of length; pin worm holes, six (6) per foot (304.8 mm) of length; small area of torn grain to 1/16" (.0625") (1.59 mm) deep; up to 20" (508 mm) of scant stock (hit or miss) per 5' (1524 mm) of length and have full thickness within 3" (76.2 mm) of ends; and one-quarter (1/4) tongue, full length of the piece.

NWFA-NOFMA NO. 2 COMMON WALNUT: A flooring product which contains sound, natural variations and manufacturing imperfections of the forest product, all imperfections and open characters must be fillable.

Will admit the following and other similar characters: knots and knot holes where openings do not extend through piece; edge defect 1/4" (.250") (6.35mm) wide x 1/4" (.250") (6.35mm) wide if irregular and will hold filler - not to extend in depth through the tongue and groove engagement; dark machine burns not more than 3/64" (.0469") (1.19 mm) deep; prominent open checks not extending through piece; incipient decay which is not softer than surrounding wood; a small un-planed area radiating saw marks; split ends with no movement across the split; an area of torn grain up to 1/8" (.125") (3.18 mm) deep x 3" (76.2 mm) in length for the full width of the piece permitted for every 2' (609.6 mm) of in length; angled grub worm holes 3/16" (.1875") (4.76 mm) x 1/2" (.500") (12.7 mm) along with all other worm holes if sound; unlimited sapwood; Occasional scant thickness (hit or miss) on the back of the flooring board the entire length of the piece admitted, providing there is full bearing across the board at some point within three inches of the ends. A limited number of pieces with no tongue admitted.