



Technical Bulletin – Tropical Forest Products Grading Rules

Grade Selection

Grade selection and specification will have a significant impact on both the appearance and performance of wood products in any given application.

NHLA (National Hardwood Lumber Association) Grading Rules only go so far allowing more defect in its highest grades, than we allow in our production. That's why Tropical Forest Products has developed and published grading standards and product specification language which we apply to our own decking, cladding, lumber and timber products.

When tropical hardwoods are specified or purchased without clearly defining grade expectations, there is no assurance of the quality and consistency of the product delivered, and no accountability standard set for the supplier. And since grade affects price, what looks like a good deal on paper might not look nearly as good on your project. If the product is being used in structural applications like decking, grade has a direct impact on mechanical properties and load performance.

Based upon our published grading rules and ASTM D143 physical properties testing, Tropical Forest Products has developed engineered and certified ASTM D245 Allowable Design Values for hardwoods based on grade.

It is important to note that TFP Black Label™ Premium Select Architectural Grade hardwood decking has almost twice the strength of Generic FAS grade hardwood decking. Because of the establishment of definitive grading rules, TFP can offer hardwood decking, stringer and beam products available with structural engineer certified and stamped span charts and code compliant submittal documents.

We strongly encourage specifiers, consumers and contractors to utilize these standards in their decision-making process and to specifically reference these standards in their purchase orders.

Grading Rule Definitions

As with most natural wood products, tropical hardwoods possess natural "Appearance Characteristics" that add to their unique beauty. Those that are appreciated include color variation and distinctive grain patterns. Other characteristics in all types of lumber that develop naturally or through manufacturing are known as "Physical Characteristics", "Sound Defects", "Unsound Defects" and "Milling Defects". The following is a summary of the typical characteristics one might find in a wood grade specification.

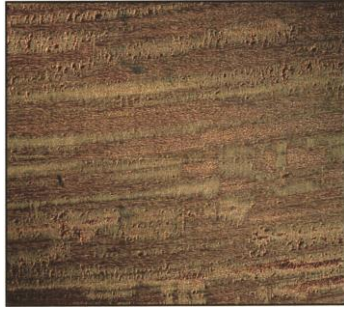
It is important to note that industry standard allows for 5% sub grade in all production to allow for human error in the grading process.

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| <p><u>Appearance Characteristics</u></p> <ol style="list-style-type: none">1) Color variation2) Mixed grain3) Drying checks4) Reverse Grain5) Birdseye6) Pin knots7) Water stain8) Discoloration9) Sticker marks10) Molder knife marks | <p><u>Physical Characteristics</u></p> <ol style="list-style-type: none">1) Bow2) Crook3) Cup4) Twist <p><u>Milling Defects</u></p> <ol style="list-style-type: none">1) Skip2) Torn grain3) Non-compliant profiling4) Hit or Miss | <p><u>Sound Defects</u></p> <ol style="list-style-type: none">1) Pin holes2) Sound knots3) Torn grain <p><u>Unsound Defects</u></p> <ol style="list-style-type: none">1) Large borer holes2) Splits3) Unsound knots4) Shake5) Sapwood |
|--|--|---|

Appearance Characteristics



Pin Knot (Tight)



Tight Reverse Grain



Grain/Color Variation



Loose Knot



Knife Marks



Torn Grain



Sapwood (light color)



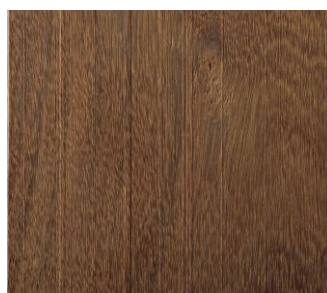
Split/Crack



Grub Hole



Shake



Planar Marks



Sticker Mark



Worm Hole



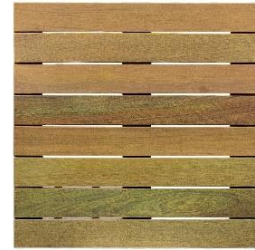
Hit or Miss / Skip



Birdseye / Makula



BLACK LABEL™ Premium Select Architectural Grade Clear Mixed Grain



TFP BLACK LABEL™ PREMIUM SELECT- Architectural Grade ... Selected for Premium Appearance on 4 Sides and 4 Edges.

Grading Face, Back Face, and Edges – 100% All Heart, Free of Heart Center, Free of Sapwood:

Include - Appearance Characteristics with elimination of reverse grain.

Include - Physical Characteristics which can be removed using normal installation methods, tools, or sanding.

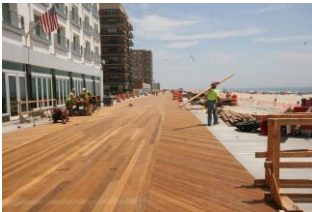
Exclude - Sound Defects

Exclude - Unsound Defects

Exclude - Milling Defects.

For Structural Application – Not Allowed...pin knots bigger than ½” at any face and/or edge, Maximum permitted slope of Grain 1” in 10”, length of end split and surface split shall be as per ASTM D245 (5.4.3)

TFP FEQ Commercial Grade



Tropical Forest Products FEQ (First Export Quality) - Commercial Grade...Hand Selected for Serviceable Appearance on 1 Face and 2 Edges.

Include - Appearance Characteristics. Unlimited Tight Reverse Grain.

Include - Physical Characteristics that can be removed using normal installation methods, tools, or sanding.

Include - Sound Defects

Grading Face – Clear All Heart: Free of Heart Center, Free of Sapwood

Exclude - Unsound Defects

Exclude - Milling Defects

Back Face and Edges:

Include – Unsound Defects

Include – Milling Defects

For Structural Application – Not Allowed...knots bigger than ¾” at narrow face or edges, centerline knots bigger than 1-3/4” at wide face, edge knots bigger than ¾” at wide face, Maximum permitted slope of grain 1” in 8”, length of end split and surface split shall be as per ASTM D245 (5.4.3)



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FAS (First and Seconds) – Mill Run Grade



FAS represents the standard market export grade produced by the mills and offered by many importers and is typically uninspected. It is not uncommon to hear FAS qualities described as **Prime, #1, Select and Better, First Quality** in the open market.

No grade representation means anything if not backed up by clearly defined grading rules. As such TFP has established rules for FAS quality. It is important to note that FAS grade with the exception of sapwood is just as resistant to rot as other grades. It is simply lower in strength and less attractive in appearance than higher grades.

First and Seconds ratios - Undefined.

Include - Appearance Characteristics.

Include - Physical Characteristics which can be removed using normal installation methods, tools, or sanding.

Include - Sound Defects

Include - Unsound Defects

Include - Milling Defects.

For Structural Application – Not Allowed...knots bigger than ¾" at narrow face or edges, centerline knots bigger than 1-3/4" at wide face, edge knots bigger than ¾" at wide face, Maximum permitted slope of grain 1" in 6", length of end split and surface split shall be as per ASTM D245 (5.4.3)

Grade Notes – Under Tropical Forest Products Grading Rules

AD - Lumber is air dried to have moisture content of 18% and higher after milling.

KD – Lumber will be kiln dried to have moisture content of 12-14% before milling.

SUBGRADE ALLOWANCES – Industry standards allow for any grade to include up to 5 percent of the next lower in any volume supplied to account for human error in the grading process. .

Color and Grain Variation

Color and grain variation is typical of materials created by nature and recognized as part of the beauty that sets natural products apart from manufactured products. This is particularly true where wood products are concerned, though some species have more or less color variation than others. This should always be considered when looking at wood samples as Black Label™ Decking is supplied mixed grain and are not sorted for color. Some consistency in color can be achieved through either staining wood or allowing wood to weather or grey out naturally.



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