

Technical Bulletin - Iron Woods® Grading Rules

Grade Selection

Grade selection will have a significant impact on both the appearance and performance of any project. Not all wood is created equal. Ipe is not a grade. Cedar is not a grade. The grade of the wood you use describes the quality through the designation of allowable and non-allowable characteristics including but not limited to sound and unsound defects accepted in the appearance of the lumber you buy. Iron Woods have established design values associated with our grading rules as per ASTM D 245 Allowable Design Values for Wood calculated from ASTM D143 Physical Properties Testing.

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 a vendor. And since grade affects price, what looks like a good deal on paper might not look nearly as good on your project.

Timber Holdings developed and published grading rules and specification language for Architects and other specification professionals which have set the standards for over 40 years, the highest standard of which has become synonymous with the Iron Woods® brand.

We strongly encourage specifiers and consumers to utilize these standards in their decision making process and to specifically reference these standards in their purchase orders. Consumers should not buy wood products without specifying grade requirements.

Grade Selection – 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.

<p><u>Appearance Characteristics</u></p> <ol style="list-style-type: none"> 1) Color variation 2) Mixed grain 3) Drying checks 4) Reverse Grain 5) Birdseye 6) Pin knots 7) Water stain 8) Discoloration 9) Sticker marks 10) Molder knife marks 	<p><u>Physical Characteristics</u></p> <ol style="list-style-type: none"> 1) Bow 2) Crook 3) Cup 4) Twist <p><u>Milling Defects</u></p> <ol style="list-style-type: none"> 1) Skip 2) Torn grain 3) Non-compliant profiling 	<p><u>Sound Defects</u></p> <ol style="list-style-type: none"> 1) Pin holes 2) Sound knots <p><u>Unsound Defects</u></p> <ol style="list-style-type: none"> 1) Large borer holes 2) Splits 3) Unsound knots 4) Shake 5) Sapwood
---	--	--

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. First and Seconds ratio is undefined. It is not uncommon to hear FAS qualities described as **Prime, #1, Select, First Quality** in the open market. These terms mean nothing if not backed up by clearly defined grading rules.

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 $\frac{3}{4}$ " at narrow face or edges, centerline knots bigger than 1- $\frac{3}{4}$ " at wide face, edge knots bigger than $\frac{3}{4}$ " 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)



The image to the left represents what is visually allowable and what you might receive within an FAS grade. As there are no specific grading rules and no first to second quality ratio percentage requirements, inconsistency is the general rule.

In the absence of industry standards for the grading of tropical hardwood decking, Timber Holdings established our own grading rules which have become synonymous with the Iron Woods brand.

Iron Woods Premium Select Architectural Grade



IRON WOODS PREMIUM SELECT- Architectural Grade ... Hand Selected for Special Appearance on 4 Sides and 4 Edges.

Grading Face, Back Face, and Edges – Clear All Heart:

Include - Appearance Characteristics.

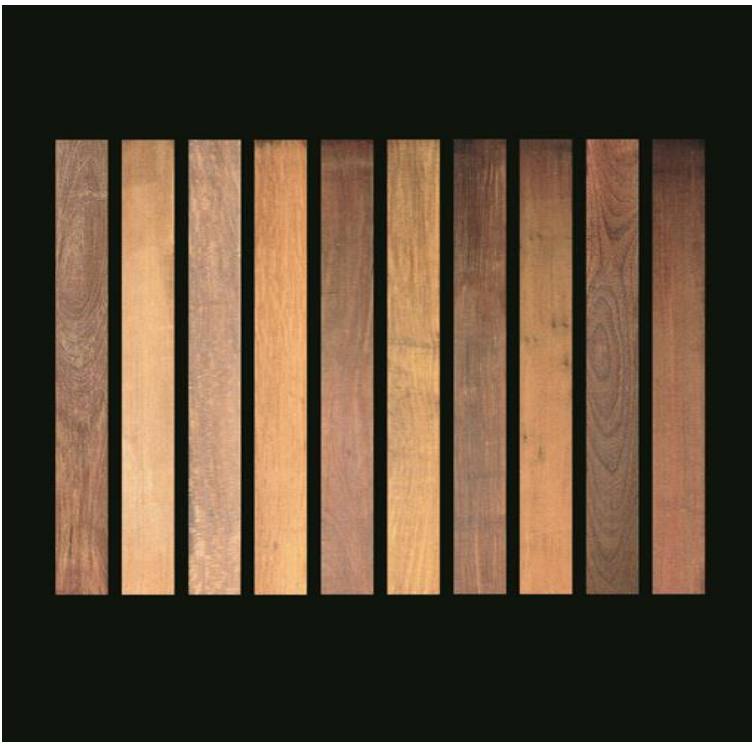
Include - Physical Characteristics which can be removed using normal installation methods, tools, or sanding.

Exclude - Sound Defects

Exclude - Unsound Defects

Exclude - Milling Defects.

For Structural Application – Not Allowed...pin knots bigger than 1/2" 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)



This image gives a general idea of the appearance that can be expected in Iron Woods Premium Select Architectural Grade. Graded for premium visual appearance on 4 faces and 4 edges.

Timber Holdings FEQ Commercial Grade



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

Include - Appearance Characteristics

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

Include - Sound Defects

Grading Face – Clear All Heart:

Exclude - Unsound Defects

Exclude - Milling Defects

Back Face and Edges:

Include – Unsound Defects

Include – Milling Defects

For Structural Application – Not Allowed...knots bigger than $\frac{3}{4}$ " at narrow face or edges, centerline knots bigger than 1-3/4" at wide face, edge knots bigger than $\frac{3}{4}$ " 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)



This image gives a general idea of the appearance that can be expected in Iron Woods FEQ Grade. Graded for consistency and a serviceable visual appearance on 1 faces and 2 edges. Second Quality boards with non-allowable defects on both faces are completely removed during the grading process.

Grade Notes

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

KD - Lumber will be kiln dried to have moisture content of 16% or lower.

SUBGRADE ALLOWANCES – Industry standards allow for any grade to include up to 5 percent of the next lower grade to be included in any volume supplied.

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 Iron Woods are 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.



Example - Ipe Color Variation



Example -Oiled Ipe



Example Weathered Ipe