

MAXIMO™

TECHNICAL BULLETIN

Naturally Durable Hardwood Grading Rules

Grade Selection

The selection of the appropriate grade and specifications significantly impacts the appearance and performance of wood products in any given application.

Selecting the appropriate grade and specifications is crucial for the appearance and performance of wood products in any application.

The grading rules set by the National Hardwood Lumber Association (NHLA) allow more defects in their highest grades than what we permit in our production. Therefore, Maximo™ has established and published its own grading standards and product specification language for decking, cladding, lumber, and timber products.

When specifying or purchasing tropical hardwoods without clearly defining grade expectations, there is no guarantee of the quality and consistency of the delivered product, nor is there an accountability standard for the supplier. Since grade affects price, an apparent good deal on paper might not look as favorable on your project. The grade directly influences mechanical properties and load performance in structural applications like decking.

Based on our published grading rules and ASTM D143 physical properties testing, Maximo™ has developed and certified ASTM D245 Allowable Design Values for hardwoods based on grade.

It is noteworthy that Maximo™ Premium Select Architectural Grade hardwood decking boasts nearly double the strength of generic FAS grade hardwood decking. Due to the establishment of definitive grading rules, Maximo™ can offer hardwood decking, stringer, and beam products with structural engineer certified and stamped span charts and code-compliant submittal documents.

We strongly recommend that specifiers, consumers, and contractors utilize these standards in their decisions and reference them in purchase orders.

Grading Rule Definitions

Like most natural wood products, tropical hardwoods possess natural "Appearance Characteristics" that contribute to their unique beauty, including color variation and distinctive grain patterns. Other characteristics, either natural or resulting from manufacturing, are termed "Physical Characteristics," "Sound Defects," "Unsound Defects," and "Milling Defects." Below is a summary of typical characteristics in a wood grade specification.

It is important to note that the industry standard allows for a 5% subgrade in all production to account for human error in the grading process.

MAXIMO™

TECHNICAL BULLETIN

Naturally Durable Hardwood Grading

Appearance Characteristics

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

Physical Characteristics

1. Bow
2. Crook
3. Cup
4. Twist

Sound Defects

1. Pin Holes
2. Sound knots
3. Torn Grain

Milling Defects

1. Skip
2. Torn Grain
3. Non-compliant porfiling
4. Hit or Miss

Unsound Defects

1. Large borer holes
2. Splits
3. Unsound knots
4. Shake
5. Sapwood

MAXIMO™

TECHNICAL BULLETIN Naturally Durable Hardwood Grading

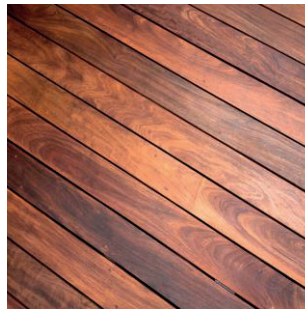
Characteristics and Defects



Pin Knot (Tight)



Tight Reverse Grain



Grain/Color Variation



Loose Knot



Knife Marks



Torn Grain



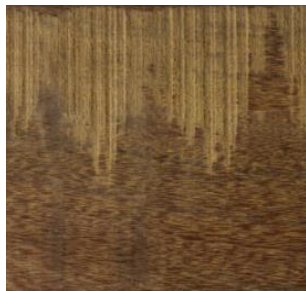
Sapwood (light color)



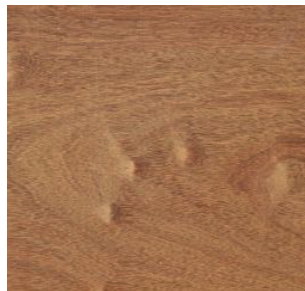
Split/Crack



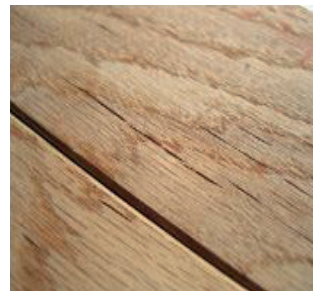
Worm Hole



Hit or Miss / Skip



Birdseye / Makula



Surface Checking

maximowood.com

20807 Biscayne Blvd, unit 304, Aventura, FL 33180
(888) 987-2224 | info@MaximoWood.com

© All Rights Reserved - Maximo Wood 2024

080624_v1_FL

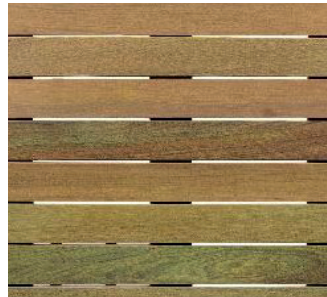
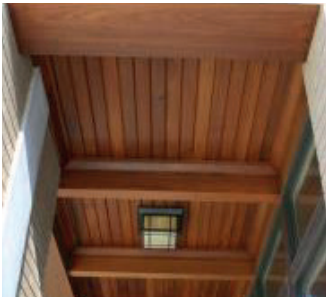
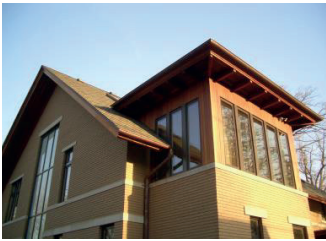
TIMBER 
TRUST
COMPLIANCE



MAXIMO™

TECHNICAL BULLETIN Naturally Durable Hardwood Grading

Maximo™ Premium Select Architectural Grade Clear Mixed Grain



with standard installation methods, tools, or sanding.

- Exclude: Sound defects.
- Exclude: Unsound defects.
- Exclude: 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 the wide face, edge knots bigger than $\frac{3}{4}$ " at the wide face, the maximum permitted slope of grain 1" in 8", length of end split and surface split shall be as per ASTM D245 (5.4.3).

Structural Application Guidelines:

- Prohibited: Pin knots larger than $\frac{1}{2}$ " on any face or edge.
- Maximum Allowed Grain Slope: 1" in 10".
- End Split and Surface Split Length: Must comply with ASTM D245 (5.4.3).

Maximo™ Premium Select Architectural Grade Clear - Hand Selected for Premium Appearance on 4 Sides 4 Edges.

Grading Criteria for Faces and Edges:

100% Heartwood, Excluding Heart Center and Sapwood:

- Include: Visual features with up to 5% tight reverse grain.
- Include: Physical features that can be removed

maximowood.com

20807 Biscayne Blvd, unit 304. Aventura, FL 33180
(888) 987-2224 | info@MaximoWood.com

© All Rights Reserved - Maximo Wood 2024

080624_v1_FL

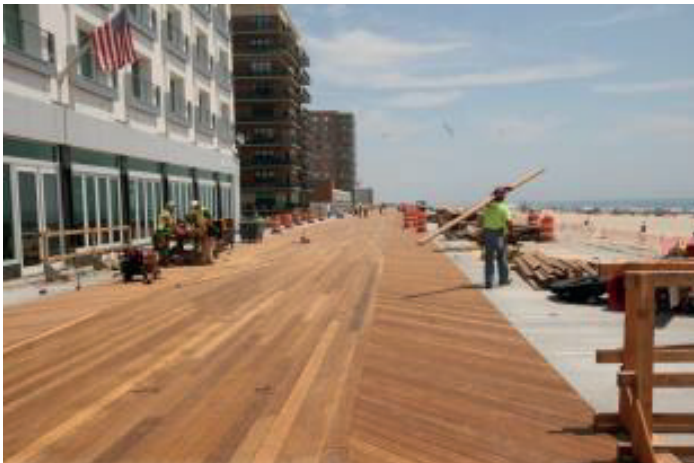


MAXIMO™

TECHNICAL BULLETIN Naturally Durable Hardwood Grading

GMX GROUP PRODUCTS FEQ Commercial Grade

Carefully Selected for Superior Appearance on All 4 Sides and Edges



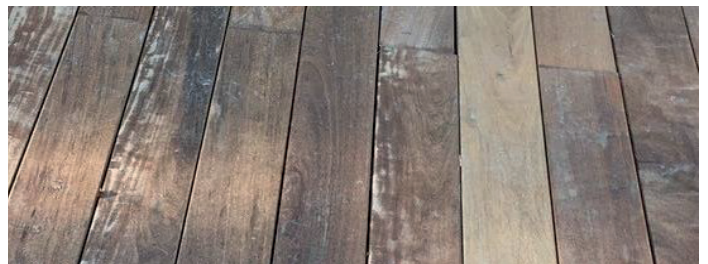
GMX GROUP PRODUCTS FEQ (First Export Quality/) Commercial Grade - Hand selected for Serviceable Appearance on 1 Face and 2 Edges.

- Include: Appearance Characteristics. Unlimited Tight Reverse Grain.
- Include: 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 $\frac{3}{4}$ " at narrow face or edges, centerline knots bigger than 1- $\frac{3}{4}$ " at the wide face, edge knots bigger than $\frac{3}{4}$ " at the wide face, the maximum permitted slope of grain 1" in 8", length of end split and surface split shall be as per ASTM D245 (5.4.3).

FAS B Grade (First and Seconds) - Mill Run Grade



maximowood.com

20807 Biscayne Blvd, unit 304. Aventura, FL 33180
(888) 987-2224 | info@MaximoWood.com

© All Rights Reserved - Maximo Wood 2024

080624_v1_FL

TIMBER 
TRUST
COMPLIANCE



MAXIMO™

TECHNICAL BULLETIN Naturally Durable Hardwood Grading

FAS B Grade represents the standard market export grade and is typically uninspected. It is not uncommon to hear FAS qualities described as Mill Run, Prime, #1, Select and Better, and First Quality.

It is important to understand that grade representation does not assure quality or consistency if not backed up by clearly defined grading rules. As such, GMX Group Projects has established rules for FAS quality. It is important to note that the FAS grade, except for sapwood, is just as resistant to rot as other grades. It is simply lower in strength and less attractive in appearance than higher grades.

- Include: Physical Characteristics which can be removed using normal installation methods, tools, or sanding.
- Include: Appearance Characteristics.
- Include: Sound Defects.
- Include: Unsound Defects.
- Include: Milling Defects.
- First and Seconds ratios - Undefined.

For Structural Application - Not Allowed... knots bigger than 3/4" at narrow face or edges, centerline knots bigger than 1-3/4" at the wide face, edge knots bigger

than 3/4" at the wide face, the maximum permitted slope of grain 1" in 6", length of end split and surface split shall be as per ASTM D245 (5.4.3).

Character Grade is an aesthetic grade with 100% of boards containing the characteristic of Tight Reverse Grain.



Character Grade is 100% Reverse Grain

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

MAXIMO™

TECHNICAL BULLETIN Naturally Durable Hardwood Grading

Grade Notes – Under GMX Group Products Grading Rules

It is important to understand that grade representation does not assure quality or consistency if not backed up by clearly defined grading rules. As such, GMX Group Projects has established rules for FAS quality. It is important to note that the FAS grade, except for sapwood, is just as resistant to rot as other grades. It is simply lower in strength and less attractive in appearance than higher grades.

- **AD** - Lumber is air dried with a moisture content of 18% or higher after milling.
- **KD** - Lumber will be kiln dried to have a moisture content of 12-14% before milling include: Sound Defects.

Subgrade Allowances - Industry standards allow any grade to include up to 5% of the next lower grade in any volume supplied to account for human error in the grading process.

Color and Grain Variation

Color and grain variation are typical of materials created by nature and are recognized as part of the beauty that sets natural products apart from manufactured ones. 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 Maximo™ Decking is supplied with a mixed grain and is not sorted for color. Some color consistency can be achieved by staining the wood or allowing the wood to weather or grey out naturally.

