HAWORTH

Veneer 101:

The Beauty of Wood

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AIA: : # HAW-2200

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Learning Objectives

01 Describe the veneer manufacturing process from field to factory, including log preparation, conditioning, slicing techniques, drying, trimming, and grading.

02 Identify the natural characteristics inherent in wood veneer, including the factors that contribute to its unique appearance.

03 Explain how veneer is laid up on panels and applied to furniture, and how these techniques support design and production.

04 Recognize when and how to specify veneer for design projects, using best practices that align with client needs and design intent.

05 Demonstrate proper care and maintenance of veneer surfaces to preserve their beauty and longevity.

Glossary of Terms

Cathedral: A peaked or arch-like grain pattern that appears in veneer when logs are flat cut.

Flip / Polarization: The optical effect where certain wood species appear to change color depending on the viewing angle.

Flitch: A group of veneer leaves kept in the order in which they were sliced from a single log.

Gloss: The level of shine or luster in the finish, ranging from matte to high gloss.

Heartwood: The dense, inner part of the tree, typically darker and more color-stable.

Leaves: Individual slices of veneer produced during the slicing process.

Metamerism: The phenomenon where wood appears to change color under different lighting conditions.

Open Pore: A finish that allows the natural texture and grain of the wood to remain visible and tactile.

Sapwood: The outer portion of the tree, often lighter in color and less stable; usually clipped from veneer to ensure color consistency.

Species: The family or type of tree. Common species used in furniture include maple, cherry, oak, walnut, beech, and anegre.

Stain: A semi-transparent color treatment used to reduce or unify natural color variation in veneer.

Texture: The surface feel and visual grain of wood, which varies by species (e.g., oak and walnut have a coarser texture).

Topcoat: A clear protective layer applied over stain or natural veneer to enhance durability and appearance.

Veneer vs. Solid Wood vs. Laminate

Veneer
A thin slice of real wood applied to a substrate. This creates the appearance and feel of solid wood while using less material, making it a cost-effective and sustainable choice.

Solid Wood
Made from a single, continuous piece of natural wood throughout its entire thickness. Offers authentic material and durability, often used for premium applications but can be more susceptible to warping and expansion.

Laminate
A printed or artificial surface that mimics wood or other materials. It is not real wood; instead, it is typically made from fiberboard or particleboard with a printed design sealed with a clear protective layer. Known for its durability and low cost, but less authentic in feel and appearance.

01 Learning Objective

Describe the veneer manufacturing process from field to factory, including log preparation, conditioning, slicing techniques, drying, trimming, and grading.

Veneer Manufacturing Process

- Forest
- Log Yard
- Grading
- Conditioning
- Debarking

FOREST

Haworth prioritizes sourcing wood from sustainably managed forests.

LOG YARD

The veneer process begins with selecting the finest logs, each with its unique grain and character.

GRADING

Each log is graded to ensure that the resulting veneer sheets match the intended use.

CONDITIONING

In preparation for slicing, the logs soak in hot water to soften. Cook time is determined by species, as it impacts the appearance.

DEBARKING

Logs are stripped of bark to prepare them for slicing.

Veneer Manufacturing Process (cont.)

- Slicing
- Sweating
- Drying
- Trimming
- Sorting

SLICING

Logs are cut into halves or quarters (depending on veneer cut), and then sliced into thin sheets.

SWEATING

The sheets are allowed to "sweat," helping equalize color and develop natural characteristics before drying.

DRYING

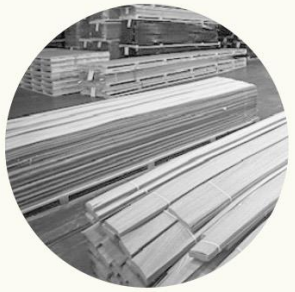
Sheets are dried one-by-one, and are collected in sequential order to keep them from being separated.

TRIMMING

Flitches of veneer are inspected and trimmed to create uniform sizing and to ensure straight edges.

SORTING

Veneer books are sorted into multiple grades based on quality, size, color, and appearance.



Slicing

There are several techniques for slicing wood veneers, and each reveals unique grain patterns and textures. This variation not only enhances aesthetic appeal but also allows designers and woodworkers to choose cuts that best express the desired mood, style, or story in their creations.

Plain Slice

Slicing is done parallel through the center of the log, creating a stunning visual combination of cathedral and straight grain patterns.

Quarter Cut

Quarter cut veneer is created by first cutting the log into quarters and then slicing it perpendicular to the grain. This creates a narrow and more consistent grain structure than plain slicing.

Rift Cut

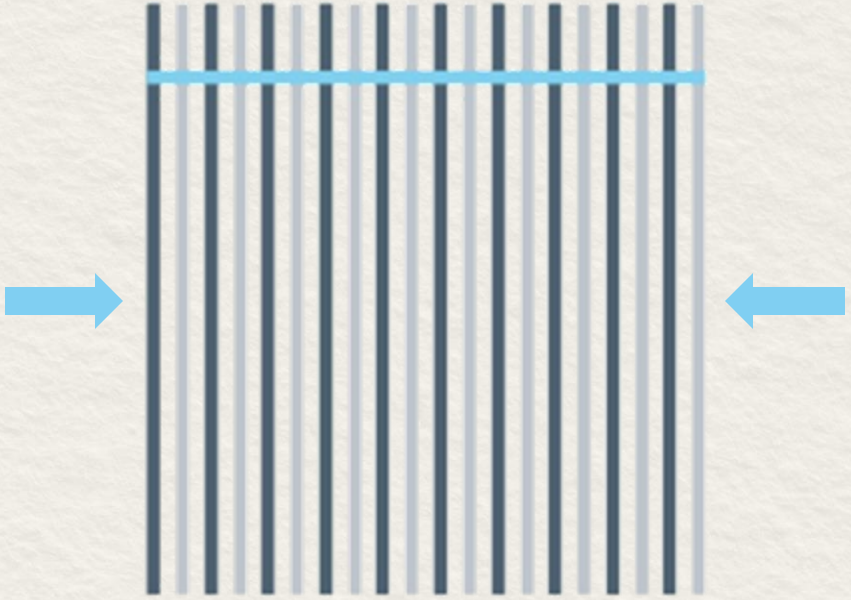
Rift cut veneer is made by first cutting the log into quarters and then slicing with the grain along the outer edge. This results in a wider grain structure than quarter cut, with more grain consistency than plain cut.

Rotary Cut

Logs are mounted on a lathe and turned against a sharp blade, creating a continuous sheet that is cut into sections.

Double Cut

Individual sheets from a rotary cut are stacked and glued together to create a solid block. The block is then sliced into new sheets with a highly consistent pattern.



Questions?

02 Learning Objective

Identify the natural characteristics inherent in wood veneer, including the factors that contribute to its unique appearance.

Quality + Craftsmanship

Forest Stewardship Council (FSC) Certification
FSC is an international organization that promotes responsible forest management. Its certification system helps ensure that wood and forest products are sourced sustainably, supporting environmental and social responsibility throughout the supply chain.

Architectural Woodwork Institute (AWI) Standards
AWI provides industry-recognized standards for architectural woodwork. These guidelines help manufacturers maintain consistent quality, meet client expectations, and support best practices in craftsmanship and production.

Grain Pattern Variability

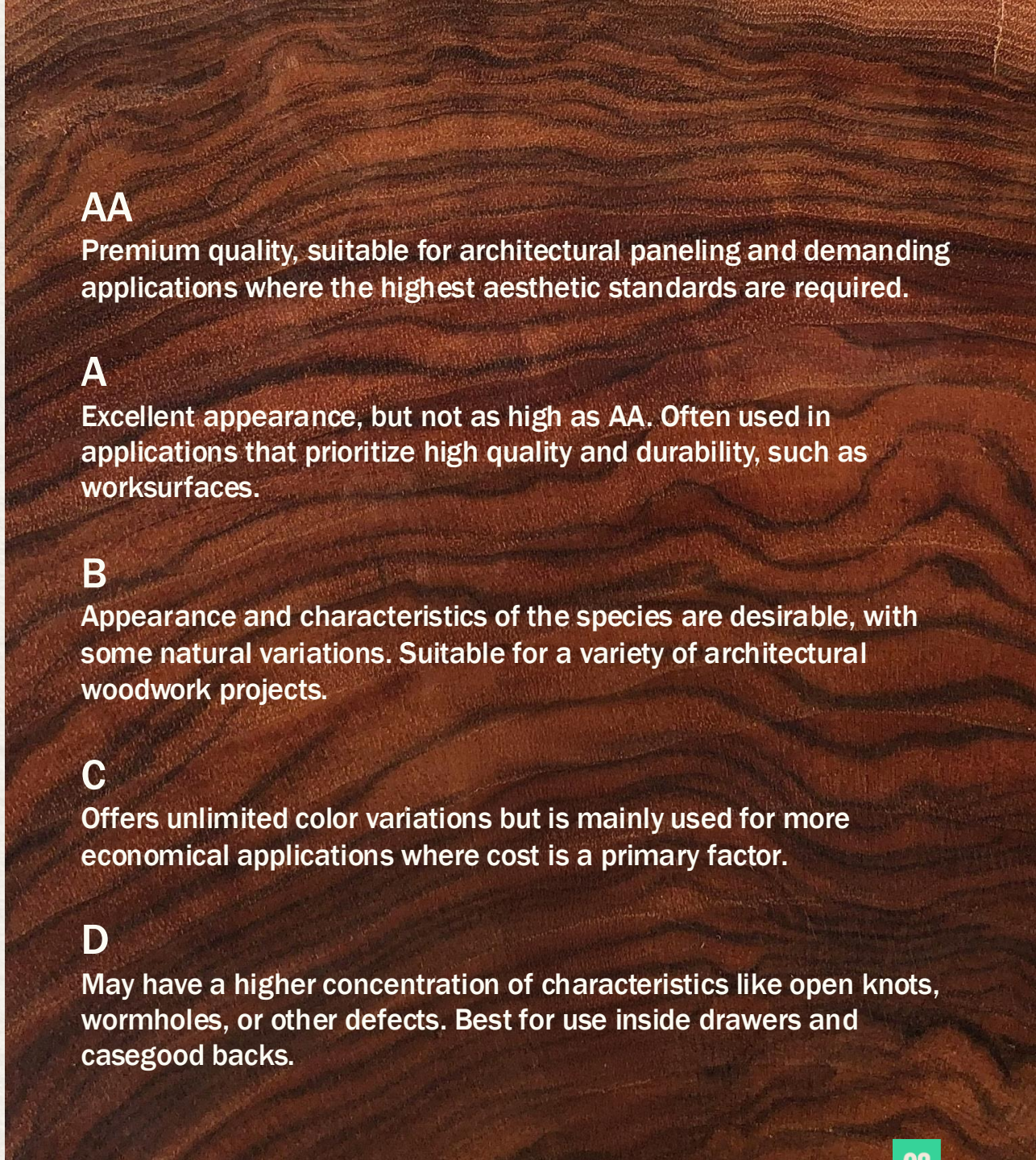
Grain patterns are like fingerprints. Even within the same tree, veneer patterns and color can vary greatly depending on species and growing conditions. Although we take steps to mitigate, expect varying grain patterns and color & naturally occurring variations.

Veneer Quality

Each veneer sheet is evaluated based on its appearance, color, and natural features like mineral streaks and pin knots.

Grading standards typically align with those of the Architectural Woodworking Institute (AWI).

These standards may not be universally followed, especially in mid-market manufacturing.



AA

Premium quality, suitable for architectural paneling and demanding applications where the highest aesthetic standards are required.

A

Excellent appearance, but not as high as AA. Often used in applications that prioritize high quality and durability, such as worksurfaces.

B

Appearance and characteristics of the species are desirable, with some natural variations. Suitable for a variety of architectural woodwork projects.

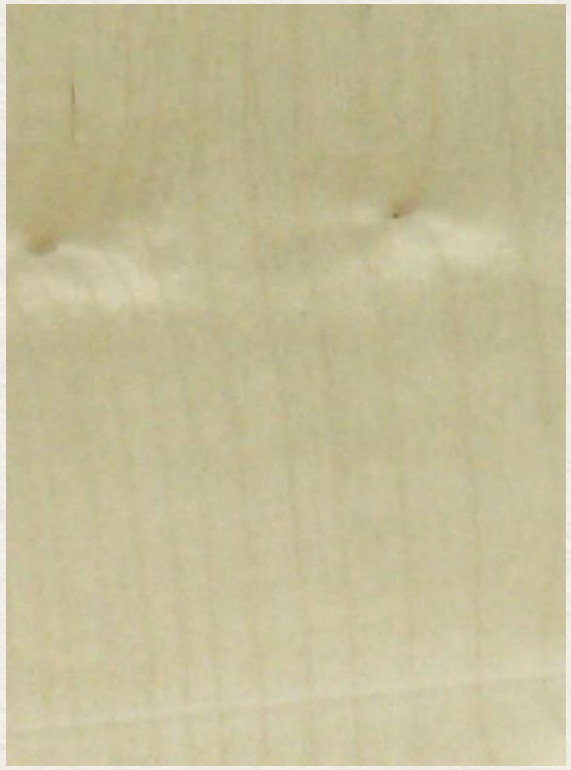
C

Offers unlimited color variations but is mainly used for more economical applications where cost is a primary factor.

D

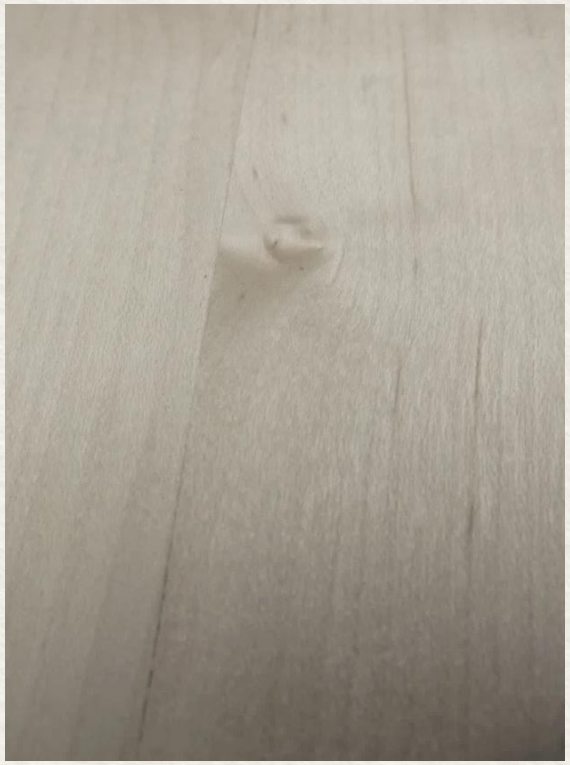
May have a higher concentration of characteristics like open knots, wormholes, or other defects. Best for use inside drawers and casegood backs.

Natural Characteristics of Wood Veneer



Pin Knots

Pin knots are small circular marks from branch connections that add organic charm to wood veneer.



Burls & Grain Patterns

Burls are a distortion or swirling pattern in the grain caused by a growth on the tree.

Crossbars

Crossbars are horizontal grain interruptions seen in quarter-cut veneer, often considered undesirable in premium wood.

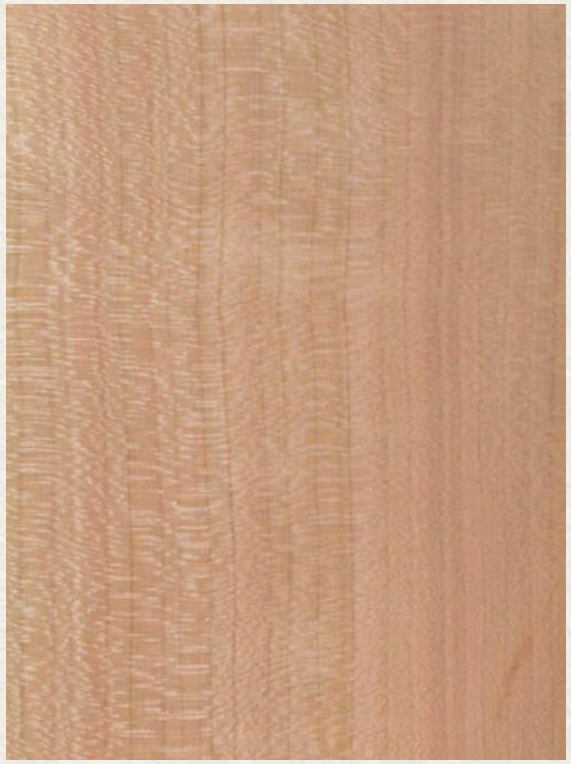
Natural Characteristics of Wood Veneer

Pitch (Gum)

Located within the growth rings of cherry caused from the mineral build up/sugars; “Mud” in Walnut

Figure (Shimmer)

Caused by changes in the tree’s cell structure over time, which alters how its surface reflects sunlight.



Flake (Fleck)

A tighter version of shimmer, adding a refined texture to the veneer.

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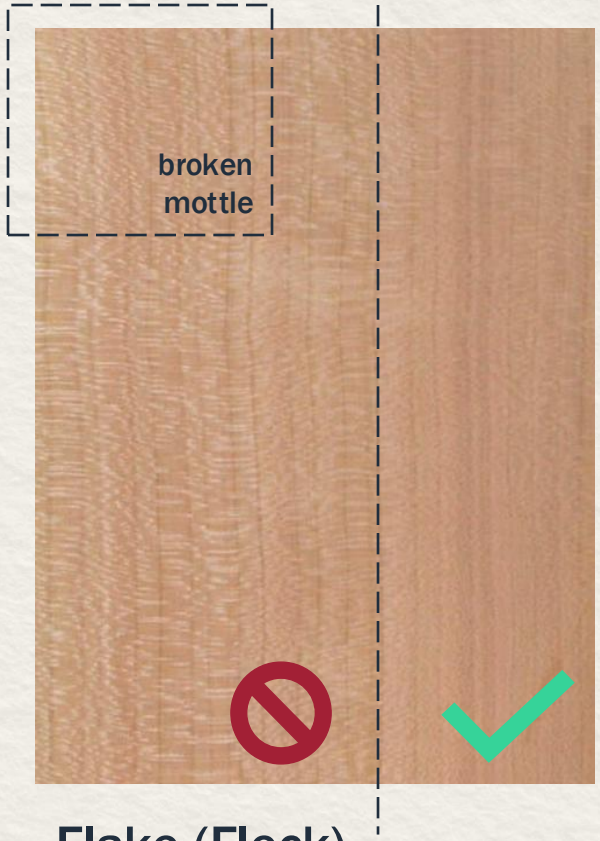

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Natural Characteristics of Wood Veneer

Sugar/Worm Tracks

Color streaks or spots caused by sap discoloration in maple.

Must run parallel to the grain to meet AWI standards.

Figure (Shimmer)

Streaks of color found in heartwood and quarters. Caused by mineral buildup during tree growth.

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Natural Characteristics of Wood Veneer

Sway

A natural curvature in the veneer resulting from the tree's growth pattern as it reaches toward sunlight.

Color Variation

Influenced by environmental conditions (soil composition, climate) and manufacturing factors (conditioning, sweating time). Placement techniques like book and rotate can also affect how light interacts with the veneer.

Split

Caused by dryness, often visible after pressing due to shrinkage.

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Questions?

03 Learning Objective

Explain how veneer is laid up on panels and applied to furniture, and how these techniques support design and production.

What is Layup?

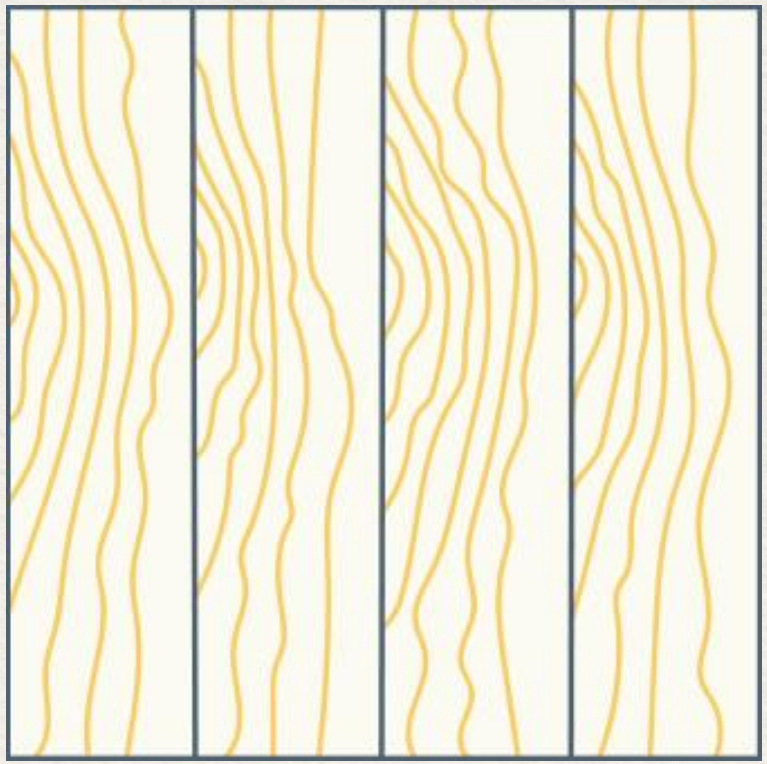
Veneer layup involves stitching multiple leaves together with attention to grain alignment.

The chosen method depends on desired appearance and application.

Layup

Slip Match

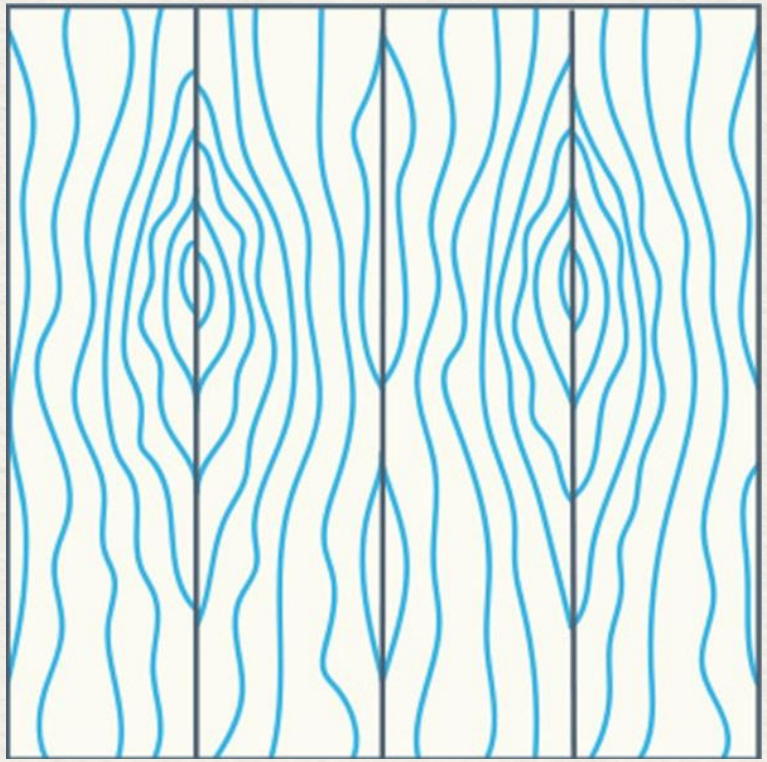
Successive veneer leaves are “slipped”, without flipping the pattern, and placed alongside one another, resulting in a series of grain pattern repeats without pairs.

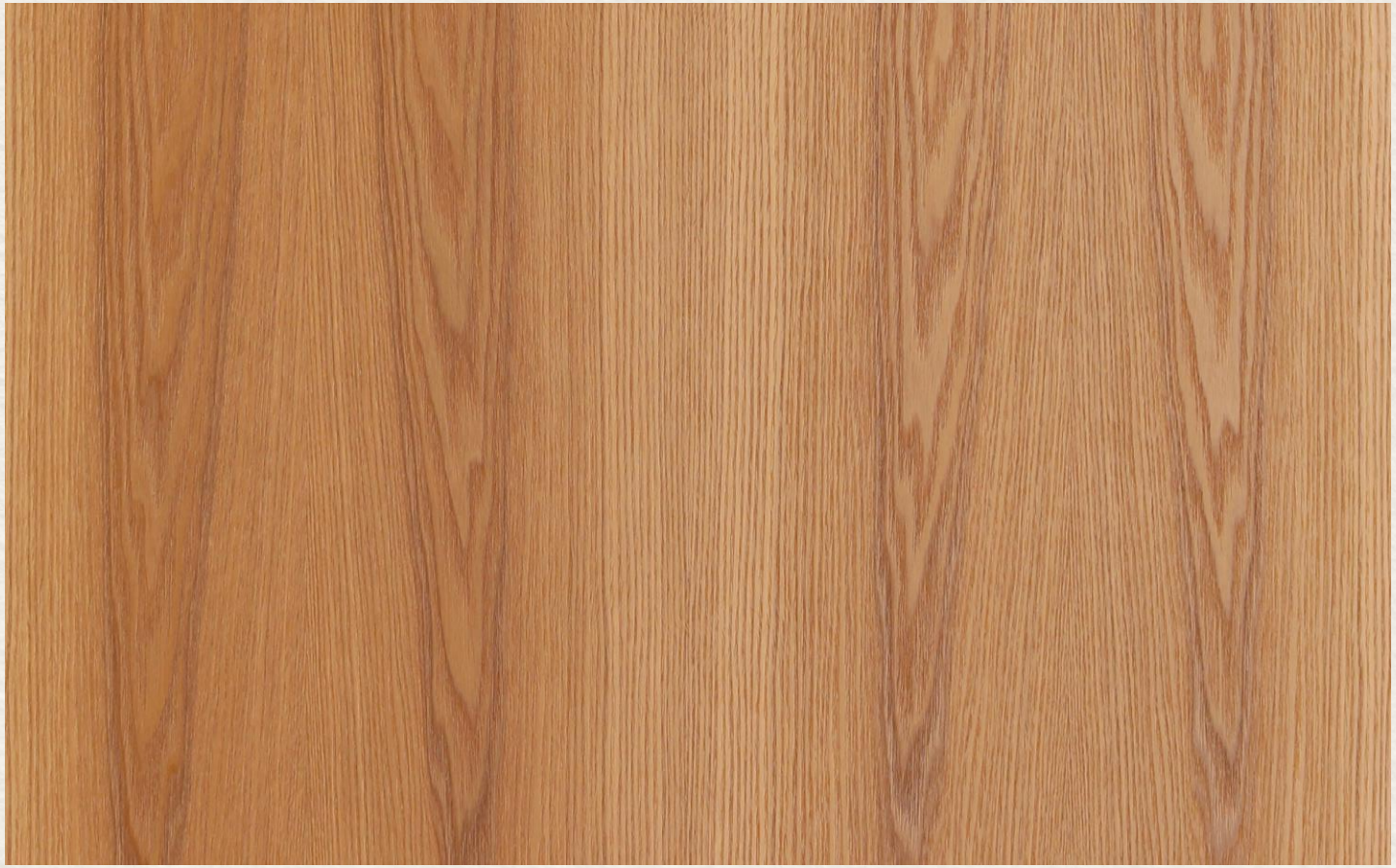


Layup

Book Match

Every other veneer leaf is flipped, making the layup appear like the pages of a book.

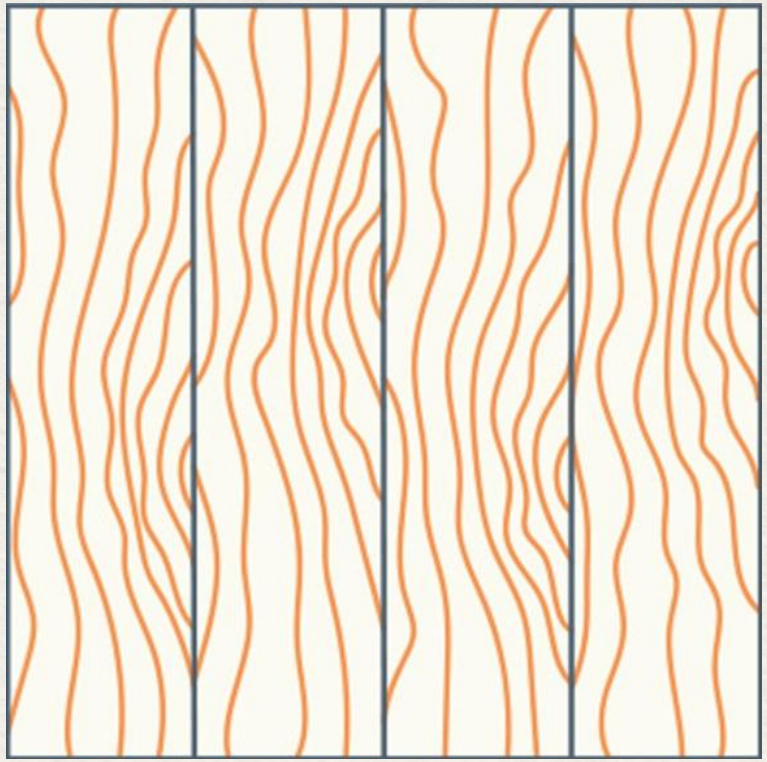




Layup

Book & Rotate

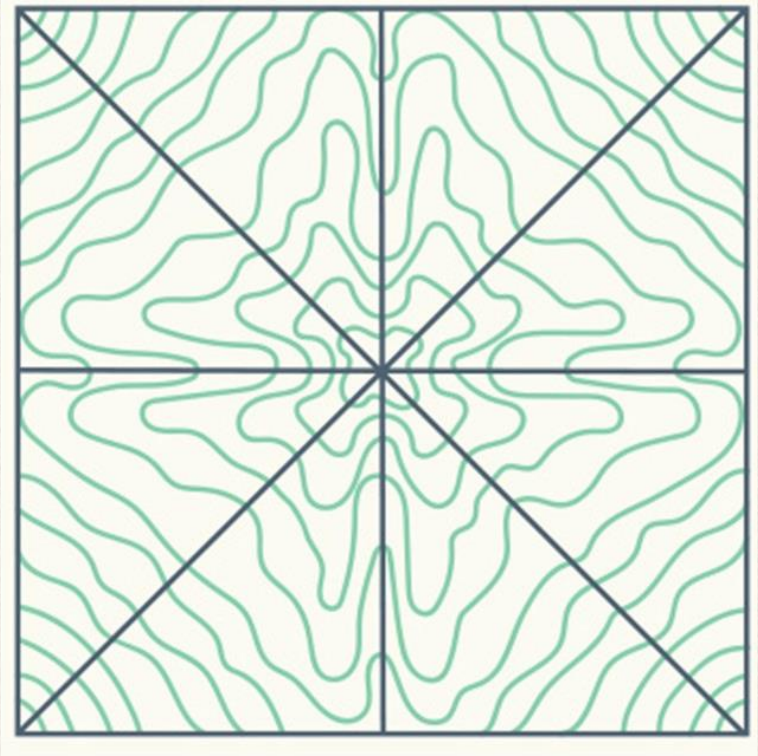
Similar to book match, but **every other leaf** is also rotated 180°



Layup

Sunburst Match

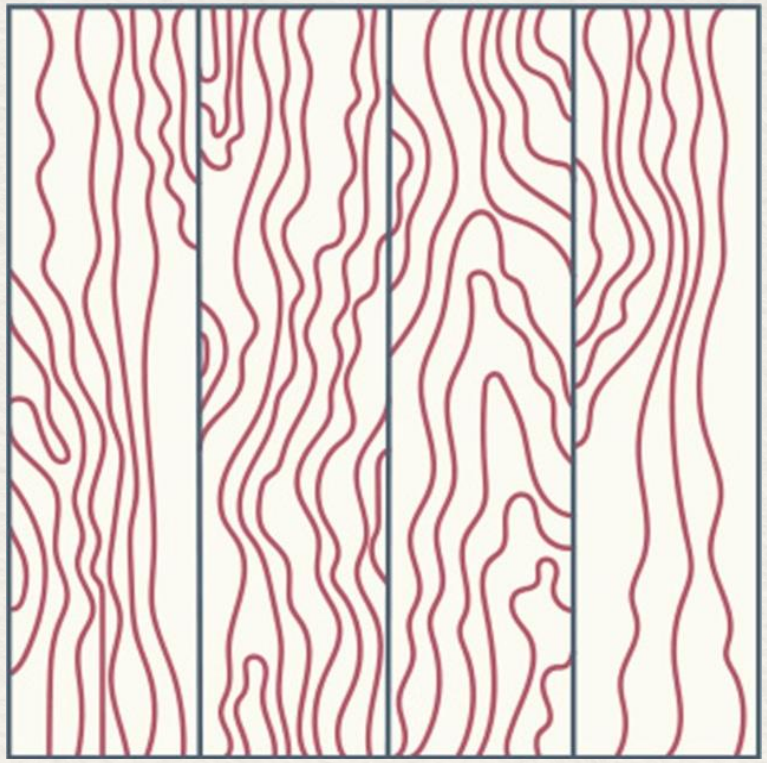
Triangular-shaped leaves are joined together like slices of pie, with the skinniest point of each leaf meeting at the center of the panel, creating a sunburst pattern.

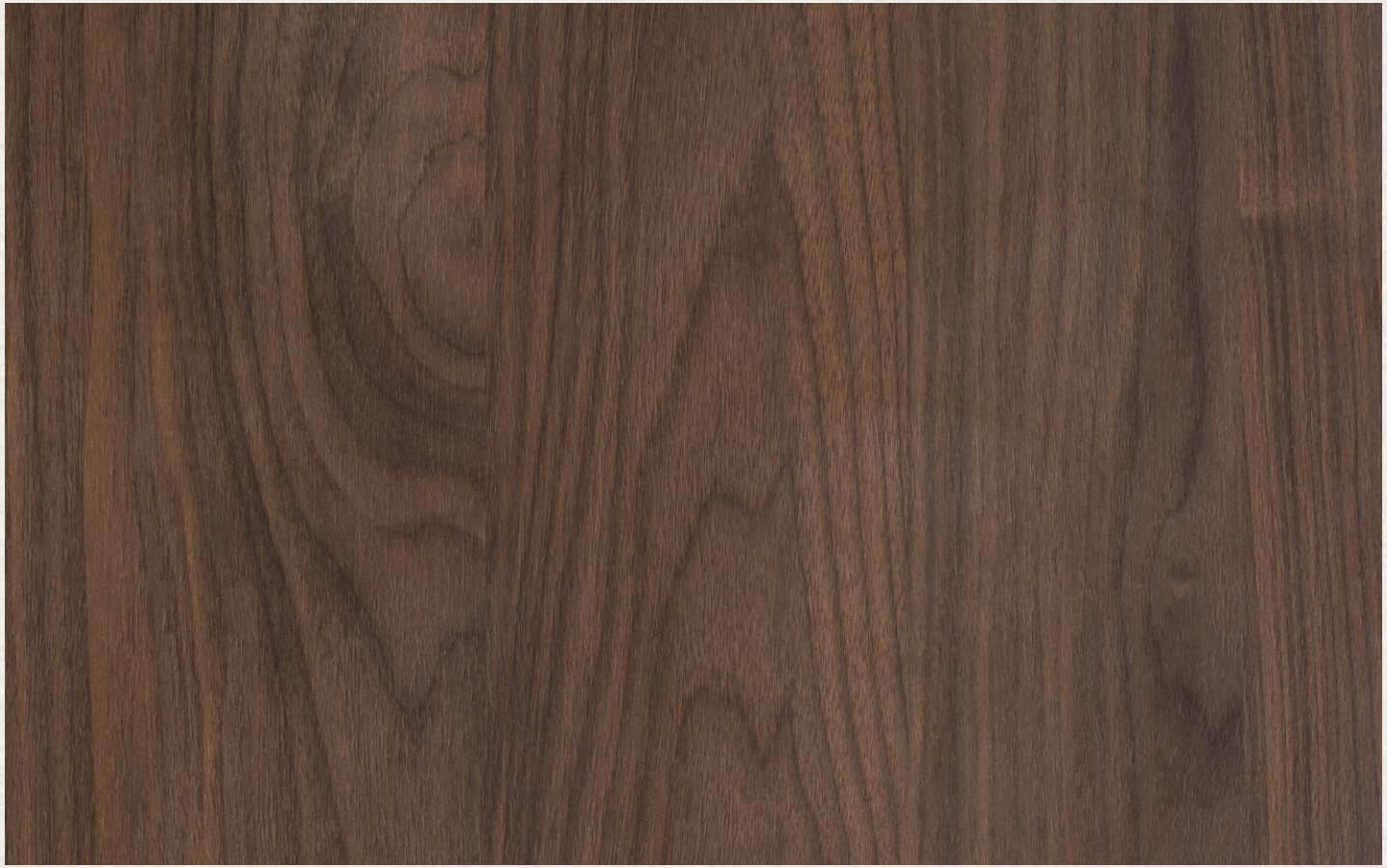


Layup

Plank Match/Random Match

A more modern layup method, plank matching involves using randomized veneer leaves and can even incorporate different wood species.





Panel Construction

- Crafting the perfect wood panel goes beyond a high-quality exterior.
- Core materials are key, they influence durability, weight, and resistance to warping.
- Many panels use recycled content, like compressed sawdust, for eco-conscious construction.
- Look for certifications such as FSC® to support sustainability initiatives.
- The right core-veneer pairing balances beauty with long-term performance.

Questions?

04 Learning Objective

Recognize when and how to specify veneer for design projects, using best practices that align with client needs and design intent.

When to Specify Veneer

- Situations where veneer is preferred over solid wood or laminate (e.g., budget, sustainability, consistency).
- Project types: commercial interiors, hospitality, residential, etc.
- Design goals: achieving a natural look, matching grain patterns, or using rare species affordably.

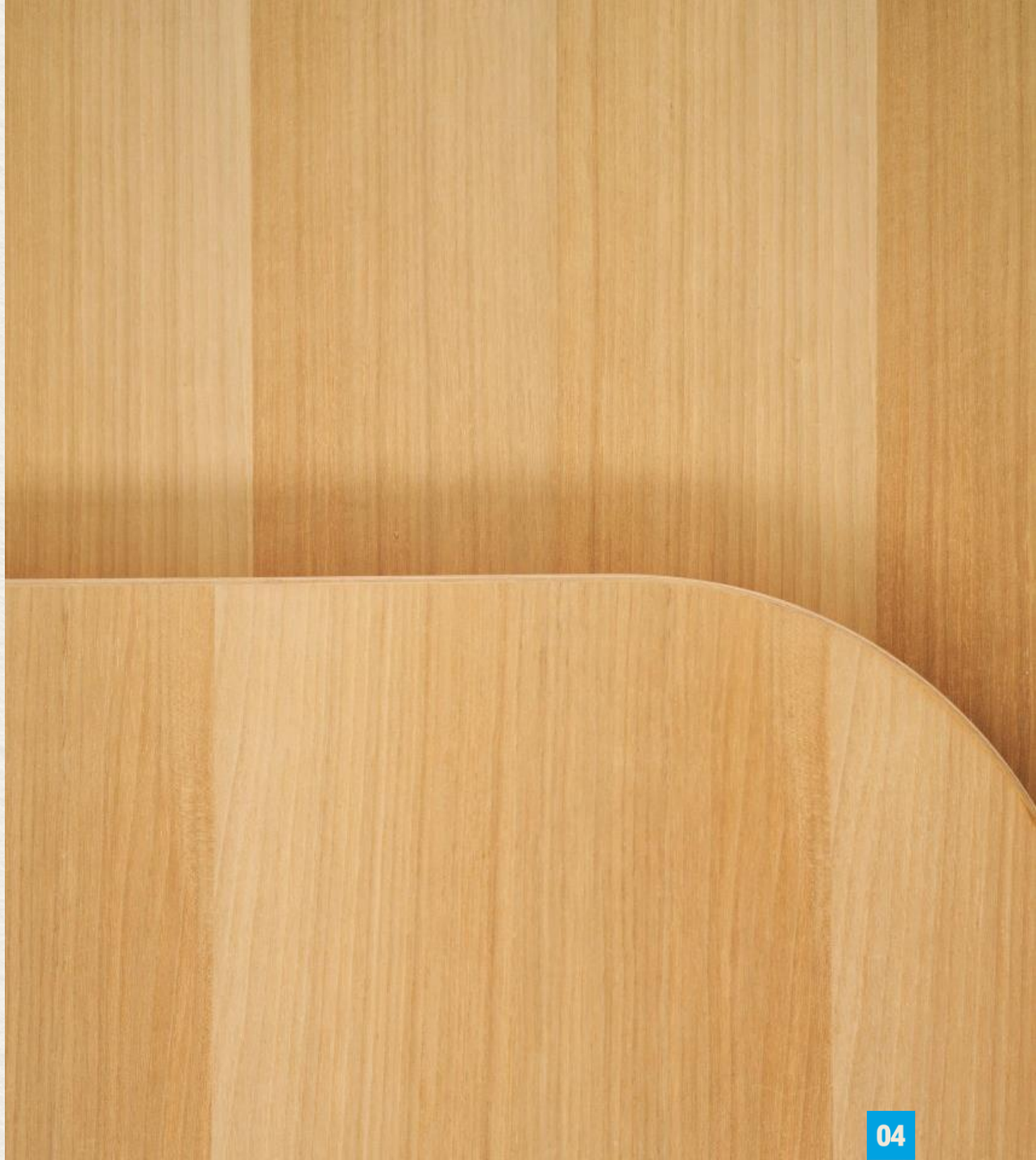
How to Select Veneer

Understanding veneer cuts (e.g., plain sliced, quarter sliced, rotary) and how they affect appearance.

Matching techniques: book match, slip match, random match.

Substrate options and their impact on performance.
Finish options and how they affect color, sheen, and durability.

Reviewing samples and mockups to ensure alignment with design intent.



Laminate, Recon, or Veneer?

What to Consider:

- ❑ Customer Expectations
- ❑ Price Point
- ❑ Durability
- ❑ Aging
- ❑ Placement in the Building
- ❑ Temperature
- ❑ Aesthetic
- ❑ Design Freedom
- ❑ Sustainability
- ❑ Natural vs Man Made

Questions?

05 Learning Objective

Demonstrate proper care and maintenance of veneer surfaces to preserve their beauty and longevity.

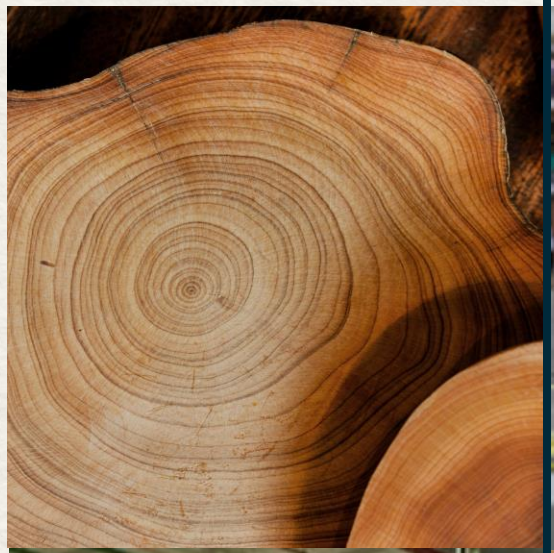
Veneer Care: Durability & Aging

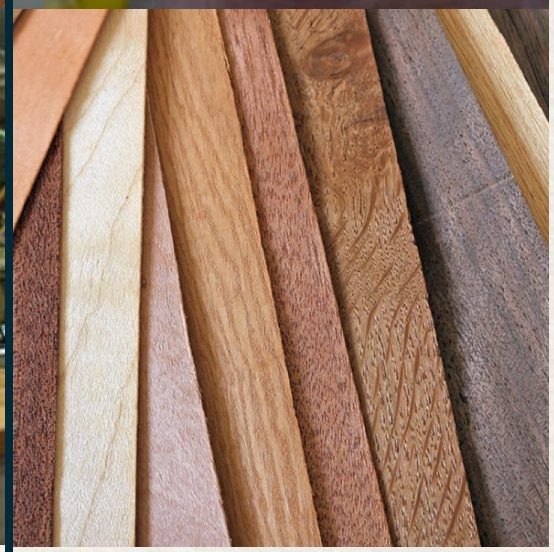
Wood density varies by species

A topcoat provides scratch and heat resistance

Precision spray techniques ensure a flawless, consistent finish

Durability





Aging

Wood naturally responds to light and air over time

Color changes gradually

Aging reaches a steady state, revealing lasting character

Veneer Care: Discoloration & Uneven Aging

- Objects placed in the same place on surfaces for extended periods of time can cause spots.

- If this happens, don’t panic. Simply move the items and expose the spots to the space’s regular lighting.

- The color will continue to change, and the contrast will even out over time.

Veneer Care Best Practices

✅ DO

- Dust regularly to prevent buildup and dulling
- Clean with a damp cloth *with the grain*, then dry
- Use coasters under hot items
- Maintain stable environment:
  - 40°–90°F
  - 25%–55% humidity
- Blot spills immediately
- Use protective pads under writing tools and equipment
- Rotate items for even sun exposure

Veneer Care Best Practices

❌ DON’T

- Wipe *against* the grain or use paper towels
- Expose to extreme heat, cold, or humidity
- Let water sit on the surface
- Leave items in direct sunlight for long periods
- Use harsh solvents, glass cleaners, or waxes

Questions?

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