CEDAN

Natural Characteristics of Wood

CEDAN

www.richelieu.com

Richelieu

Characteristics Definitions

- **SAPWOOD:** The living wood of lighter color occurring in the outer portion of a tree, sometimes referred to as sap.

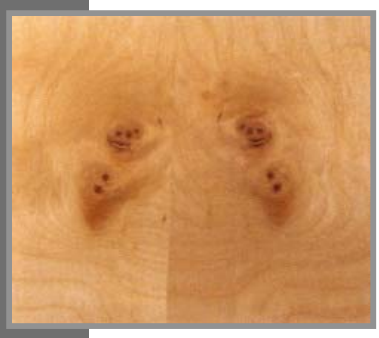
- **CROSS BAR (FIGURE):** Irregularity of grain resembling a dip in the grain running at right angles, or nearly so, to the length of the veneer.

- **HEARTWOOD:** The non-active or dormant center of a tree, generally distinguishable from the outer portion (sapwood) by its darker color, sometime referred to as heart.

Définition des caractéristiques

- **WORM TRACKS:** Marks caused by various types of wood attacking larvae. Often appear as sound discolorations running with or across the grain in straight to wavy streaks.

- **GUM SPOTS AND STREAKS:** Gum or resinous material or color spots and streaks caused by prior resin accumulations sometimes found on panel surfaces.



- **BURL:** A swirl, twist, or distortion in the grain of the wood which usually occurs near a knot or crotch but does not contain a knot and does not contain abrupt color variation.

Définition des caractéristiques

- **FLECK (FLAKE):** Portion of a ray as it appears on the quartered or rift-cut surface. Fleck is often a dominant appearance feature in oak.

- **STREAKS, MINERAL:** Sharply contrasting elongated discolorations of the wood substance.

- **KNOTS:** Cross section of tree branch or limb with grain usually running at right angles to that of the piece of wood in which it occurs.

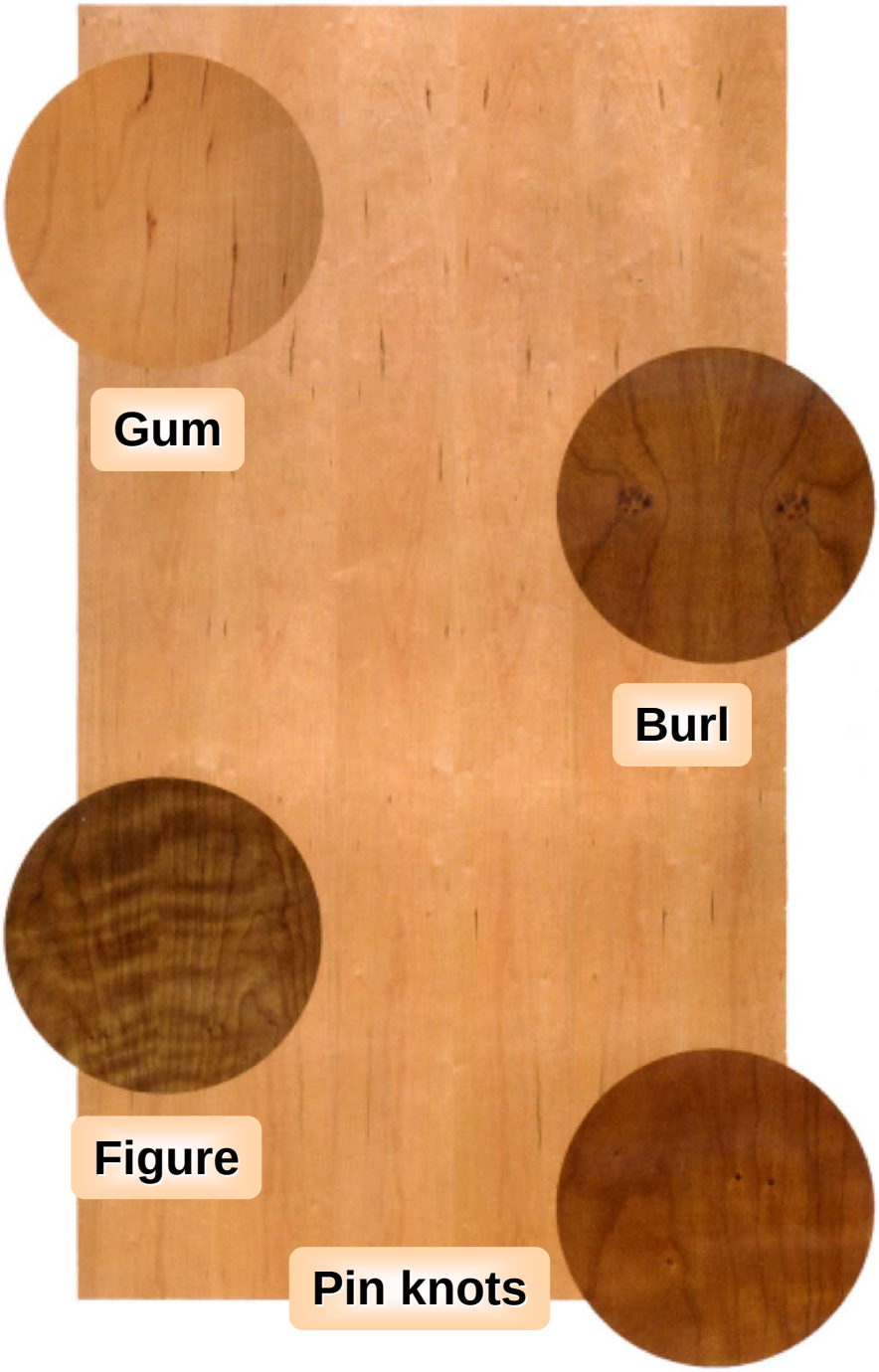
Définition des caractéristiques

- **SPLITS:** Separations of wood fiber running parallel to the grain.

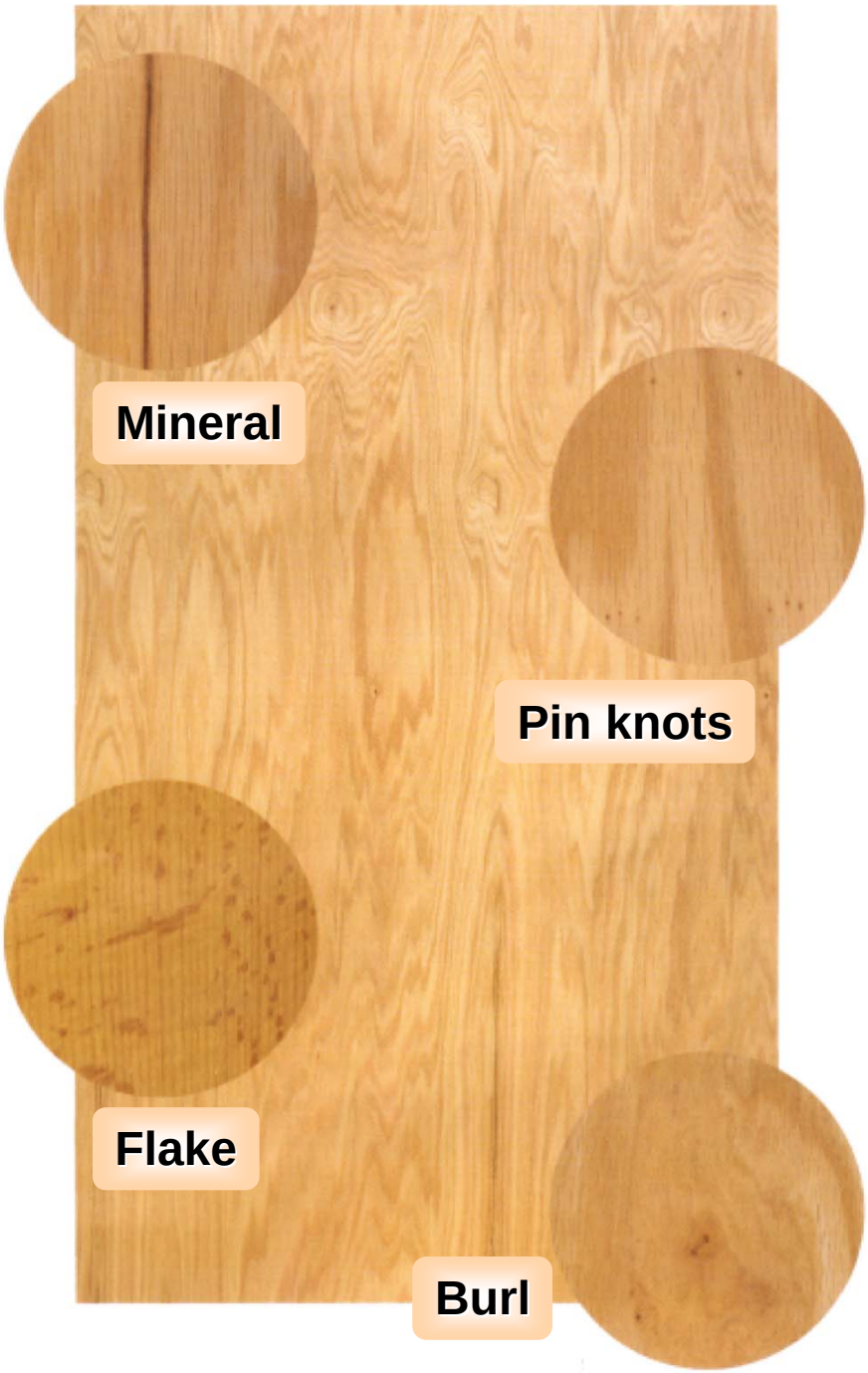
- **BARK POCKET:** Bark around which normal wood has grown.

- **PIN KNOTS:** Sound knots 6.4 mm (1/4 inch) or less in diameter containing dark centers.

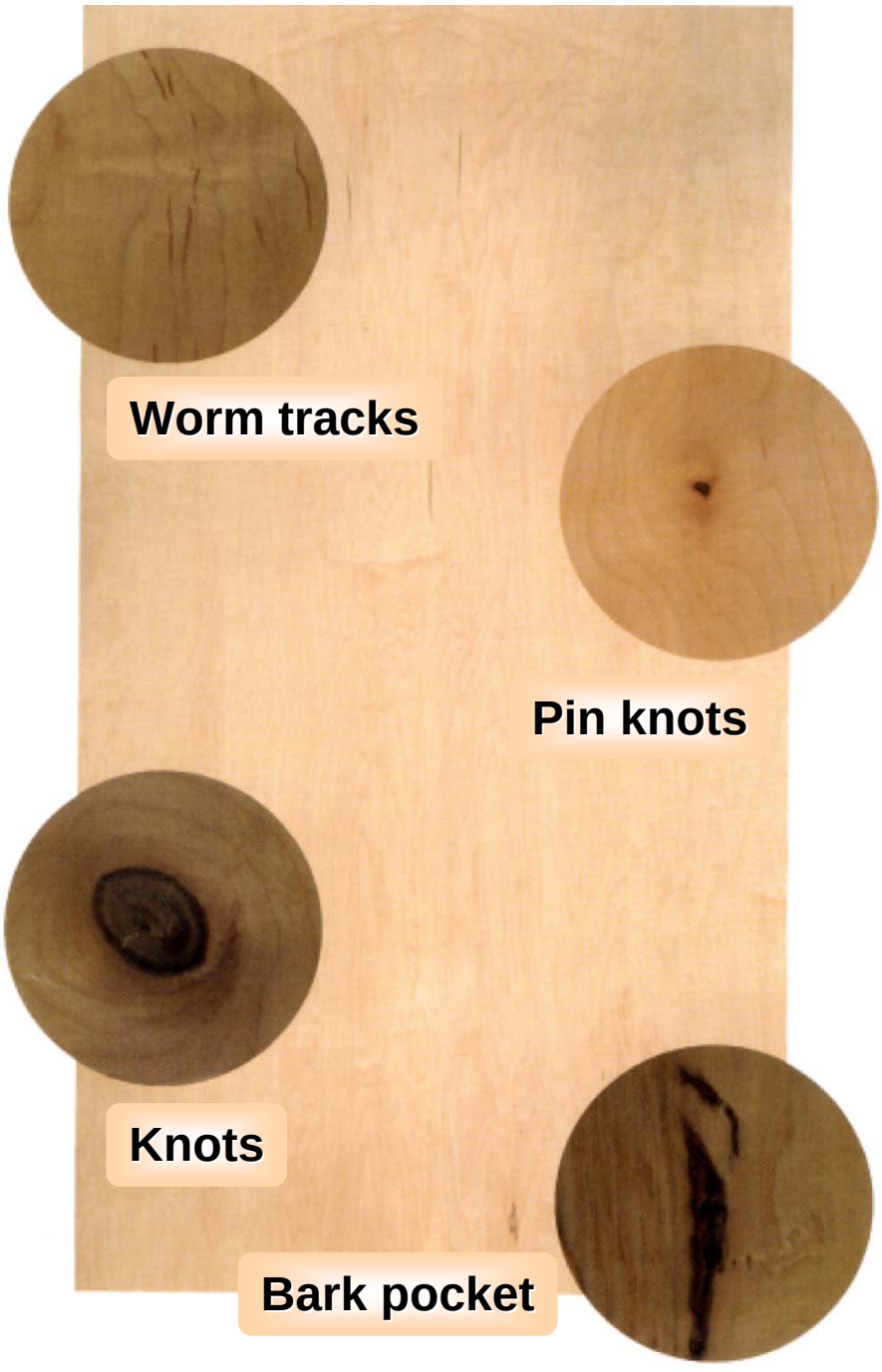
Natural Characteristics of Cherry



Natural Characteristics of Red Oak



Natural Characteristics of Maple



Natural Characteristics of Birch

The Beauty is in the Variation

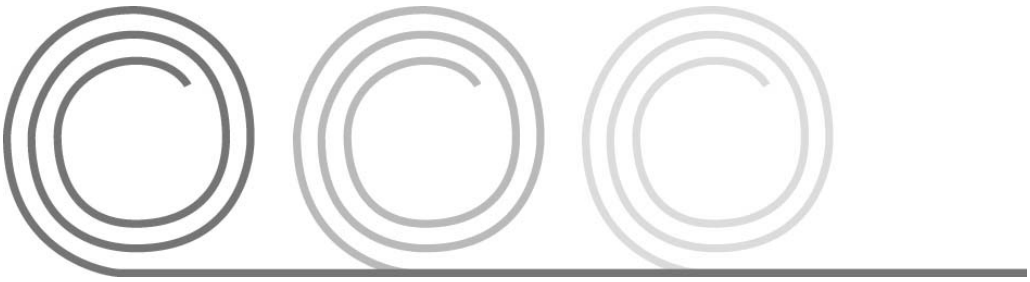
Nature signs every tree with its own fingerprints. Its reflects the region and terrain where each tree grows and the weather each tree experiences during its many growth cycles. These influences are seen in there grain and pattern of each piece of wood.

In some cases, certain trees have characteristics that are unique to the species. Take cherry trees for example. Cherry solids and veneers have small indentations, knows as "gum pockets", which are inherent in the wood and testify to its quality and authenticity.

Other times, logs are cut to highlight certain characteristics in the wood. Flaky oak solids and veneer gained popularity during the arts and crafts movement because they gave the wood greater dimension and visual beauty. Logs are cut into quarters, then sliced at a precise angle to highlights the oak grain, this specialized process results in some variation in the finish an a beautiful, prized look.

As you look at wood furniture, remember that the beauty of a natural products it its one-of-a-kind character.

So, enjoy it for its beauty. Enjoy it for its nature.



CEDAN

Description of Available Backer Types

Introduction

Cedan has a full choice of tenderized real wood veneer sheets, for practically any project or application.

The tenderized veneer sheets are made of genuine wood veneer, laminated to a variety of paper, wood, or hard backers.

These products are then tenderized and pre-sanded to create a high quality product, easy handle and apply.

10 Mils Backer

The 10 mils backer veneer sheet is a flexible product, easy to work with, and can be used with various applications. It applies as easily to a straight surface as to a curved surface.

It's the most common product used for:

- cabinet maker market
  - furniture manufacturer (residential and commercial)
  - kitchen manufacturer
  - etc.
- restoration market

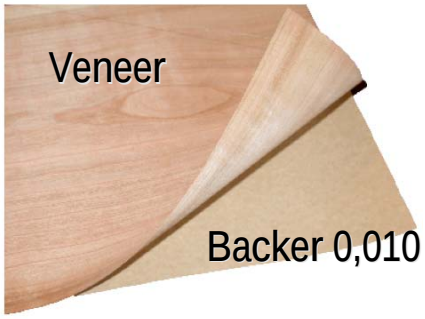
Description of 10 Mils backer

Paper Type

- Kraft impregnated of acrylic adhesive
- Thickness: 0.010’’ (0.025 mm)
- Available sizes: 48" x 96", 48" x 120", 48" x 144", 60" x 96", 60" x 120"

Advantages

- Economic
- Great handiness
- Excellent flexibility allowing to form curved parts easily
- Paper acts like barrier between veneer and the part to be covered, thus preventing any risk of contamination between the adhesive and the finished product



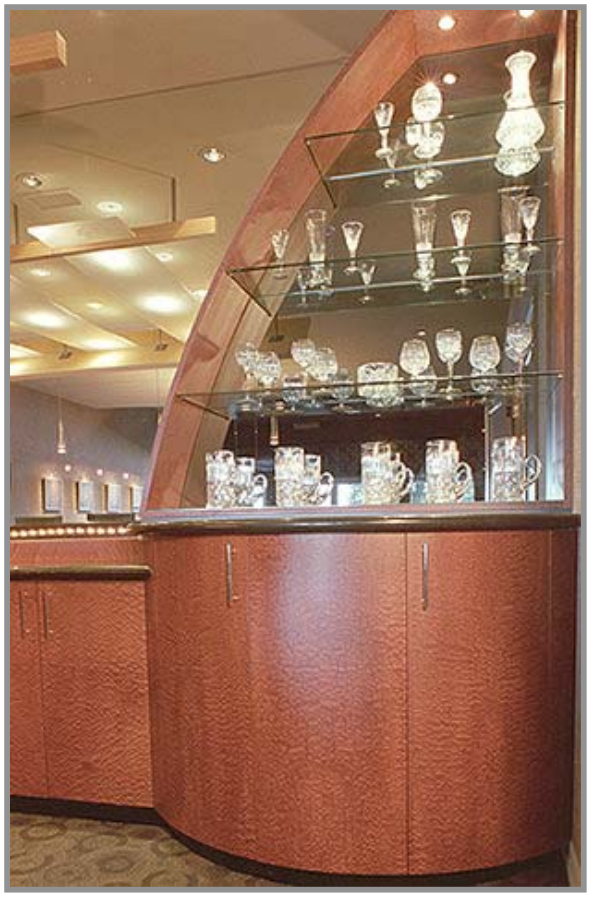
Description of 10 Mils backer

Application

- The application can be done using: PUR (polyurethane) adhesive, contact cement, or (PVA), according to the type of application or the machinery employed
- **To insure proper results, follow directly the recommended application procedures of the adhesive manufacturer**

20 Mils Backer

The 20 mils backer veneer sheet is a more rigid flexible product. It is thicker, but still allows application to many curved parts and surfaces. The paper is thicker, reducing the opportunity for telegraphing.



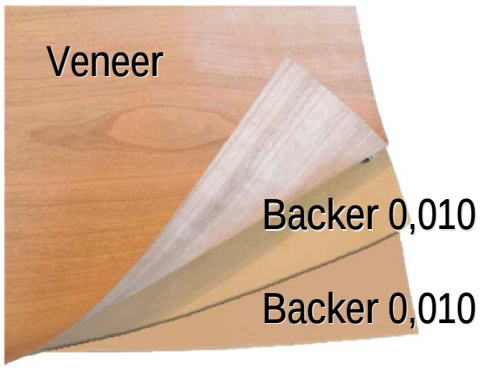
Description of 20 Mils Backer

Paper Type

- Kraft impregnated of acrylic adhesive
- Thickness: 0.020'' (0.050 mm) – 2 x 0,010''
- Available sizes: 48" x 96", 48" x 120", 48" x 144", 60" x 96“, 60" x 120“

Advantages

- More rigid
- Handiness, excellent flexibility
- Help to eliminate the imperfections of the substrate,and reduce telegraphing
- Increased stability against the appearance of bubbles



Description of 20 Mils Backer

Advantages (Cont'd)

- Paper acts like barrier between veneer and the substrate, thus preventing any risk of contamination between the adhesive and the completed product

Application

- The application can be done using: PUR (polyurethane) adhesive, contact cement, or PVA, according to the type of application or the machinery employed
- **To insure proper results, follow directly the application procedures of the adhesive manufacturer**

2-Ply Backer

The 2-ply backer veneer sheet is a semi-flexible product composed of two veneers, a face veneer laminated to a sound veneer back using an impregnated flexible paper in the middle which has adhesive on both sides.

The grain direction of the back, running perpendicular to the grain of the face, gives it rigidity and dimensional stability. This minimizes the wood veneer's tendency to expand and contract across the grain, and gives the sheet stability with the surrounding climatic variations.

The rigidity of the product eliminates telegraphing and reduces imperfections.

Description of 2-Ply Backer

Wood Type

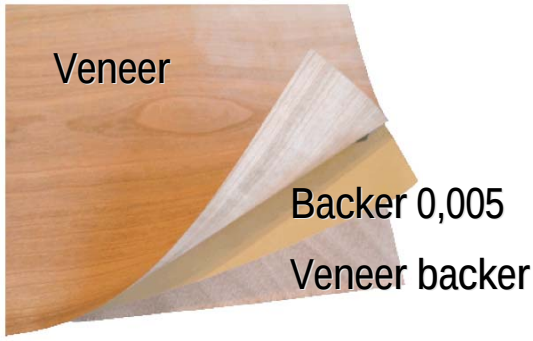
- Quality BACK veneer with a wood grain perpendicular to the face

Paper Type

- Two veneer are laminated using an 0,005'' impregnated paper core of acrylic adhesive
- Available sizes: 48" x 96", 48" x 120"

Advantages

- Good flexibility
- Alternative to solid wood
- Contrary to the phenolic product, it does not make a black line when trimmed



Description of 2-Ply Backer

Advantages (Cont'd)

- Enough flexibility to make curved applications (for example: circular column)
- Eliminates any risk of telegraphing and the appearance of imperfections
- High stability, minimizes the expansion or the retraction of wood caused by the surrounding climatic variations
- Reduced the risks of cracks
- Paper acts like barrier between plating and the part to be covered thus preventing any risk of contamination between the adhesive and the finished product

Application

- The application can be done using: PUR (polyurethane) adhesive, contact cement, or PVA, according to the type of application or the machinery employed
- To insure proper results, follow directly the application procedures of the adhesive manufacturer

Hard Backer

The PB Brown and PB Beige hard backer veneer sheet are a semi-flexible product. It has flexibility making it possible to use with small curved application.

Its rigidity provides resistance to impact, and eliminates the telegraphing of substrate imperfections.

This product offer a superior stability. Moreover, it has a great fire and moisture resistance and there is no added formaldehyde.

Description of Hard Backer

Hard Backer Type

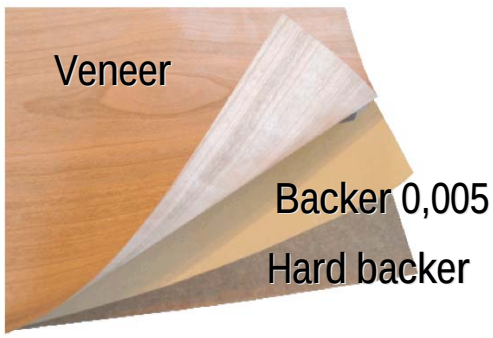
- Polymer Resin

Paper Type

- The veneer face and hard backer are laminated using an 0,005'' impregnated paper of acrylic adhesive

Advantages

- Flexible and easy to apply
- Flexible enough for small curved application
- An "A" flame speeding rating
- Excellent moisture resistance



Description of Hard Backer

Advantages (Cont'd)

- Shelf life unlimited
- Reduces the risk of panel warping due to climatic variations
- Resistant to impact
- Eliminate any telegraphing and appearance of imperfection

Application

- The application can be done using contact cement adhesive
- **To insure proper results, follow directly the recommended application procedures of the adhesive manufacturer**

Perfect Product for your Project

- Easy product application:
  - Specialized and expensive tools not necessary

~~✓ guillotine~~
~~✓ press~~

✓ utility knife
✓ file
✓ roller

- Increased veneer strength:
  - The paper backer adds additional support to the veneer, facilitating handling and application
- Very flexible wood veneer:
  - Allows for application to most shaped forms
- Real wood veneer:
  - The veneer accepts stains and varnishes' normally, as if applied to solid wood

Perfect Product for your Project

- Impermeable paper:
  - The paper has an impermeable barrier, thus preventing the migration of solvents of adhesive on the surface of wood and preventing solvents of the finishing products from reaching and affecting the bond of adhesive
- Simplified bonding:
  - All the woodworking glues which one normally finds in a workshop (contact cement, water or solvent based, PVA, etc.) can be used. Follow exactly the preparation and application instructions of the adhesive manufacturer
- Appearance of the veneer:
  - The veneers are carefully assembled thus offering the professional craftsmen a top-of-the-range product

Examples of creations with our products

Examples of creations with our products

Examples of creations with our products

Examples of creations with our products

Examples of creations with our products

Examples of creations with our products

Examples of creations with our products

Examples of creations with our products

CEDAN

Veneer Matching and Arrangement Types

Matching Methods

BOOK MATCH

- The most common matching type. Alternating leaves of veneer are turned over, so that adjacent leaves are opened like the pages of a book.
- Visual effect: Veneer joints match, creating a symmetrical pattern. Yields maximum continuity of grain. Prominent characteristics will ascend or descend across the face.

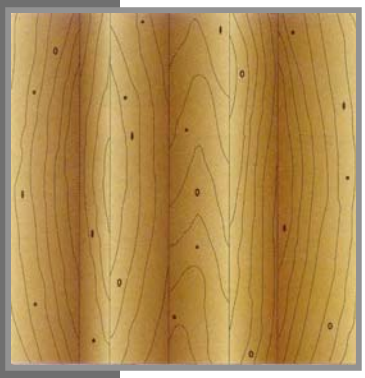
SLIP MATCH

- Adjoining veneer leaves are fed out in sequence (Without being turned) so that the same side of the veneer leaves is exposed.
- Visual effect: Figure repeats but grain does not match at joint.
- Enhances color uniformity because all faces have a similar light reflection. Joints may not be noticeable if grain is straight; vertical slant may occur if grain is not exactly vertical.

Matching Methods

RANDOM MATCH

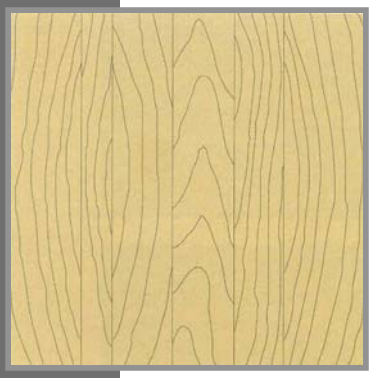
- Veneer leaves of the same species are selected and assembled without regard to color or grain, resulting in variation, contrasts, and patterns color and grain. Pleasing appearance is not required.
- Visual effect: No visual continuity across the face should be expected.



PLANK MATCH

- Dissimilar (in color, grain, or width) veneer leaves of the same species are specially selected and assembled in specific order to create a particular look.
- Plank matched faces are sometimes grooved at the joints between veneer leaves to simulate lumber planking.
- Visual effect: Casual or rustic effect.
- The components may be of different widths within the panel face.

Matching Methods



PLEASING MATCH

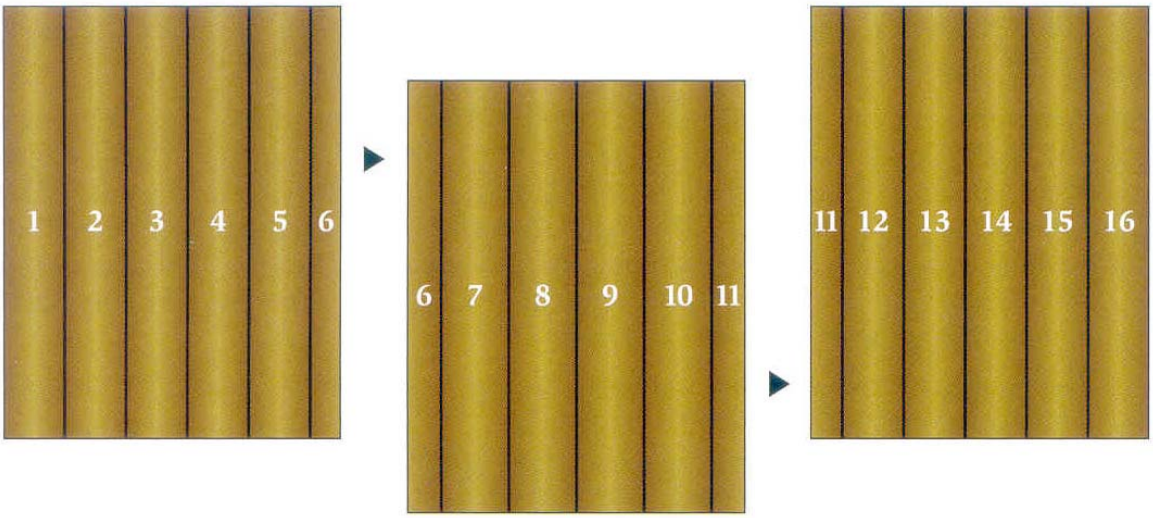
- Veneer leaves are matched by color similarity.
- Visual effect: Provides an overall pleasing appearance. No sharp color contrasts are allowed at the joints. Grain characteristics may not match.

SPECIAL MATCHING

- Matching techniques such as diamond (inverted or non-inverted), butterfly, oblique, narrow-heart, checkerboard, and sunbeam.
- Visual effect: Create rare mosaic effects.

Matching Arrangement

Running Match

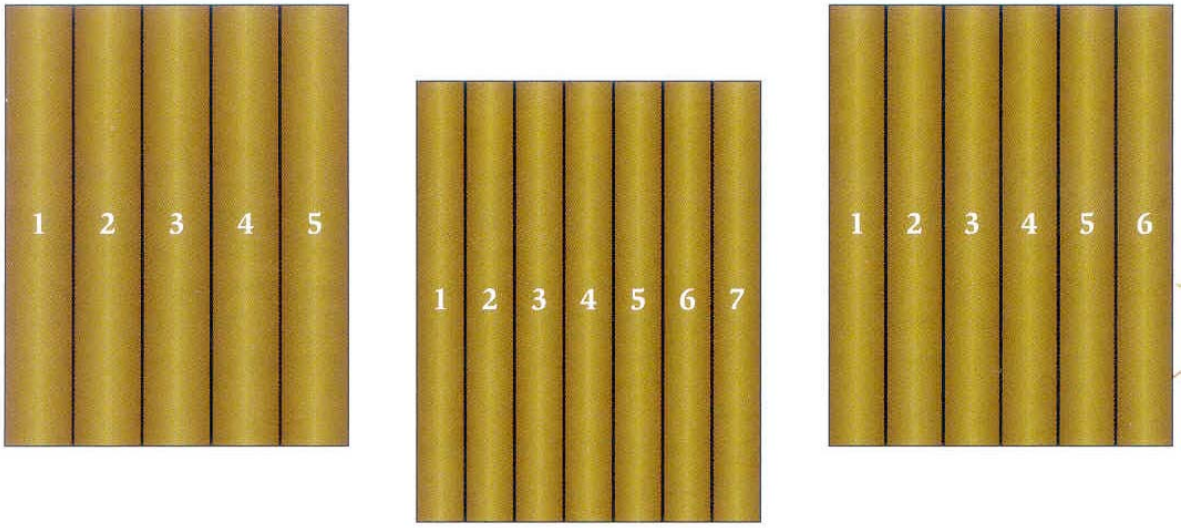


RUNNING MATCHED SHEET

The veneer leaves are fed continuously into the slicing machine, and the machine forms the individual faces by cutting the continuous ribbon of veneer at the pre-specified width without regard to the number of the components in any one face or width of those components. As a result, a veneer leaf may be split to form the end of one face and the beginning of the next sheet. The trimmed leaves are known as "remainders".

Matching Arrangement

Balance Match



BALANCE MATCHED SHEET

Each panel face is assembled from leaves of uniform width before edge trimming. This construction eliminates remainders and is usually more aesthetically pleasing than running match but come at a higher cost.

Matching Arrangement

Center Balance Match

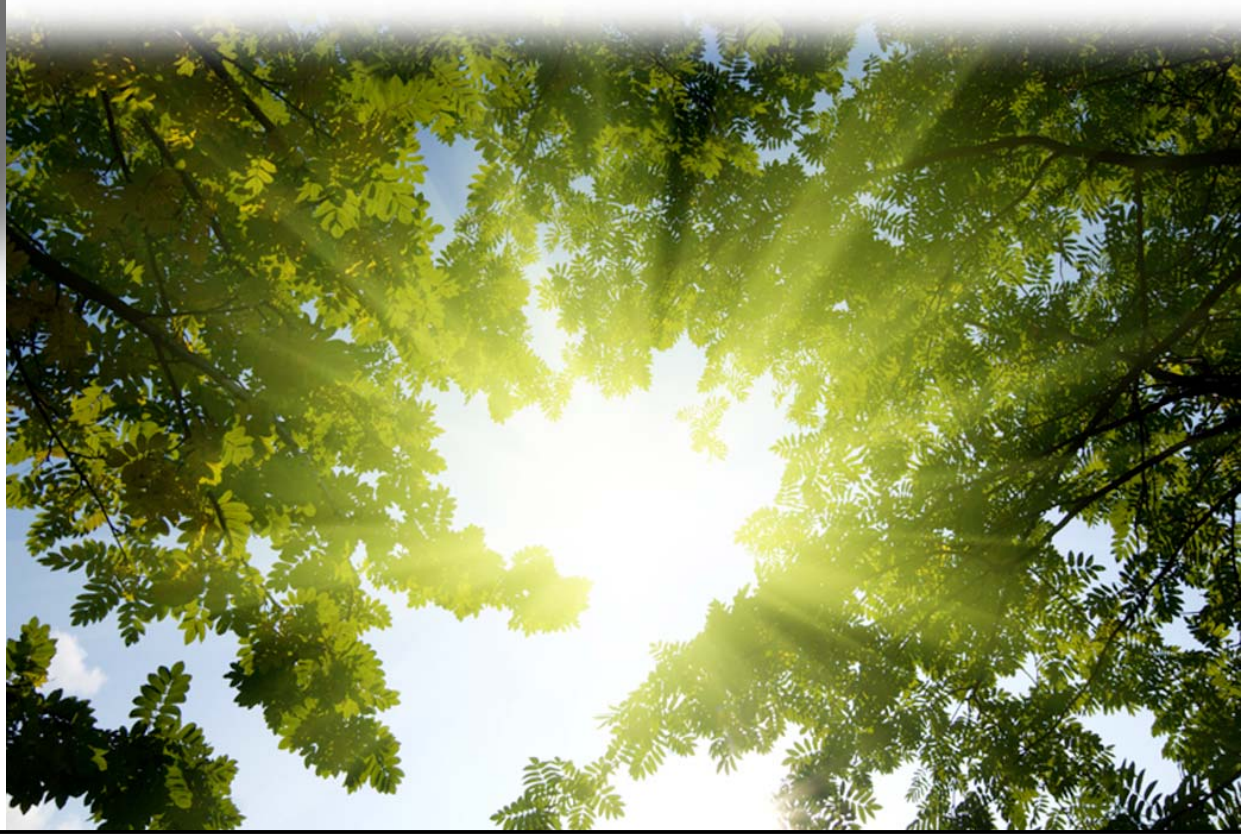
CENTER BALANCE MATCHED SHEET

A special case of balance matching in which each panel is made from an even number of leaves. The use of an even number of leaves results in a veneer joint in the center of the panel. This construction is more expensive than balance matching.

CEDAN

serenity series
Greenguard Certified®

Serenity series



CEDAN

www.richelieu.com

Richelieu

NEW!

CEDAN “Serenity Series” product line

is the first complete line of tenderized wood veneers and wood edgebanding that is Greenguard certified

What is Greenguard?

Product certification program for low emitting interior building materials, furnishings, and finish systems used in educational, office and other sensitive environments. All GREENGUARD Children & Schools SM products have been tested for their chemical emissions performance according to CA 1350 and can be found in the GREENGUARD Online Product Guide.

WHY Greenguard certified products?

- To create healthier indoor environments
- To improve public health and quality of life
- ANSI authorized (American National Standards Institute)
- CHILDREN & SCHOOLS certification which meets California standards
- CHPS credits (Collaborative for High Performance Schools)
- LEED credits for your projects

Cedan’s Level of Certification!

Cedan is proud to have the highest level of certification available through Greenguard,

Children & School indoor air quality Certified.

To learn more about Greenguard and our Product certifications please visit Greenguard, at www.greenguard.org

Children & Schools GREENGUARD® Indoor Air Quality Certified

Cedan Industries

Serenity Series Tenderized Veneer Sheets

This product has been GREENGUARD Indoor Air Quality Certified® by the GREENGUARD Environmental Institute under the GREENGUARD for Children & Schools℠ product certification program.

Certification Details:	
Certification No:	90115-02
Certification Status:	Certified
Certification Period(s):	07/2008- 07/2009
Certification Restrictions:	
NONE	

GREENGUARD Product Emission Standard for Children & Schools

GREENGUARD Indoor Air Quality Certified Products meet the following minimum emission requirements:

Product Category: Surfacing Materials	Product Sub Category: Wood
Individual VOCs[1]	< 1/100 TLV and < ½ CA chronic REL
Formaldehyde[2]	< 0.0135 ppm/13.5 ppb
Total VOCs[3]	< 0.22 mg/m³
Total Aldehydes[4]	< 0.043 ppm/43 ppb
Total Phthalates[5]	< 0.01 mg/m³
Total Particles (< 10µm)[6]	< 0.02 mg/m³

[1]Any VOC not listed must produce an air concentration level no greater than 1/100 the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, Cincinnati, Ohio 45211-4438) and no greater than 1/2 the CA Chronic Reference Exposure Level (CREL) http://www.oehha.ca.gov/air/chronic_rels/AllChrels.html - (CRELs) Adopted by the State of California Office of Environmental Health Hazard Assessment (OEHHA), February 2005).

[2]Formaldehyde criteria established so that emission levels reach 0.014ppm (13.5 ppb) within 14 days of installation (meeting CA 1350 requirements).

[3]Defined to be the total response of measured VOCs falling within the $C_6 - C_{16}$ range, with responses calibrated to a toluene surrogate.

[4]Defined to be the total response of a specific target list of aldehydes (2-butenal; acetaldehyde; benzaldehyde; 2, 5-dimethylbenzaldehyde, 2-methylbenzaldehyde; 3-and/or 4-methylbenzaldehyde; butanal; 3-methylbutanal; formaldehyde; hexanal; pentanal; propanal), with each individually calibrated to a compound specific standard.

[5]Total phthalates include dibutyl (DBP), diethylhexyl (DEHD), diethyl (DEP), butylbenzyl (BBP), di-octyl (DOP), and dimethyl (DMP) phthalates.

[6]Particles applicable to fibrous, particle releasing products with exposed surface area.

Complies with California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers" 2004 (CA section 01350)

GREENGUARD Certification affirms that a product's emissions fall within the limits selected by GREENGUARD from reputable third-party risk based criteria, as identified above. GREENGUARD program testing is conducted consistent with a defined protocol and does not measure emissions under usage conditions other than those defined in the protocol and does not address potential environmental impact other than chemical emissions.

For further product details, visit the product listing at www.greenguard.org. If you have any questions, contact the GREENGUARD Environmental Institute at 1.800.427.9681.

Children & Schools GREENGUARD® Indoor Air Quality Certified

Cedan Industries

Serenity Series Edgebanding

This product has been GREENGUARD Indoor Air Quality Certified® by the GREENGUARD Environmental Institute under the GREENGUARD for Children & Schools℠ product certification program.

Certification Details:	
Certification No:	90115-01
Certification Status:	Certified
Certification Period(s):	07/2008- 07/2009
Certification Restrictions:	
NONE	

GREENGUARD Product Emission Standard for Children & Schools

GREENGUARD Indoor Air Quality Certified Products meet the following minimum emission requirements:

Product Category: Surfacing Materials	Product Sub Category: Wood
Individual VOCs[1]	< 1/100 TLV and < ½ CA chronic REL
Formaldehyde[2]	< 0.0135 ppm/13.5 ppb
Total VOCs[3]	< 0.22 mg/m³
Total Aldehydes[4]	< 0.043 ppm/43 ppb
Total Phthalates[5]	< 0.01 mg/m³
Total Particles (< 10µm)[6]	< 0.02 mg/m³

[1]Any VOC not listed must produce an air concentration level no greater than 1/100 the Threshold Limit Value (TLV) industrial work place standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Building D-7, Cincinnati, Ohio 45211-4438) and no greater than 1/2 the CA Chronic Reference Exposure Level (CREL) http://www.oehha.ca.gov/air/chronic_rels/AllChrels.html - (CRELs) Adopted by the State of California Office of Environmental Health Hazard Assessment (OEHHA), February 2005).

[2]Formaldehyde criteria established so that emission levels reach 0.014ppm (13.5 ppb) within 14 days of installation (meeting CA 1350 requirements).

[3]Defined to be the total response of measured VOCs falling within the $C_6 - C_{16}$ range, with responses calibrated to a toluene surrogate.

[4]Defined to be the total response of a specific target list of aldehydes (2-butenal; acetaldehyde; benzaldehyde; 2, 5-dimethylbenzaldehyde, 2-methylbenzaldehyde; 3-and/or 4-methylbenzaldehyde; butanal; 3-methylbutanal; formaldehyde; hexanal; pentanal; propanal), with each individually calibrated to a compound specific standard.

[5]Total phthalates include dibutyl (DBP), diethylhexyl (DEHD), diethyl (DEP), butylbenzyl (BBP), di-octyl (DOP), and dimethyl (DMP) phthalates.

[6]Particles applicable to fibrous, particle releasing products with exposed surface area.

Complies with California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers" 2004 (CA section 01350)

GREENGUARD Certification affirms that a product's emissions fall within the limits selected by GREENGUARD from reputable third-party risk based criteria, as identified above. GREENGUARD program testing is conducted consistent with a defined protocol and does not measure emissions under usage conditions other than those defined in the protocol and does not address potential environmental impact other than chemical emissions.

For further product details, visit the product listing at www.greenguard.org. If you have any questions, contact the GREENGUARD Environmental Institute at 1.800.427.9681.

CEDAN

DO YOU KNOW THE RELATIONSHIP BETWEEN AMBIENT TEMPERATURE, RELATIVE HUMIDITY IN THE AIR AND WOOD MOISTURE?

Air affects the moisture in wood. Moisture problems such as shrinkage, cracking and warpage are caused whenever wood starts working on its own by picking up moisture in a damp place or by losing moisture in a dry place. See what happens to wood moisture in the different environments below.

Ideal environmental conditions :
(for wood, for your health and for your shop)
Ambient temperature: 20° to 25 °C = (68° to 77 °F)
Relative humidity in the air: 35% to 45%
The wood moisture level will set itself at: 7% to 12%

The summer environment, hot and humid:

Ambient temperature: 30 °C = (86 °F)
Relative humidity in the air: 65% to 75%
The wood moisture level will set itself at: 14% to 18%

The dry winter climate, cold and dry:

Ambient temperature: 0 °C = (32 °F)
Relative humidity in the air: 20%
The wood moisture level will set itself at: 5% to 7%

In order to ensure the stability of the furniture you are building it is important to reproduce the environment in which the piece will be installed.

CEDAN

DO YOU KNOW THE RELATIONSHIP BETWEEN AMBIENT TEMPERATURE, RELATIVE HUMIDITY IN THE AIR AND WOOD MOISTURE?

Checking and Cracking Problems

Checking and Cracking of the faces of veneers sheets is basically caused by loss of moisture in the veneer, resulting in shrinkage of this component. The dimensional changes in the face and the core may provoke warpage and surface cracking. When these forces reach the point where they exceed the structural strength of the veneer, rupture of the fibres takes place. This effect, shows up as a check or split on the surface. These checks naturally follow the weak zones such as lathe checks, pores or splices in the veneer.

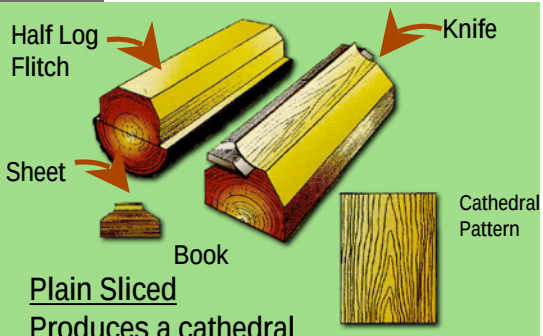
Cracking is an environmental issue:

It is a known fact that this condition commonly occurs during periods of low humidity. Furniture subjected to dry heat during this time of year tends to dry out or lose moisture. The greater the loss of moisture, the greater the shrinkage and resulting stresses.

CEDAN

Veneer Cutting Methods

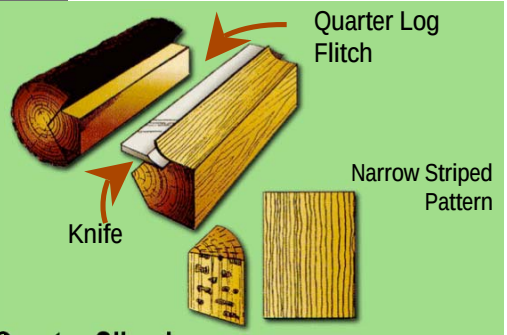
Cutting Methods



Plain Sliced
Produces a cathedral grain pattern. Most logs will also yield some quarter appearance.
Half Round – A somewhat similar pattern is achieved by turning a half log flitch on a lathe.

PLAIN SLICED (Flat Cut)

- Most common slicing method.
- Veneer cut along the growth rings.
- Frequently results in a combination of familiar « Cathedral » pattern and straight grain patterns.
- Because plain slicing offers the highest yield of slicing methods, it is generally the least expensive.

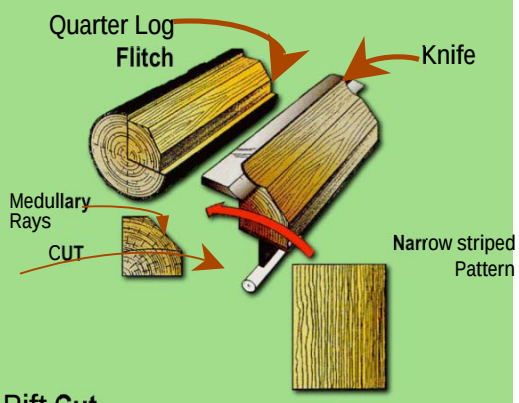


Quarter Sliced
Produces a series of stripes-straight in some woods, varied in others. A flake pattern is produced when slicing through medullary rays in some species, principally oak. Other than oak, most species produce the same look as rift cut.

QUARTER CUT

- Cut is perpendicular to the growth rings.
- Produce a straight grain appearance.
- May produce ray flake in red and white oak.
- Produces narrower components than plain slicing.
- Because quarter slicing yields less veneer per log than plain slicing, it is generally more expensive than plain slicing.

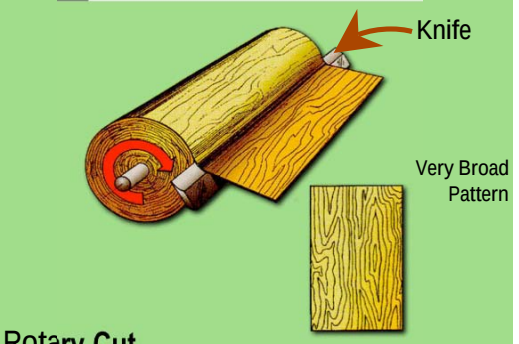
Cutting Methods



Rift Cut
An angle of cut of 15º
to the radius of the flitch is used to minimize the ray flake effect in oak.

RIFT CUT

- Red and white oak are generally the only species that are rift cut.
- Produces straight grain appearance in oak with minimal flake.
- Produces the narrowest components of the slicing methods.
- Because rift cutting yields the least veneer per log, it is generally the most expensive slicing method.



Rotary Cut
The entire log is cut or "peeled". Can yield full sheets of veneer. Grain pattern is broad with no plain or quarter sliced appearance.

ROTARY CUT

- Used in the majority of stock panels produced in north America.
- Produces a board, variegated pattern.
- Yields the most veneer per log.
- Can produce a limited amount of full-sized whole piece faces.
- Generally, rotary cut veneer is less expensive than sliced veneer.

Cutting Methods (3D View)

Any log has the potential to be processed into veneer by any of the methods describe in this session.