

Natural Solutions



Graham[®]
wood doors

ASSA ABLOY

ASSA ABLOY, the global leader
in door opening solutions



Natural Solutions

Introduction

Graham is the nation's fastest growing provider of architectural wood doors. In addition to offering you a wide selection of flush doors (including fire rated, acoustical, pairs, decorative, dutch, wicket, and transoms) and accessories (such as lites, applied moulding, and machining), we have an entire team of individuals that are here for one purpose... to serve you.

Graham wood doors meet or exceed WDMA and AWS performance criteria. We offer doors with 20, 45, 60, and 90 minute fire ratings and acoustical doors with STC ratings from 27 to 46. Additionally, Graham wood doors can contribute to "green building" with recycled content, regional materials, rapidly renewable materials, FSC certified wood, and/or no added urea-formaldehyde.

Everyone at Graham is proud of the beauty exemplified in each and every door we make. Wood is an aesthetically appealing material, stimulating the senses of sight, touch, and smell. The appearance of wood is influenced by a number of factors controlled by nature. For instance, temperature fluctuations affect growing seasons and influence porosity of the wood; the presence of buds and naturally pruned small limbs are responsible for pin knots; minerals and soil variation result in coloration differences. These are just a few of the many natural processes responsible for the pure characteristics present in wood. Such inherent individuality makes it impossible for any specie or tree to be completely free of these natural attributes. This uniqueness is responsible for the beauty and textures represented by the examples on these pages and present in each of the doors we build, admire, and ship to you.

Table of Contents

The species featured on these pages are the ones most often used for architectural flush wood doors. However, there are thousands of wood species that can also be used for your Graham wood doors. A few of these species are Anigre, Bamboo, Makore, Rosewood, Sapele, Wenge, and Zebrawood. Contact your Graham Customer Service Professional to learn more.

Cherry	
Plain Sliced	2, 3
Mahogany	
Flat Cut	4, 5
Black Walnut	
Plain Sliced	6, 7
Maple	
Plain Sliced White	8, 9
Oak	
Plain Sliced Red	10, 11
Plain Sliced White	12, 13
Rift Red	14, 15
Rotary Red	16, 17
Birch	
Plain Sliced Natural	18, 19
Plain Sliced Select White	20, 21
Rotary Natural	22, 23
Rotary Select White	24, 25
Veneer Cutting Methods	26
Veneer Assembly Methods.....	27
Specie Grading Charts	
AA Grade	28
A Grade	29
Factory Finish	30
Colors	31
In The Field	32
Glossary	33, 34
References	35

Plain Sliced Cherry



Cherry trees can reach a height of 100 feet with a diameter of four to five feet. Cherry is found in the Eastern half of the United States, with production centered in the Middle Atlantic States.

The sapwood of Cherry is light in color, while the heartwood darkens upon exposure to a deep reddish brown with a distinctive luster. It has fine, uniform texture and a generally straight grain.

Cherry is medium heavy, strong, and moderately hard with beautiful natural characteristics. Cherry is one of the most sought after hardwoods and turns splendidly darker with age.

Valued for its decorative appearance, Cherry is commonly used for furniture, architectural woodwork, and doors.

Plain Sliced Cherry veneer has a uniform texture and heartwood that varies from light to dark. The grain is straight, finely textured and closed with a gentle waving figure and cathedral pattern. Cherry lends itself well to stains and topcoats, resulting in a very even finish.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Plain Sliced Cherry

Flat Cut Mahogany



Mahogany trees can grow to 150 feet in height and more than six feet in diameter. American Mahogany comes from parts of Southern Mexico, Central America, and South America. Plantations have been established in this natural growing range and elsewhere throughout the tropics.

The sapwood of Mahogany is yellowish or whitish in color. The heartwood, however, varies from pale pink or salmon color to dark reddish brown.

Mahogany produces a straight grain with fine open texture, although it can also be found with an attractive figure. The density is very uniform due to the nearly continuous growing season of its range. The wood lends itself well to being cut into fine veneer.

Mahogany is used for fine furniture, cabinets, interior trim, musical instruments, and doors.

Flat Cut Mahogany veneer exhibits a smooth texture grain and subtle cathedral grain effect. The open grain of Mahogany is very receptive to stains and topcoats.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Flat Cut Mahogany

Plain Sliced Black Walnut



Black Walnut trees can reach heights of 120 feet with a diameter of over three feet. Black Walnut is native to the eastern United States but is found from South Dakota to Florida and Vermont to Texas. Approximately three-quarters of Walnut timber is produced in the Central States.

While the sapwood of Black Walnut is nearly white, the heartwood varies from light to dark brown and may have a purplish cast.

Along with being the only dark brown domestic specie, the wood is heavy and very durable with beautiful characteristics between the summer and winter wood growth.

Valued for its decorative appearance, Black Walnut is primarily used for furniture, cabinets, interior paneling, and doors.

Plain Sliced Black Walnut veneer has a straight grain and is finely textured, closed with a gentle waving figure and cathedral pattern. It takes stains and topcoats very evenly and turns majestically darker as it ages.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Plain Sliced Black Walnut

Plain Sliced White Maple



Maple trees grow to heights of 120 feet with a diameter of three feet. Approximately two-thirds of Maple lumber and veneer production originates from the Middle Atlantic and Lake States. Commercial species of Maple in the United States include Sugar Maple, Black Maple, Silver Maple, and Red Maple.

The wood of Sugar Maple and Black Maple is known as hard maple. The sapwood of Maple is commonly white with a slight reddish brown tinge. The heartwood is usually light reddish brown, but can be considerably darker.

Hard Maple is strong and has a fine, uniform texture; it is generally straight grained. Sugar Maple may also occur with “birds-eye”, “curly”, and “fiddleback” grain.

Maple is used primarily for lumber, veneer, and pulpwood. A large portion of Maple lumber and veneer is used for products like flooring, furniture, boxes, and doors.

Plain Sliced White Maple veneer has characteristics very similar to Select White Birch. The wood texture is smooth and fine with a lineal grain pattern. This tranquil pattern is complemented by the even coloration resulting from utilization of only sapwood veneer. The grain pattern and coloration may be amplified or masked by the color of stain chosen to finish the door face.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



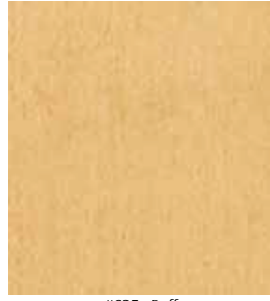
#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Plain Sliced White Maple

Plain Sliced Red Oak



Oak trees can reach a height of 125 feet with large diameters. Most Red Oak comes from the Southern States, Southern Mountain Regions, Atlantic Coastal Plains, and Central States. The primary sources for Red Oak lumber and veneer are Northern Red Oak, Black Oak, and Southern Red Oak.

Red Oak sapwood is nearly white, usually only one to two inches thick, and found immediately under the bark. The heartwood is a warm brown with a tinge of red and is used for the production of Red Oak lumber and veneer.

The wood of Red Oak is heavy and strong with a distinctive open grain texture. Red Oak can reveal many pronounced grain designs depending on the sawing or veneer cutting method used in processing.

Red Oak is commonly cut into lumber, veneer, and fuel wood. The lumber is typically processed into flooring, furniture, and general millwork, while the veneer is often used for furniture, doors, and paneling.

Plain Sliced Red Oak veneer has a course, open grain texture and expresses a very strong cathedral grain effect. The pattern results from peaked bands of less dense early season growth and more dense late season growth. The open grain texture is very receptive to stains and topcoats.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



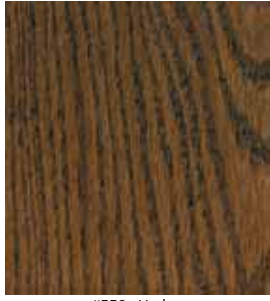
#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Plain Sliced Red Oak

Plain Sliced White Oak



Oak trees can grow to a height of 125 feet with large diameters. White Oak timber comes primarily from the Southern States, South Atlantic States, and Central States. Principle species are White Oak, Chestnut Oak, Bur Oak, and Live Oak.

The sapwood of White Oak is nearly white, usually only one to two inches thick, and found directly beneath the bark. The heartwood is generally grayish brown and is used to produce White Oak lumber and veneer.

The wood of White Oak is heavy, even slightly heavier than Red Oak; it is strong with an open grain texture. White Oak can reveal many pronounced grain designs dependant on the sawing or veneer cutting method specified.

White Oak is commonly used for lumber, veneer, and fuel wood, with the veneer being popular for use in the manufacture of doors.

Plain Sliced White Oak veneer displays a course, open grain texture and expresses a very strong cathedral grain effect. The pattern results from peaked bands of less dense early season growth and more dense late season growth. The open grain texture is very receptive to stains and topcoats.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Plain Sliced White Oak

Rift Red Oak



Oak trees can reach a height of 125 feet with large diameters. Most Red Oak comes from the Southern States, Southern Mountain Regions, Atlantic Coastal Plains, and Central States. The primary sources for Red Oak lumber and veneer are Northern Red Oak, Black Oak, and Southern Red Oak.

Red Oak sapwood is nearly white, usually only one to two inches thick, and found immediately under the bark. The heartwood is a warm brown with a tinge of red and is used for the production of Red Oak lumber and veneer.

The wood of Red Oak is heavy and strong with a distinctive open grain texture. Red Oak can reveal many pronounced grain designs depending on the sawing or veneer cutting method used in processing.

Red Oak is commonly cut into lumber, veneer, and fuel wood. The lumber is typically processed into flooring, furniture, and general millwork, while the veneer is often used for furniture, doors, and paneling.

Rift Red Oak veneer produces a very straight grain pattern that deviates very little from top to bottom. This nearly lineal pattern equalizes the exposure of the less dense early growth and the more dense late growth wood structures. The open grain texture readily accepts stain and topcoats.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Rift Red Oak

Rotary Red Oak



Oak trees can reach a height of 125 feet with large diameters. Most Red Oak comes from the Southern States, Southern Mountain Regions, Atlantic Coastal Plains, and Central States. The primary sources for Red Oak lumber and veneer are Northern Red Oak, Black Oak, and Southern Red Oak.

Red Oak sapwood is nearly white, usually only one to two inches thick, and found immediately under the bark. The heartwood is a warm brown with a tinge of red and is used for the production of Red Oak lumber and veneer.

The wood of Red Oak is heavy and strong with a distinctive open grain texture. Red Oak can reveal many pronounced grain designs depending on the sawing or veneer cutting method used in processing.

Red Oak is commonly cut into lumber, veneer, and fuel wood. The lumber is typically processed into flooring, furniture, and general millwork, while the veneer is often used for furniture, doors, and paneling.

Rotary Red Oak veneer exhibits a course, open grain texture and irregular grain pattern that cascades across its surface. The uneven grain shapes are characterized by bands of wood growth that vary from less dense early season growth to more dense late season growth. The open grain texture lends itself easily to staining and topcoats.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Rotary Red Oak

Plain Sliced Natural Birch



Birch trees can reach a height of 70 feet, with a diameter of more than two feet. Most Birch veneer comes from Yellow Birch and Sweet Birch. These types of Birch trees grow principally in the Northeastern States, Lake States, and along the Appalachian Mountains to Northern Georgia.

Yellow Birch has white sapwood and light reddish-brown heartwood, while Sweet Birch has a light-colored sapwood and dark brown heartwood tinged with red. The wood is heavy and strong with a fine, uniform grain.

Birch veneer is classified by coloration into three basic groups: Natural, Select White, and Select Dark. Natural Birch veneer contains both heartwood and sapwood, in varying amounts. Select White Birch veneer contains only sapwood. Likewise, Select Dark Birch veneer contains only red or brown heartwood.

Yellow and Sweet Birch lumber and veneer are mostly used for the manufacture of furniture, baskets, interior trim, and doors.

Plain Sliced Natural Birch veneer presents close grained, delicate wood texture with a lineal grain pattern that is accentuated by the presence of light color sapwood permeated by much darker heartwood. The extreme difference in coloration may be highlighted or subdued when the door face veneer is finished and should, therefore, be considered before specifying Natural Birch.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Plain Sliced Natural Birch

Plain Sliced Select White Birch



Birch trees can reach a height of 70 feet, with a diameter of more than two feet. Most Birch veneer comes from Yellow Birch and Sweet Birch. These types of Birch trees grow principally in the Northeastern States, Lake States, and along the Appalachian Mountains to Northern Georgia.

Yellow Birch has white sapwood and light reddish-brown heartwood, while Sweet Birch has a light-colored sapwood and dark brown heartwood tinged with red. The wood is heavy and strong with a fine, uniform grain.

Birch veneer is classified by coloration into three basic groups: Natural, Select White, and Select Dark. Natural Birch veneer contains both heartwood and sapwood, in varying amounts. Select White Birch veneer contains only sapwood. Likewise, Select Dark Birch veneer contains only red or brown heartwood.

Yellow and Sweet Birch lumber and veneer are mostly used for the manufacture of furniture, baskets, interior trim, and doors.

Plain Sliced Select White Birch veneer bears fine wood texture combined with lineal grain features. By plain slicing the wood, a combination of cathedral and straight grain patterns result, although muted by the sole use of sapwood, exhibiting a consistent fresh coloration throughout the door face veneer. Finishing the door face can amplify or mask the grain pattern depending on what stain color is selected.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



#902 - Cayenne



#925 - Ochre



#950 - Sedona



Plain Sliced Select White Birch

Rotary Natural Birch



Birch trees can reach a height of 70 feet, with a diameter of more than two feet. Most Birch veneer comes from Yellow Birch and Sweet Birch. These types of Birch trees grow principally in the Northeastern States, Lake States, and along the Appalachian Mountains to Northern Georgia.

Yellow Birch has white sapwood and light reddish-brown heartwood, while Sweet Birch has a light-colored sapwood and dark brown heartwood tinged with red. The wood is heavy and strong with a fine, uniform grain.

Birch veneer is classified by coloration into three basic groups: Natural, Select White, and Select Dark. Natural Birch veneer contains both heartwood and sapwood, in varying amounts. Select White Birch veneer contains only sapwood. Likewise, Select Dark Birch veneer contains only red or brown heartwood.

Yellow and Sweet Birch lumber and veneer are mostly used for the manufacture of furniture, baskets, interior trim, and doors.

Rotary Natural Birch veneer displays fine wood texture and a very irregular grain pattern that is accentuated by the presence of light colored sapwood permeated by much darker heartwood. The extreme difference in coloration may be highlighted or subdued when the door face veneer is finished and should, therefore, be considered before specifying Natural Birch.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



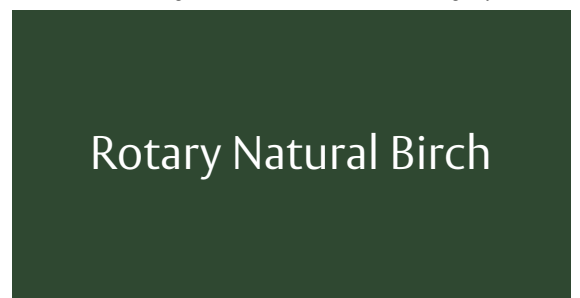
#902 - Cayenne



#925 - Ochre



#950 - Sedona



Rotary Natural Birch

Rotary Select White Birch



Birch trees can reach a height of 70 feet, with a diameter of more than two feet. Most Birch veneer comes from Yellow Birch and Sweet Birch. These types of Birch trees grow principally in the Northeastern States, Lake States, and along the Appalachian Mountains to Northern Georgia.

Yellow Birch has white sapwood and light reddish-brown heartwood, while Sweet Birch has a light-colored sapwood and dark brown heartwood tinged with red. The wood is heavy and strong with a fine, uniform grain.

Birch veneer is classified by coloration into three basic groups: Natural, Select White, and Select Dark. Natural Birch veneer contains both heartwood and sapwood, in varying amounts. Select White Birch veneer contains only sapwood. Likewise, Select Dark Birch veneer contains only red or brown heartwood.

Yellow and Sweet Birch lumber and veneer are mostly used for the manufacture of furniture, baskets, interior trim, and doors.

Rotary Select White Birch veneer exhibits smooth texture and a very subtle irregular grain pattern due to the sole use of sapwood. This presents a creamy coloration throughout the door face. The grain pattern may be muted or highlighted by the color of stain chosen to finish the door face veneer.

Wood is a natural material with inherent growth patterns. The uniqueness offered by wood makes it appealing and interesting in the realm of design and beauty. This same uniqueness, along with variations caused by printing, is why actual colors and door face veneers may vary from what is pictured here.



#100 - Clear



#125 - Fallow



#175 - Barley



#200 - Spiced Walnut



#225 - Zin



#250 - Copper



#275 - Russet



#300 - Medium Brown



#325 - Rose



#350 - Cocoa



#375 - Hazel



#380 - Corsica



#400 - Dark Walnut



#425 - Cactus



#500 - Medium Red



#550 - Umber



#600 - Wheat



#625 - Buff



#650 - Sandy



#675 - Apricot



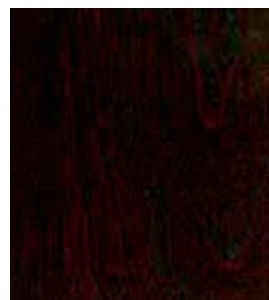
#700 - Dark Brown



#775 - Auburn



#800 - Dark Red



#850 - Midnight



#901 - Burgundy



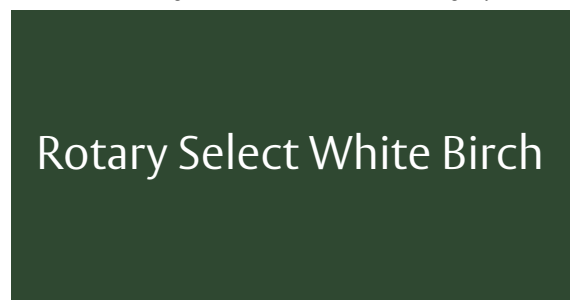
#902 - Cayenne



#925 - Ochre



#950 - Sedona



Rotary Select White Birch

Veneer Cutting Methods

Plain Sliced (Flat Sliced)

Plain Slicing is the method most often used to produce veneers for high quality architectural woodworking. The slicing is done parallel to a line through the center of the log. A combination of cathedral and straight grain patterns result, with a natural progression of pattern from leaf to leaf.

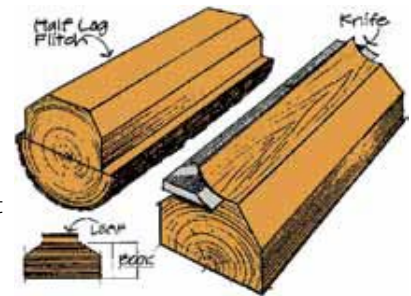
Cathedral Pattern



Plain Sliced (Flat Sliced)

Leaf width depends on log size and placement in flitch.

Half Round: A somewhat similar pattern is achieved by turning a half log flitch on a lathe.



Quarter Sliced (Quarter Cut)

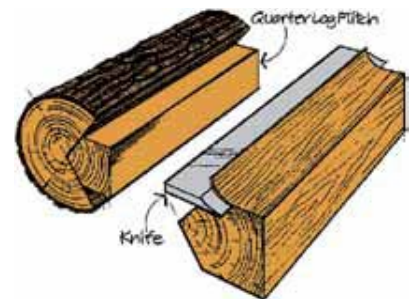
Quarter Slicing simulates the quarter sawing process of solid lumber, with slicing occurring roughly parallel to a radius line through the log segment. As a result, the individual leaves are narrow for many species. A series of stripes is produced, varying in density and thickness from specie to specie.

Narrow Striped Pattern



Quarter Sliced (Quarter Cut)

A "flake" pattern is produced when slicing through Medullary Rays in some species, particularly Oak.



Rotary

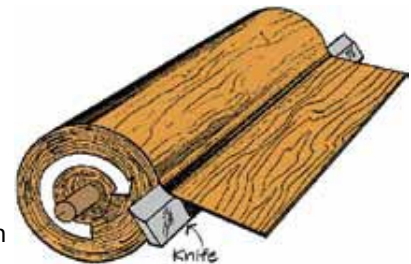
Rotary cut is achieved when the log is center-mounted on a lathe and "peeled" along the general path of the growth rings. It is like unwinding a roll of paper and provides a generally bold, random appearance.

Very Broad Pattern



Rotary

Rotary cut results in wide sheets with a broad grain pattern. It is difficult to match Rotary cut at veneer joints.



Rift (Rift Cut)

Rift veneers are produced most often in Red and White Oak, rarely in other species. Rift veneers and rift sawn solid lumber are produced so differently that a "match" between the two is highly unlikely.

Narrow Striped Pattern



Rift (Rift Cut)

Rift Cut occurs at a slight angle from the radius of the flitch to minimize the ray flake effect that can occur in Oak. Comb Grain is the portion which has very tight, straight grain.



The individual pieces of veneer sliced or peeled from a log are called "leaves". They are kept in the same order they were cut from the log, which allows for natural grain progression when faces are assembled. The cutting and assembly methods applied to the veneer leaves determine the appearance of the door face.

Veneer Assembly Methods

Matching Between Adjacent Veneer Leaves

It is possible to achieve certain visual effects by the manner in which the leaves are arranged. Since rotary cut veneers are difficult to match, most matching is done with sliced veneer. Common types are:



Book Match

The most commonly used match in the industry, every other piece of veneer is turned over so adjacent leaves are "opened" like the pages of a book. This creates a mirrored-image pattern at the joint line.



Slip Match

Often used with Quarter Sliced and Rift Cut veneers, adjoining leaves are placed in sequence without turning over any leaves. By "slipping out" each leaf, a repeating pattern is visible at the joint lines.

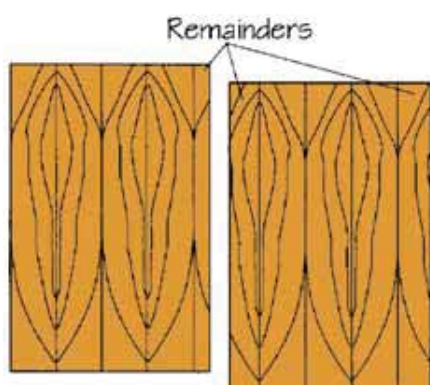


Random Match

Used to produce a "board-by-board" effect, the leaves are placed next to each other in random order and orientation. Veneer leaves may or may not be from the same log. Color and grain may vary greatly between joint lines.

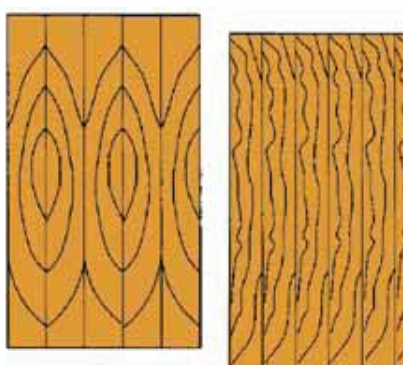
Matching Within a Veneer Face

As the slicing of a flitch progresses, the width of resulting leaves changes. As these leaves are assembled into a veneer face, the joints will occur at varying positions on the face depending on what match is specified. The manner in which veneer faces are assembled can be classified as follows:



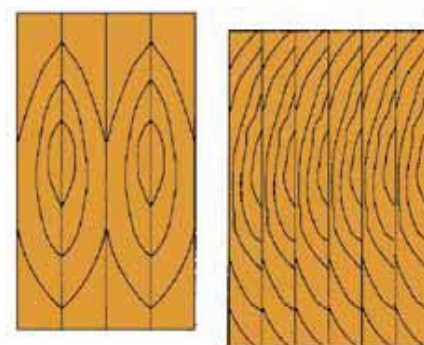
Running Match

The most common veneer face match, Running Match is achieved by starting on one side and placing leaves consecutively next to each other to assemble veneer faces. The natural width change in leaves is acceptable, and the transition from one face to another may divide a leaf between faces. The resulting appearance is one of non-symmetry, which is more noticeable in some species and cuts than others.



Balance Match

One way to achieve a symmetrical look on a veneer face is to trim the leaves to a consistent width for use on a single face. This allows for an even or odd number of leaves on any given face and provides balance through use of a consistent leaf width.



Center Balance Match

To accomplish symmetry in both the leaf widths and veneer face, leaves are trimmed to a uniform size that allows for a joint to be at the center of the veneer face. This results in an even number of leaves and a fully symmetrical appearance.

Note: Trimming a door to size will alter the assembled dimensions of the outermost leaves.

Specie Grading Chart (AA grade)

Specie	<i>Birch, Natural</i>	<i>Birch, Select White</i>	<i>Cherry</i>	<i>Mahogany</i>	<i>Maple, White</i>	<i>Oak, Red</i>	<i>Oak, Red</i>	<i>Oak, White</i>	<i>Walnut, Black</i>
Cut	<i>Plain Sliced</i>	<i>Plain Sliced</i>	<i>Plain Sliced</i>	<i>Flat Cut</i>	<i>Plain Sliced</i>	<i>Plain Sliced</i>	<i>Rift</i>	<i>Plain Sliced</i>	<i>Plain Sliced</i>
General									
Sapwood	Yes	Yes	No	No	Yes	No	No	No	No
Heartwood	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Color Streaks or Spots	Slight	Slight	Slight	Slight	Slight	Yes	Yes	Yes	Slight
Color Variation	Yes	Slight	Slight	Slight	Yes	Slight	Slight	Slight	Slight
Sharp Color Contrasts at Splice Joints	Yes (3)	Yes (3)	Yes (3)	Yes(3)	Yes (3)	Yes (3)	Yes (3)	Yes (3)	Yes (3)
Veneer Leaf Matching									
Book Match	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Slip Match	Specify	Specify	Specify	Specify	Specify	Specify	Specify	Specify	Specify
Pleasing Match	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Veneer Leaf Width									
Nominal Minimum Leaf Width (1)	5"	5"	5"	5"	5"	5"	3"	5"	5"
Natural Characteristics									
Burls and Pin Knots (2)	1 per 5 sq. ft.	1 per 5 sq. ft.	1 per 4 sq. ft.	1 per 5 sq. ft.	1 per 5 sq. ft.	1 per 4 sq. ft.	1 per 4 sq. ft.	1 per 4 sq. ft.	1 per 4 sq. ft.
Burl Size, maximum	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Pin Knots: average number	None	None	1 per 5 sq. ft.	None	None	None	None	None	1 per 5 sq. ft.
size	N/A	N/A	1/8"	N/A	N/A	N/A	N/A	N/A	1/8"
total	N/A	N/A	1/4"	N/A	N/A	N/A	N/A	N/A	1/4"
Repaired Knots	No	No	No	No	No	No	No	No	No
Mineral Streaks	No	No	Slight	No	Slight	No	No	No	Slight
Bark Pockets	No	No	No	No	No	No	No	No	No
Worm Tracks	Slight	Slight	No	No	Slight	No	No	No	No
Vine Marks	Slight	Slight	Slight	Slight	Slight	No	No	No	Slight
Cross Bars	Slight	Slight	Slight	Occasional	Slight	Slight	Slight	Slight	Slight
Ray Fleck (Flake)	N/A	N/A	N/A	N/A	N/A	Slight (4)	Slight (4)(5)	Slight (4)	N/A
Gum Spots	N/A	N/A	Occasional	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturing Characteristics									
Rough Cut	No	No	No	No	No	No	No	No	No
Hairline Splits (on ends only)	Two 1/32" x 3"	Two 1/32" x 3"	Two 1/32" x 3"	Two 1/32" x 3"	Two 1/32" x 3"	Two 1/32" x 3"	Two 1/32" x 3"	Two 1/32" x 3"	Two 1/32" x 3"
Blended Repairs	Very Small	Very Small	Very Small	Very Small	Very Small	Very Small	Very Small	Very Small	Very Small

- (1) Outside components will be different size to allow for edge trim loss and certain types of matching
- (2) Combined average number
- (3) If Slip, Plank, or Random matched
- (4) Blending
- (5) Not to exceed 3/8" in width

Specie Grading Chart (A grade)

Specie	<i>Birch, Natural</i>	<i>Birch, Select White</i>	<i>Cherry</i>	<i>Mahogany</i>	<i>Maple, White</i>	<i>Oak, Red</i>	<i>Oak, Red</i>	<i>Oak, White</i>	<i>Walnut, Black</i>
Cut	<i>Plain Sliced</i>	<i>Plain Sliced</i>	<i>Plain Sliced</i>	<i>Flat Cut</i>	<i>Plain Sliced</i>	<i>Plain Sliced</i>	<i>Rift</i>	<i>Plain Sliced</i>	<i>Plain Sliced</i>
General									
Sapwood	Yes	Yes	Yes (4)	No	Yes	5%	5%	5%	Yes (4)
Heartwood	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Color Streaks or Spots	Yes	Slight	Slight	Slight	Yes	Yes	Yes	Yes	Slight
Color Variation	Yes	Slight	Slight	Slight	Yes	Slight	Slight	Slight	Slight
Sharp Color Contrasts at Splice Joints	Yes (3)	Yes (3)	Yes (3)	Yes (3)	Yes (3)	Yes (3)	Yes (3)	Yes (3)	Yes (3)
Veneer Leaf Matching									
Book Match	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Slip Match	Specify	Specify	Specify	Specify	Specify	Specify	Specify	Specify	Specify
Pleasing Match	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Veneer Leaf Width									
Nominal Minimum Leaf Width (1)	4"	4"	4"	4"	4"	4"	3"	4"	4"
Natural Characteristics									
Burls and Pin Knots (2)	1 per 3 sq. ft.	1 per 3 sq. ft.	1 per 1 1/3 sq. ft.	1 per 3 sq. ft.	1 per 3 sq. ft.	1 per 2 2/3 sq. ft.	1 per 2 2/3 sq. ft.	1 per 2 2/3 sq. ft.	1 per 1 1/3 sq. ft.
Burl Size, maximum	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
Pin Knots: average number	1 per 8 sq. ft.	1 per 8 sq. ft.	1 per 2 sq. ft.	1 per 8 sq. ft.	1 per 8 sq. ft.	1 per 3 sq. ft.	1 per 3 sq. ft.	1 per 3 sq. ft.	1 per 2 sq. ft.
size	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"
total	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Repaired Knots	No	No	No	No	No	No	No	No	No
Mineral Streaks	Slight	Slight	Slight	Slight	Slight	Slight (5)	Slight (5)	Slight (5)	Slight
Bark Pockets	No	No	No	No	No	No	No	No	No
Worm Tracks	Slight	Slight	No	No	Slight	No	No	No	No
Vine Marks	Slight	Slight	Occasional	Slight	Slight	Slight	Slight	Slight	Occasional
Cross Bars	Slight	Slight	Occasional	Occasional	Slight	Slight	Slight	Slight	Occasional
Ray Fleck (Flake)	N/A	N/A	N/A	N/A	N/A	Slight (5)	Slight (5)(6)	Slight (5)	N/A
Gum Spots	N/A	N/A	Occasional	N/A	N/A	N/A	N/A	N/A	N/A
Manufacturing Characteristics									
Rough Cut	No	No	No	No	No	No	No	No	No
Hairline Splits	Two 1/16" x 6"	Two 1/16" x 6"	Two 1/16" x 6"	Two 1/16" x 6"	Two 1/16" x 6"	Two 1/16" x 6"	Two 1/16" x 6"	Two 1/16" x 6"	Two 1/16" x 6"
Blended Repairs	Small	Small	Small	Small	Small	Small	Small	Small	Small

- (1) Outside components will be different size to allow for edge trim loss and certain types of matching
- (2) Combined average number
- (3) If Slip, Plank, or Random matched
- (4) Sapwood is allowed, but percentage must be agreed upon between buyer and seller
- (5) Blending
- (6) Not to exceed 3/8" in width

Factory Finish

Environmental awareness and understanding the need for door opening solutions that provide beauty, durability, and reliability influenced Graham's selection of a unique factory finish system. Combining the use of non-solvent based modified acrylic stains and finish topcoats, the water-borne materials we use provide richly colored and highly protective finishes. Additionally, our multi-step automated process results in low energy demand for UV curing and virtually no waste. Our successful integration of stain and topcoat materials with a technologically advanced process consistently results in architectural wood doors that have the appearance of fine furniture.

Graham's finish system is newer technology than what is defined by TR-4 and TR-6. In order to confirm exceptional performance of our finish system, Graham completed testing to compare performance against these two common finishes. As detailed in the table below, Graham's finish performed equal to or better than TR-6 and TR-4 in all categories. Combine this durable performance with our environmentally friendly process, and Graham is proud to provide prefinished doors to you.

TEST RESULTS - PREMIUM GRADE TOPCOATS			
TEST	GRAHAM	TR-6	TR-4
Wear/Moisture Resistance	5	5	5
Print Resistance ASTM 2091	5	5	5
Abrasion Resistance ASTM 4060	5	5	4
Adhesion ASTM D3359	5	5	5
Cold Check Resist ASTM D1211	5	5	5
Impact Resistance	5	5	5
Chemical Resist ASTM D1308			
2% Caustic	5	5	5
10% Sodium Hydroxide	5	5	4
10% Tri-Sodium Phosphate	5	5	4
Glacial Acetic Acid	5	5	4
50% Sulphuric Acid	5	5	4
28% Ammonium Hydroxide	5	5	4
95% Ethyl Alcohol	5	5	4
Cooking Oil 1	5	5	5
Hot Coffee	5	5	5
Orange Juice	5	5	5
Tomato Juice	5	5	5
Mustard	5	5	5
Nail Polish & Remover	5	5	4
Chemical Resist ASTM D2248			
Soap Detergent	5	5	5
5 = Excellent 4 = Very Good 3 = Good 2 = Fair 1 = Poor			

Colors

Graham Wood Doors offers 28 semi-transparent standard colors, the largest selection in the industry. The result is a simpler and more direct way to select and confirm prefinish door colors. In addition to the original 9 colors, the 19 new colors represent a wide and typical array of color tones that will more frequently allow a specifier to confirm the prefinish door color without going through the time-consuming custom color process. Our range includes colors that are compatible to other door manufacturers' standard colors. Custom color matching is available if the 28 standard colors do not meet your design requirements.

Graham Colors

- #100 - Clear
- #125 - Fallow
- #175 - Barley
- #200 - Spiced Walnut
- #225 - Zin
- #250 - Copper
- #275 - Russet
- #300 - Medium Brown
- #325 - Rose
- #350 - Cocoa
- #375 - Hazel
- #380 - Corsica
- #400 - Dark Walnut
- #425 - Cactus
- #500 - Medium Red
- #550 - Umber
- #600 - Wheat
- #625 - Buff
- #650 - Sandy
- #675 - Apricot
- #700 - Dark Brown
- #775 - Auburn
- #800 - Dark Red
- #850 - Midnight
- #901 - Burgundy
- #902 - Cayenne
- #925 - Ochre
- #950 - Sedona



If you have a project that requires a unique color, simply submit a sample, and Graham will match it. Since the natural color and grain characteristics of wood result in a range within a prefinish color, we provide you a set of samples that represent the “blend” or range of tone, color, and grain that will be present in the finished product. Upon your review and approval of the custom color sample set, we will finish your doors to the color range specified.

In The Field

The Barber Pole Effect

As veneer leaves are cut from a log, compression of the grain occurs on the inner side of the leaf as it passes over the beveled knife. This compressed side of the leaf is referred to as the “tight side”. The reactive effect that occurs on the other side of the leaf results in a slight expansion of the grain, known as the “loose side”.

When the veneer leaves are book matched (every other leaf turned over), the resulting veneer faces have alternating leaves with the tight side and loose side exposed. The variation in the surface density between the tight and loose sides causes light to reflect differently, creating a visible pattern of light and dark. The difference in density can also affect the amount of stain the wood will absorb. The resulting color variation is referred to as Barber Poling.

Although a natural occurrence in practically all plain sliced, book matched veneer, Barber Poling is most pronounced in Red Oak, less so in White Oak, and rarely noticed in other species. According to industry grading rules and accepted grading practice, this phenomenon is not considered a defect and not a cause for downgrading. Barber Poling can be minimized with proper sanding and finishing techniques.

Storage and Handling

- Store doors flat on a level surface in a dry, well-ventilated building. Covering should protect the doors from dirt, water, and abuse while allowing for air circulation under and around the stack.
- Cherry, Mahogany, Walnut, and certain other species of wood will discolor if exposed to sunlight or some artificial light sources. Protect doors in those species by also specifying that they be covered with opaque wrap.
- Oak and some other species of wood contain acids that react with ferrous metals, producing a dark blue-black stain. Avoid the use of steel wool on the raw wood.
- Do not subject interior doors to extremes of temperature and/or humidity. Prolonged exposure may cause damage. Recommended conditions for proper storage are 30 to 50 percent relative humidity and 50 to 90 degrees Fahrenheit.
- Do not install doors in buildings with excessively dry or moist environments. HVAC systems should be operating and balanced.
- Doors should be handled with clean hands or while wearing clean gloves.
- When moving doors, do not drag one door across the surface of the next door. Lift and carry each door to its new location.
- For more detailed information, refer to WDMA I.S. 1-A, Industry Standard for Architectural Wood Flush Doors.

Field Finish Guidelines

In the event that wood doors will be finished in the field rather than in the controlled environment of the factory, these recommended practices should be followed:

- Wood doors should not be stained or topcoat finished before the wood surface is properly prepared. Following these steps will promote a uniform appearance and avoid blotchiness. First, lay the door flat and block sand all surfaces to remove handling marks, drag marks, raised grain, scuffs, burnishes, and other unwanted blemishes. In order to avoid cross grain scratches, always sand in the same direction as the grain. Then apply a solution of solvent and sanding sealer and allow door to dry; this will uniformly raise the wood grain. Finally, sand the surface of the door using 120 to 180 grit sandpaper.
- Wood absorbs and releases moisture readily in its surrounding environment. As a result, it may change shape or warp.
- Wood door finishes must be properly maintained to prevent deterioration and promote the life of the door.
- Many manufacturers of architectural flush wood doors will not warrant the appearance or performance of doors that have not been properly finished. For more detailed information, refer to WDMA I.S. 1A, Industry Standard for Architectural Wood Flush Doors.

Glossary

Barber Pole

An effect in book matching of veneers that results from tight and loose sides of veneers having different light reflections when finished.

Bark Pocket

Comparatively small area of bark around which normal wood has grown.

Bird Peck

A mark or wound in a tree or piece of wood caused by birds pecking on the growing tree in search of insects. Also, wood containing such marks may be referred to as such.

Brashness

Condition of wood characterized by a low resistance to shock and abrupt failure across the grain without splintering.

Burl

A swirl, twist or distortion in the grain of the wood which usually occurs near a knot or crotch. A burl can often be associated with abrupt color variation and/or a cluster of adventitious buds.

Burl, Bending

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 nor an abrupt color variation.

Chatter

Lines appearing across the face at right angles to the grain, giving the appearance of one or more corrugations resulting from a bad setting of sanding equipment.

Clustered

When a natural characteristic described in the grading chart is sufficient in number and proximity, appearing to be concentrated in one area.

Core

Material within the stiles, rails, and skins of a flush wood door. The type of material used for a given door is determined by how that door needs to function. Rigidity is a common factor; other considerations include, but are not limited to, fire resistance, recycled content, and acoustical performance.

Cross Bar

Irregularity of grain resembling a dip in the grain running at right angles, or nearly so, to the length of the veneer.

Cross Break

Separation of the wood cells across the grain. Such breaks may be due to internal strains resulting from unequal longitudinal shrinkage or external forces.

Discoloration

Stains in wood substances. Some common veneer stains are sap stains, blue stains, stain produced by chemical action caused by the iron in the cutting knife coming into contact with the tannic acid in the wood, and those resulting from the chemical action of the glue.

Face Veneer

The outermost exposed wood veneer, the primary surface of a veneered wood door.

Flake (Ray Fleck)

Portion of a ray as it appears on the Quarter Cut surface. Fleck can be a dominant appearance feature in Oak and is sometimes referred to as flake.

Grain

The direction, size, arrangement and appearance of the fibers in wood or veneer.

Grain Slope

Expression of the angle of the grain to the long edges of the veneer component.

Grain Sweep

Expression of the angle of the grain to the long edges of the veneer component over the area extending 1/8 of the length of the piece from the ends.

Gum Pockets

Well-defined openings between rings of annual growth, containing gum or evidence of prior gum accumulations.

Gum Spots & Streaks

Gum or resinous material of color spots caused by prior resin accumulations sometimes found on panel surfaces.

Heartwood

The non-active center of a tree, generally distinguishable from the outer portion (sapwood) by its darker color.

Holes, Worm

Holes resulting from infestation by worms greater than 1/16 inch in diameter and not exceeding 5/8 inch in length.

Inconspicuous

Barely detectable to the naked eye at a distance of six to eight feet.

Joint

The line of juncture between the edges or ends of two adjacent sheets of veneer.

Joint, Open

Joint in which two adjacent pieces of veneer do not fit tightly together.

Knife Marks

Very fine lines that appear across the panel that can look as though they are raised, resulting from some defect in the lathe knife that cannot be removed with sanding.

Knot

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.

Knot, Blending Pin

Small knot 1/4 inch or less in diameter that does not contain a dark center. Blending pin knots are detectable at a distance of six to eight feet and do not seriously detract from the overall appearance of the panel.

Knot, Open (Dead Knot)

Openings where a portion of the wood substance of the knot has dropped out, or where cross checks have occurred to present an opening.

Glossary

Knot, Pin

Sound knot that is 1/4 inch or less in diameter, containing a dark center.

Knot, Sound (Tight Knot)

A knot that is solid across its face and fixed by tree growth to retain its place in the wood.

Knot Holes

Voids produced by dropping of knots from the wood in which they were originally embedded.

Lap

A condition where the pieces of veneer are placed so that one piece overlaps the other and does not make a smooth joint.

Mineral Stain (Mineral Streak)

Olive and greenish-black streaks believed to designate areas of abnormal concentration of mineral matter. Common in Hard Maple, Hickory, and Basswood.

Occasional

A small number of characteristics that are arranged somewhat diversely within the face.

Patches

Matching wood pieces carefully inserted and glued into the door face after defective portions have been removed.

Plain Sliced

Veneer sliced parallel to the pith of the log and approximately tangent to the growth rings to achieve flat cut veneer.

Quartered (Quarter Cut)

Veneer produced by cutting in a roughly parallel direction to a radius line through the log to achieve a straight, vertical grain pattern. In some species, principally Red Oak and White Oak, ray fleck is produced, the amount of which may be unlimited.

Rails

Top and bottom horizontal edges of a flush wood door, assembled to the core prior to skins being applied. An intermediate rail may also be built into the door assembly to provide additional support for certain hardware configurations.

Ray (Wood Ray)

Ribbon-shaped strand of tissue extending in a radial direction across the grain, so oriented that the face of the ribbon is exposed as a fleck on the Quarter Cut surface.

Repair

A patch, shim, or filler material inserted and/or glued into a veneer or panel to achieve an acceptable surface.

Repair, Blending

Wood or filler insertions similar in color to adjacent wood, so as to blend well.

Rift

A parallel grain pattern resulting from sawing a quartered log at a slight angle to the radius of the log.

Rift Cut

Veneer produced by cutting at a slight angle to the radial to produce a quartered appearance without excessive ray fleck.

Rotary Cut

Veneer produced by centering the entire log in a lathe and turning it against a broad cutting knife.

Rough Cut

Irregular shaped areas of generally uneven corrugation on the surface of veneer.

Sapwood

The living wood of lighter color, occurring in the outer portion of a tree.

Shake

A separation along the grain of wood in which the greater part occurs between the rings of annual growth.

Sharp Contrast

Veneer of lighter than average color is joined at the edges with veneer of darker than average color, or two adjacent pieces of veneer that are widely dissimilar in grain, figure and natural character markings.

Skins

The faces of a flush wood door; comprised of face veneer applied to backer material.

Slight

Visible on observation but does not interfere with the overall aesthetic appearance.

Split, Hairline

A perceptible separation or absence of wood fiber running parallel with the grain.

Stiles

Vertical edges of a flush wood door, assembled to the core prior to skins being applied.

Vine Streak (Vine Mark)

Scars in the wood generally caused by the stems of clinging vines or by their hair-like roots which cling to the tree trunk. Live vine streaks produce scars. Dead vine streaks contain either dead residue of the vine, or a remaining pocket similar to bark pocket.

Worm Track (Scar)

The groove of scar tissue in the wood caused by worms or other borers.

References

Forest Products Laboratory. Wood Handbook: Wood as an Engineering Material. Agric. Handb. Washington, DC: U.S. Department of Agriculture; Rev 1987. Library of Congress Catalog No. 85-600532

HPVA. Hardwood Plywood Handbook. Virginia: Hardwood Plywood & Veneer Association, 2004.

WDMA. WDMA I.S. 1A Industry Standard for Architectural Wood Flush Doors. Illinois: Window & Door Manufacturers Association, 2004.

Piper DB*, Public Queries "6 Common Names." August 2003. Updated February 2007. <<http://www2.fpl.fs.fed.us/piper/query>>.



Graham[®]

wood doors

ASSA ABLOY

525 9th Street SE
Mason City, IA 50401
Phone: 641-423-2444
Fax: 800-672-8110
Website: www.grahamdoors.com

ASSA ABLOY, the global leader
in door opening solutions



Discover the possibilities at
[www.the good design studio .com](http://www.thegooddesignstudio.com)



SW-COC-003530
The Mark of Responsible Forestry
© 1996 Forest Stewardship Council A.C.