Factory Finish - Flush Wood Doors

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 for flush wood doors. 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 virtually no waste and low energy demand for UV curing. 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 equivalent to WDMA TR-8 and AWS System 9 (UV Cured Acrylated Polyester/Urethane), newer technology than what is defined by 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 better than TR-6 and equal to to TR-8 in all categories. Combine this durable performance with our environmentally friendly process and that Graham is proud to provide quality finished doors to you.

TEST RESULTS - PREMIUM GRADE TOPCOATS					
TEST	GRAHAM	TR-6	TR-8		
Vinegar	5	5	5		
Lemon Juice	5	5	5		
Orange Juice	5	5	5		
Catsup	5	5	5		
Coffee	5	5	5		
Olive Oil	5	5	5		
Boiling Water	5	5	5		
Nail Polish Remover	5	4	4		
Household Ammonia	5	5	5		
Isopropyl Alcohol	5	5	5		
Wine	5	5	5		
Windex	5	5	5		
409 Cleaner	5	5	5		
Lysol	5	5	5		
33% Sulfuric Acid	5	5	5		
77% Sulfuric Acid	4	4	4		
Gasoline	5	5	5		
Murphy's Oil Soap™	5	5	5		
Vodka 100 Proof	5	5	5		
10% Tri-Sodium Phosphate	5	5	5		
Wear Index	5	5	5		
Cold Check	5	5	5		
Adhesion	5	5	5		
5 = Excellent 4 = Very Good 3 = Good 2 = Fair 1 = Poor					

Factory Finish - Stile and Rail Wood Doors

Maiman can match almost any color available. Every door is matched to your specifications so you are not limited to a list of common finishes. The two types of transparent finishing systems used are TR-2 Catalyzed Lacquer and TR-6 Catalyzed Polyurethane as defined in the WDMA I.S. 6-A quality standard.

The TR-2 system has the advantage of lower cost, good strength, reliability, is easy to repair and will be an excellent finish choice for the majority of interior applications.

The TR-6 system has a higher solids content than the TR-2 which can effect its finish clarity, but it is also very hard and durable with one of the highest chemical and wear resistance ratings available. TR-6 is available in interior applications and required for all exterior applications.

Due to the construction of stile and rail doors utilizing several different pieces of wood, some degree of color variation can be found within the same door. This is true for wood frames as well.

REPORT CARD COMARISON OF AVAILABLE ANSI/WDMA I.S. 6-A FINISH SYSTEMS Adapted from AWI 7th Edition Quality Standards					
TRANSPARENT SYSTEM CODE	TR-2	TR-6			
Finish System Type	Catalyzed Laquer	Catalyzed Polyurethane			
General Durability	С	A			
Finish Clarity	A	D			
Finished Surface Flexibility	С	В			
Stain Resistance	A	A			
Heat Resistance	A	A			
Moisture	В	A			
Solvent Resistance	В	A			
Ratings are subjective judgements based on the general performance of generic products.					

Stains and finishes on stile and rail doors and flush doors may exhibit a wider range of color variation and sheen due to the different finishing systems used between the two product types. Color samples must be approved for flush and stile and rail doors if they are on the same project.

Colors

ASSA ABLOY Wood Doors is pleased to offer the industry leading selection of standard semi-transparent prefinish colors. Our range not only includes the nine colors you have long relied on but also includes choices that are comparable to colors used elsewhere in the wood door industry. In addition to our 28 standard colors, we perform custom color matching for projects that require a very specific color.

ASSA ABLOY Wood Door Color	Comparable to: Marshfield	<u>VT</u>
#100 - Clear		
#125 - Fallow	Rattan	
#175 - Barley	Honey	Grassland
#200 - Spiced Walnut		
#225 - Zin	Mandarin	
#250 - Copper	Toast	Alpine
#275 - Russet	Amber	
#300 - Medium Brown		
#325 - Rose		
#350 - Cocoa	Autumn	Savannah
#375 - Hazel	Nutmeg	
#380 - Corsica		
#400 - Dark Walnut		Ravine
#425 - Cactus		
#500 - Medium Red		
#550 - Umber	Espresso	
#600 - Wheat		
#625 - Buff		
#650 - Sandy	Cane	Wheat
#675 - Apricot		Oasis
#700 - Dark Brown		
#775 - Auburn	Wine	
#800 - Dark Red	Merlot	
#850 - Midnight	Bombay	
#901 - Burgundy		
#902 - Cayenne		Timber
#925 - Ochre	Saffron	
#950 - Sedona	Cinnamon	

If you have a project that requires a unique color, simply submit a sample to us and we will match it. Since the natural coloration and grain characteristics of wood change with the application of a clear topcoat and/or semi-transparent stain, the term "color match" is easy to misunderstand. In order to make sure we provide a color that meets your project's requirements, once we formulate a stain color in line with your sample, we'll send you a set of samples that represent the "blend" or range of tone, color, and grain that may be present in the finished product. Upon review and approval of the complete set, simply provide your agreement of the color range, and we will proceed forward with your doors.



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.





Flat Cut Mahogany

Mahogany trees can grow to 150 feet in height and up to six feet in diameter. African Mahogany (Khaya) exhibits similar characteristics to Honduras Mahogany and is typically an acceptable alternative. The Central and South American (Honduras) Mahogany veneer supply is vanishing due to several factors including governmental logging regulations, pirating, and tighter security by Customs.

African Mahogany's heartwood is a light pink brown but darkens upon exposure to a deeper red-brown also exhibiting an optical phenomenon known as chatoyancy (changing in luster or color). It has a texture that ranges from medium to coarse and a grain that's straight to interlocked.

Mahogany produces a straight grain with open texture, although it can 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 subtle cathedral grain effect. The open grain of Mahogany is very receptive to stains and topcoats.

Due to the broad range of color variation from log to log and veneer face to veneer face, it is recommended that veneer be <u>selected for color and grain</u> in projects where a high degree of uniformity between doors is required. Darker stains on Mahogany will minimize this color variation. Contact customer service for special pricing if this degree of color and grain control is required.







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.





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.





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.





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.





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.

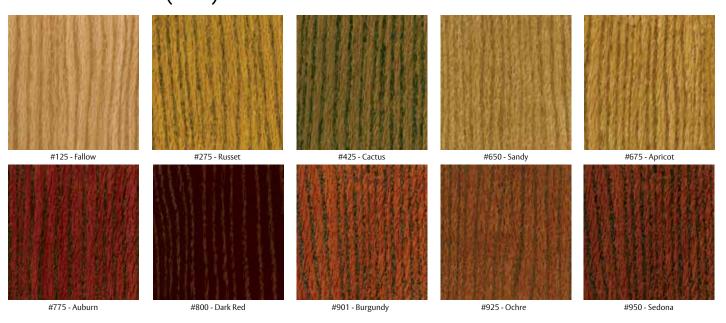
Red Oak sapwood is nearly white, usually only one to two inches thick, and found immediately under the bark. The heartwood is a warm brown with a tinge of red and is used for the production of Red Oak lumber and veneer.

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.





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.





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.





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.

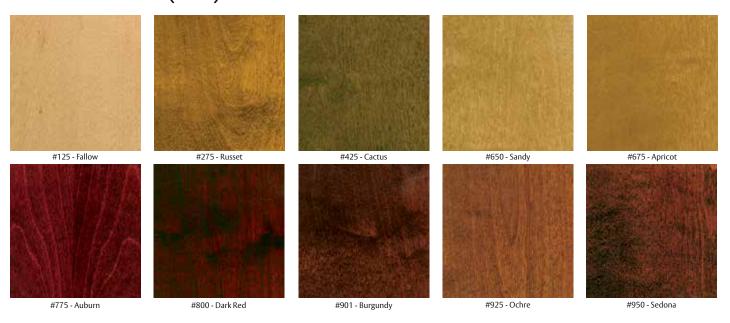
Yellow Birch has white sapwood and light reddish-brown heartwood, while Sweet Birch has a light-colored sapwood and dark brown heartwood tinged with red. The wood is heavy and strong with a fine, uniform grain.

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.





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.





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.



