

WDMA Guide to Door Face Veneers

Brought to you as a service of the National Wood Window and Door Association

Let's face it: As an architectural specifier, details can make or break your projects. But with the thousands of elements in each job, how can you be certain that what you envision will be what is installed?

When it comes to architectural doors, the terminology can be confusing to even seasoned specifiers. Many of the most difficult questions come in selecting the veneer. There's the matching method to specify. Do you want the veneers to be book matched, random matched or slip matched? What's the difference? Then there's cut to consider. Does this job call for quarter cut, rotary cut or plain sliced veneer? Finally, there's the color to select: red, white or natural? What color is natural?

That's why the Architectural Flush Door Section of the National Wood Window and Door Manufacturers Association developed this information. Its designed as a primer on veneer matching methods, cutting options and color selection.

We hope you will find this guide helpful. It was originally prepared for the 190,000-plus readers of our magazine *Window & Door Specifier*. For more information about the magazine and other WDMA literature, refer to [Resources](#). From video tapes to industry standards, WDMA has the information you need to help ensure that your door and window visions become reality.

Knowing the Basics of Cutting, Matching and Coloring are Keys to Specifying

You are specifying architectural wood flush doors for your latest project. How can you be sure that you get exactly what you're looking for in terms of color, grain and quality? A thorough knowledge of veneers, how they're cut and how they are matched can ensure that you get what you want. Appearance is a primary consideration. (After all, the reason you chose a wood door in the first place was because of its beauty, wasn't it?) The selection of the proper veneer not only depends on species, but a number of other considerations as well. Each species has its own distinctive characteristics. And within each species, no two trees offer exactly the same grain pattern or color.



These veneer examples are typical of grain and color variations found within "A" grade plain sliced natural birch. However, even these do not represent the wide range possible.

The beauty of veneer is in the natural variations of texture, grain, figure and color.



A closeup shows typical grain patterns found in plain sliced natural birch veneers.

For example, in the so-called “natural” grades of some wood species---particularly ash, birch and maple---both heartwood and sapwood make up the veneer. The color contrast between heartwood and sapwood in these species produces marked differences in the finished veneer.

This reference to the appearance, grades and associated terminology of the more common hardwood veneers used in architectural wood flush doors will enable you to choose door and face veneers with confidence.

(Editor's note: Although the examples shown herein deal with birch, the sapwood/heartwood effect is equally apparent in ash and maple veneers.)

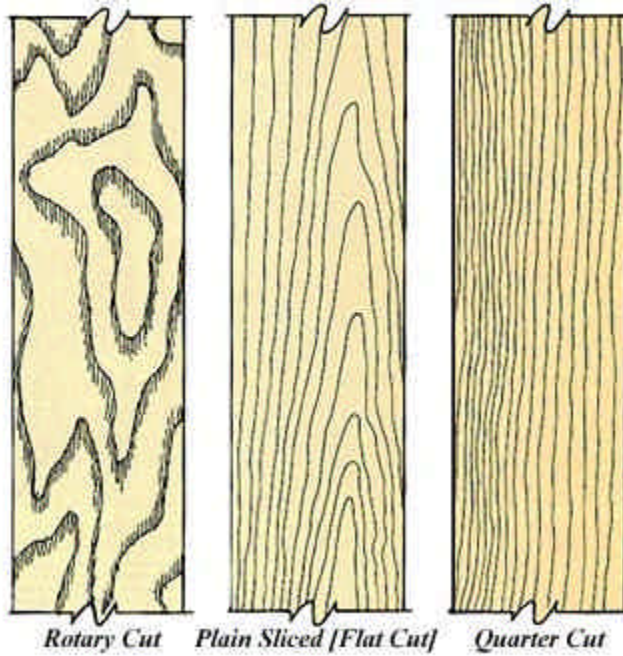
Veneer Cutting Can Change Appearance

The way in which a log is cut, in relation to the annual growth rings, determines the appearance of a veneer. The beauty of veneer is in the natural variations of texture, grain, figure, color and the way it is assembled on a door face. Faces reflect the natural variations in grain inherent in the species and cut. The illustrations shown herein are representative, though grains and pattern will vary.

A **rotary cut** follows the log's annual growth rings, thus providing a general bold, random appearance.

A **plain sliced** (also called flat cut), is sliced parallel to a line through the center of the log, Cathedral and straight grain patterns are the result. Individual pieces of veneer are kept in the order in which they are sliced, resulting in a natural grain progression when assembled as veneer faces.

Quarter cutting produces a series of stripes.



Rotary Cut Plain Sliced [Flat Cut] Quarter Cut

These stripes vary in width from species to species. The way a log is cut, in relation to the annual growth rings, determines the appearance of veneer. Faces will have the natural variations in grain inherent in the species and cut. Natural variations of veneer grain and pattern will vary from these illustrations.

Natural Birch Faces May Vary From All White to All Dark

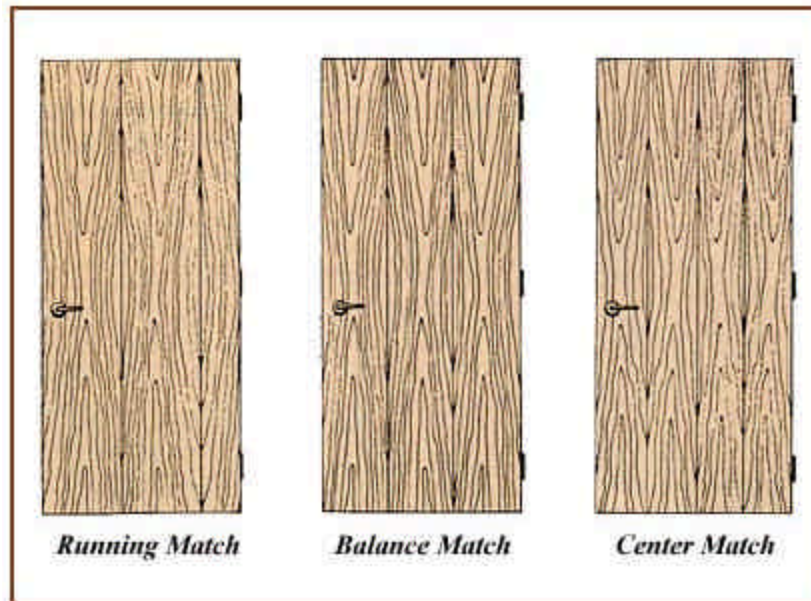


The examples shown here are of typical grain and color variations found within “A” grade (book matched) rotary cut natural birch veneer. Again, they do not represent the widest range possible. Rotary natural birch is also available in “B” grade (pleasing matched) with the face made up of veneer leaves from different logs.



A close-up reveals the grain pattern in a rotary cut natural birch veneer.

How Individual Veneer Pieces are Matched

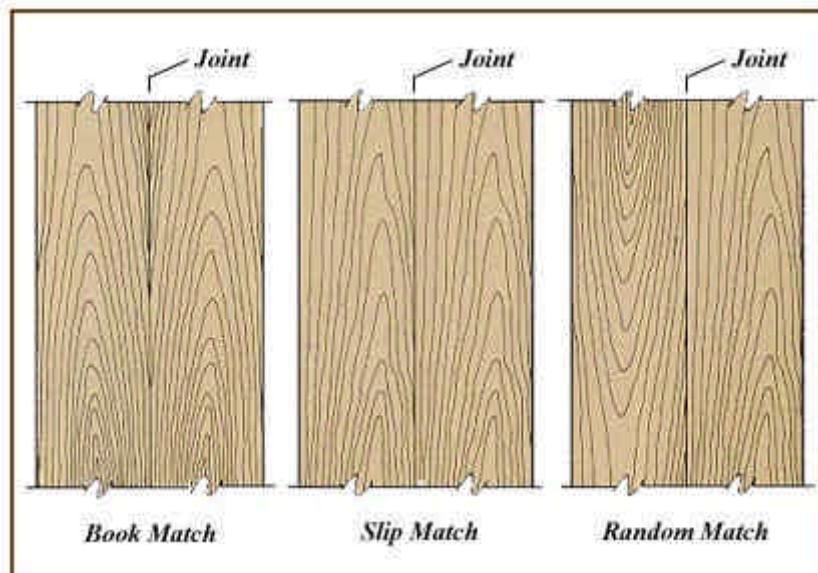


Running Match: Non-symmetrical appearance in any single door face. Veneer pieces of unequal width. Each face is assembled from as many veneer pieces as necessary.

Balance Match: Symmetrical appearance. Each face is assembled from pieces of uniform width before trimming. This match reduces veneer yield.

Center Match: Symmetrical appearance. Each face has an even number of veneer pieces of uniform width before trimming. Thus, there is a veneer joint in the center of the panel, producing symmetry. This match reduces veneer yield.

There are basically four types of matches that are normally specified for door veneer faces, three of which are illustrated here.



Book match is the most common in the industry. In this method, every other piece of veneer is turned over so that adjacent pieces are opened like adjacent pages in a book. The veneer joints match and create a mirrored-image pattern at the joint line. This method yields a maximum continuity of grain. Book matching is used with rotary, plain sliced and quarter cut veneers. However, it is important to note that because the "tight" and "loose" faces alternate in adjacent pieces of veneer, they may accept stain differently, yielding a noticeable color variation. This so-called barber poling can be minimized by proper sanding and finishing techniques.

Slip match involves placing adjoining pieces of veneer in sequence without turning over every other piece. The grain figure repeats, but joints won't show mirrored effect. Slip-matching is often used in quarter cut veneers to eliminate barber pole effects. It may, however, cause a sloping appearance of the veneer, especially in larger veneers.

Random match consist of selection of individual pieces of veneer from one or more logs. It produces a "board-like" appearance and is commonly used in opaque finish grades.

Pleasing match (not illustrated here) consists of a face containing components that provide a pleasing overall appearance. The grain of the various components need not be matched at the joints. Sharp color contrasts and the joints of the components are not permitted.

Plain Sliced and Rotary Cut Natural Birch

"Natural," when referring to birch face veneer, indicates that the face may contain both heartwood (the red portion of the log) and sapwood (the white portion) in unrestricted amounts. Thus, natural birch faces may vary from all white to all dark, or any combination of white and dark. Also, the resulting grain configuration from book-matched plain sliced natural birch may appear as alternating strips of white and dark veneer. If you prefer a lite colored wood, specify white birch (all sapwood). If you want dark colored wood, specify red birch (all heartwood).

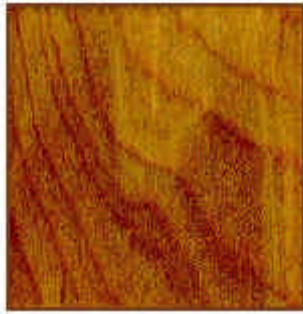
The grain pattern for rotary cut birch presents a more bold, random appearance than that of plain sliced veneer. Rotary cut natural veneers present the same general characteristics in terms of color as their plain sliced brethren. Again, the amount of sapwood and heartwood will determine the final appearance.

Rotary Cut Red and White Birch

Rotary cut birch presents a more bold, random grain pattern than does plain sliced veneer.



The two examples at left are "A" grade rotary cut red birch (book matched) and the two at right are "B" grade rotary cut red birch (pleasing matched). As in other examples, they do not represent the entire range of color and grain variations that can be expected.



Close-up reveals the grain pattern in rotary cut red birch veneer.



Rotary cut white birch veneers, like their red counterparts, can come in "A" grade (the two at left) or "B" grade (like the two examples at right).



Rotary cut white birch veneer patterns are evident in this example.

Rotary cut birch faces, whether red or white, are available in both "A" grade and "B" grade. The "A" grade faces shown here represent the normal matching method for this grade of rotary cut veneer, be it red or white. The "A" grade doors are book matched in order to obtain a close match in both color and grain at the joints.

Veneers termed "B" grade are pleasing matched and can have veneer cut from more than one log. Within a single face, a "B" grade veneer might have book matched, slip matched or random matched veneer pieces. Color between the veneer pieces within each face will be fairly consistent, but the grain pattern does not have to match at the veneer joints. As a general rule, "A" grade faces cost more than "B" grade faces.

The 1993 revision of the WDMA Industry Standard I.S. 1-A, "Architectural Wood Flush Doors," changed the

identification symbols and grade requirements for hardwood veneers by adopting the standards of the Hardwood Plywood and Veneer Association. Under the revision, “A” grade corresponds to the prior designation of “Premium” grade rotary select white or red birch. The new “B” grade designation corresponds to the prior “Good” grade designation.

Specifying Ash, Birch or Maple Face Veneers for Wood Flush Doors

ROTARY CUT VENEER - GRADE A Bold random grain pattern; veneer from one log; matched for grain and color at veneer joints	
<i>For this Appearance:</i>	<i>Specify:</i>
Color contrast (heartwood/sapwood)	Rotary cut, grade A per WDMA I.S. 1-A (1993), book matched <ul style="list-style-type: none"> · Natural ash · Natural birch · Natural maple
All lite colored wood ¹ (sapwood)	Rotary cut, grade A per WDMA I.S. 1-A (1993), book matched <ul style="list-style-type: none"> · White ash · White birch · White maple
All dark colored wood ¹ (heartwood)	Rotary cut, grade A per WDMA I.S. 1-A (1993), book matched <ul style="list-style-type: none"> · Brown ash · Red birch

PLAIN SLICED VENEER - GRADE A Cathedral and straight grain pattern; veneer from one log; matched for grain and color at veneer joints	
<i>For this Appearance:</i>	<i>Specify:</i>
Color contrast (heartwood/sapwood)	Plain sliced, grade A per WDMA I.S. 1-A (1993), book matched <ul style="list-style-type: none"> · Natural ash · Natural birch · Natural maple
All lite colored wood ¹ (sapwood)	Plain sliced, grade A per WDMA I.S. 1-A (1993), book matched <ul style="list-style-type: none"> · White ash · White birch · White maple
All dark colored wood ¹ (heartwood)	Plain sliced, grade A per WDMA I.S. 1-A (1993), book matched <ul style="list-style-type: none"> · Brown ash · Red birch

ROTARY CUT VENEER - GRADE B (LOWER COST ALTERNATIVE)

Bold random grain pattern; veneer may be from more than one log; pleasing matched²

<i>For this Appearance:</i>	<i>Specify:</i>
Color contrast (heartwood/sapwood)	Plain sliced, grade A per WDMA I.S. 1-A (1993), book matched · Natural ash · Natural birch · Natural maple
All lite colored wood ¹ (sapwood)	Plain sliced, grade A per WDMA I.S. 1-A (1993), book matched · White ash · White birch · White maple
All dark colored wood ¹ (heartwood)	Plain sliced, grade A per WDMA I.S. 1-A (1993), book matched · Brown ash · Red birch

1. Limited availability.

2. Pleasing match: A face containing component which provides a pleasing overall appearance. The grain of the various components need not be matched at the joints. Sharp color contrasts at the joints are not permitted.

Additional information on face veneers may be found in the following publications:

- WDMA Industry Standard I.S. 1-A (1993) Architectural Flush Doors
- Hardwood Plywood and Veneer Association (HPVA) Interim Standard HP-1 1993 for Hardwood and Decorative Plywood.

Resources

The following publications and other informational literature and videos can be ordered from the National Wood Window & Door Association by writing to:

WDMA 1400 E.
Touhy Ave., Suite G-54
Des Plaines, IL 60018.

INDUSTRY STANDARDS

ANSI/WDMA I.S.1-87 Series for Wood Flush Doors
 WDMA I.S.1-A93 for Architectural Wood Flush Doors
 ANSI/WDMA I.S. 2-93 for Wood Window Units
 WDMA I.S. 3-88 for Wood Sliding Patio Doors
 WDMA I.S. 4-94 for Water Repellent Preservative Non-Pressure Treatment for Millwork
 WDMA I.S. 6-91 for Wood Stile & Rail Doors
 WDMA I.S. 7-87 for Skylite/Roof Windows
 WDMA I.S. 8-88 for Wood Swinging Patio Doors
 WDMA I.S. 9-88 for Wood Primary Entrance Doors

INFORMATION LITERATURE

Installation Instructions for Fire-Rated Wood Doors
 Installation of Exterior Wood Swinging Door Systems
 Specifier's Guide to Wood Windows and Doors

[A compendium of WDMA Standards with introductory remarks for use in construction specifications and other informational literature]

Wood Windows & Doors: The Most Natural Choice

Guide to Energy Saving Doors

Care & Finishing of Wood Windows

How to Store, Handle, Finish & Install & Maintain Wood Doors

Sources of Supply [WDMA Membership Directory]

VIDEO TAPES

Installing Wood Windows & Doors

[1/2-inch VHS available either in English or Spanish with Participant Notebook]

Wood Door and Hardware Compatibility *[1/2-inch VHS]*