FINE HARDWOOD VENEERS

for Architectural Interiors

Figured Rosewood, Four Seasons Restaurant, New York, New York

Architects: Mies VanDerRohe and Phillip Johnson
Today, there is an increased interest in wood as a decorative component, as wood alone represents living decorative contrast to the impersonal functionalism of other materials such as plastics, glass and metal.

Decorative woods, by virtue of their individual distinctiveness and intrinsic variety, allow the architect or designer to express his personality, and the manner in which he treats wood is often considered as the "signature of the creator."

beautiful hardwood veneers have added a warm, wonderful new dimension to modern architectural design.

COLOR RANGE A wide spectrum of colors abounds naturally in fine hardwoods ... from pale almond tones to tawny browns and deep sultry black-browns ... through many exciting tints and shades of red, purple, orange and grey, found alone and in various combinations. A wide choice of finish colors further expand hardwood's natural color range to create unlimited color effects.

VISUAL TEXTURE The natural grain and figure patterns inherent in all fine hardwoods add a visual design dimension of depth to fine hardwood products. These grain markings add a surface interest, with highlights and shadows that cannot be duplicated ... create an ever-changing panorama of beauty as light strikes the wood from various angles.

PHYSICAL TEXTURE Wood is pleasant to the touch as well as the eye. It is warm in winter, cool in summer ... always comfortable to live with. Wood's appealing visual texture and its ability to take fine finishes makes one want to reach out and feel a beautiful piece of hardwood.

With the progressive new advances in the veneer and plywood industry, rare and beautiful effects can be custom created at moderate cost.

In the majority of cases, fine hardwood paneling starts with the selection of proper veneer and lumber for a better and more personalized job.

After selecting the hardwood species, the architect or designer should determine the method of matching the veneers, the shape and thickness of the panels, the type of moulding to be used and the desired finish.

The Fine Hardwoods Association presents this folder to architects and designers as a guide to creating beautiful hardwood interiors.
Facts about Decorative Hardwood Veneers

TYPES OF VENEER CUTS

The manner in which veneers are cut is an important factor in producing the various visual effects obtained. Two logs of the same species, but with their veneers cut differently, will have entirely different visual characters even though their colors are similar.

In veneer manufacture, five principle methods of cutting veneers are used.

- **ROTARY**
  The log is mounted centrally in the lathe and turned against a razor sharp blade, like unwinding a roll of paper. Since this cut follows the log's annular growth rings, a bold variegated grain marking is produced. Rotary cut veneer is exceptionally wide.

- **FLAT SLICING**
  The half log, or flitch, is mounted with the heart side flat against the guide plate of the slicer and the slicing is done parallel to a line through the center of the log. This produces a variegated figure.

- **QUARTER SLICING**
  The quarter log or flitch is mounted on the guide plate so that the growth rings of the log strike the knife at approximately right angles, producing a series of stripes, straight in some woods, varied in others.

- **HALF-ROUND SLICING**
  A variation of rotary cutting in which segments or flitches of the log are mounted 'off center in the lathe. This results in a cut slightly across the annular growth rings, and visually shows modified characteristics of both rotary and plain sliced veneers.

- **RIFT-CUT**
  Rift cut veneer is produced in the various species of Oak. Oak has medullary ray cells which radiate from the center of the log like the curved spokes of a wheel. The rift or comb grain effect is obtained by cutting perpendicularly to these medullary rays either on the lathe or slicer.

FIGURE CHARACTERISTICS OF VENEERS

The grain pattern and figure on the face of the veneer are of the utmost importance to the designer and architect, since the whole character of the completed installation may be determined by the choice of veneer to be used. Veneer men, in discussing figure in the wood, usually describe the characteristics of that figure by saying it "has a great deal of crossfire," or "has a straight or broken stripe" or is "highly figured." It should be borne in mind that "figure" refers to the highlights or crossfire running at right angles to the grain direction, whereas the grain character and direction would be described by using the word "pattern." The photographs below illustrate some of the most commonly used veneer terms.

VENEEER FIGURE TYPES

- Ribbon Stripe
- Broken Stripe
- Flat-Cut
- Cross-Fire
- Swirl
- Mottle
- Crotch
- Burl
- Blister
- Stump, or Butt
Specifications:

FACE VENEER SPECIFICATIONS

lengths: Up to 17'  widths: Between 4" and 28"
thickness: Mostly 1/28"  color: Unlimited variation
cost: The price of the veneer plays a very small part in the final installed cost of architectural plywood.

HARDWOOD PLYWOOD PANEL SPECIFICATIONS

lengths: Up to 30' (using progressive gluing and butt joining veneers)  widths: Up to 5'  thickness: From ¼" to 3"
presses: Hot or cold  glues: Various synthetic glues
composition: (1) lumber core, (2) veneer core, (3) particle board, (4) mineral core, (5) cross-banding veneers, (6) back veneer, (7) face veneer
finishes: Must be determined from small sample panels, as the appearance of the panels can be distorted through improper finishing. Newly developed super hard finishes minimize maintenance. Panels should be subjected to the same light conditions as will prevail on the finished job.
fire resistant panels: In many cases, paneling must be fire-resistant and, consequently, it must be built to specifications. In many areas of fireproof buildings, ordinary fire resistant panels cannot be used and incombustible panels are required. New techniques of gluing face veneers to mineral cores have opened an unlimited field to architects and designers in bringing the beauty of exotic woods to bank lobbies, theatres, auditoriums, etc.

HOW TO SPECIFY ARCHITECTURAL VENEERS

To protect architectural selection of veneers, it is necessary to specify the following essential points of information on the drawings and specifications.

Face veneers shall be used as follows:
Species: ___________________  Footage: ___________________
Flitch No.: ___________________  Length: ___________________
(or Log No.): ___________________  Price per square foot: ___________________
Supplier: ___________________  Species of backing veneer: ___________________

Note:
In figuring the footage of veneers required for any particular job, use as a rule of thumb a waste factor of three to one. For example: If the job requires 700 sq. ft. net of paneling, the job will require 2,100 sq. ft. of face veneer. Yield will vary between different species and types of matching.
# Charts of Some Typical Hardwood Veneer Species

<table>
<thead>
<tr>
<th>Commercial Name</th>
<th>Origin</th>
<th>Color</th>
<th>Type of Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ash, American</td>
<td>U.S.A.</td>
<td>white to light brown</td>
<td>medium open grain</td>
</tr>
<tr>
<td>Avodire</td>
<td>African</td>
<td>light brown</td>
<td>figured, striped and mottled</td>
</tr>
<tr>
<td>Birch</td>
<td>North America</td>
<td>white to light reddish brown</td>
<td>curly grained ... figured</td>
</tr>
<tr>
<td>Butternut</td>
<td>U.S.A.</td>
<td>pale brown</td>
<td>flat cut, plain rotary</td>
</tr>
<tr>
<td>Cherry, American</td>
<td>U.S.A.</td>
<td>light to dark reddish brown</td>
<td>leafy grain</td>
</tr>
<tr>
<td>Ebony, Macassar</td>
<td>East India</td>
<td>dark brown to black</td>
<td>plain to rich mottle</td>
</tr>
<tr>
<td>Elm, American</td>
<td>U.S.A.</td>
<td>light brownish red</td>
<td>brown or pink stripes on black</td>
</tr>
<tr>
<td>Gum, Figured Red</td>
<td>U.S.A.</td>
<td>pink to reddish brown</td>
<td>strong</td>
</tr>
<tr>
<td>Mahogany, African</td>
<td>Africa</td>
<td>pink to reddish brown</td>
<td>medium to highly figured</td>
</tr>
<tr>
<td>Mahogany, Tropical American</td>
<td></td>
<td>pink to reddish brown</td>
<td>plain stripe to highly figured</td>
</tr>
<tr>
<td>Mahogany, Crotch and Swirls</td>
<td>Central and South America</td>
<td>pink to gold brown</td>
<td>straight to rich mottle</td>
</tr>
<tr>
<td>Limba (Korina)</td>
<td>West Africa</td>
<td>pink to reddish brown</td>
<td>moon and feather crotch ... plain and figured swirl</td>
</tr>
<tr>
<td>Makori</td>
<td>Africa</td>
<td>cream</td>
<td>fine grain ... striped and figured</td>
</tr>
<tr>
<td>Maple, Hard</td>
<td>U.S.A.</td>
<td>pink brown to dark brown</td>
<td>plain to mottle</td>
</tr>
<tr>
<td>Oak, English Brown</td>
<td>England</td>
<td>white to tan</td>
<td>plain, curly burls</td>
</tr>
<tr>
<td>Oak, Red</td>
<td>U.S.A.</td>
<td>nut brown to deep brown</td>
<td>plain or streaked, flake</td>
</tr>
<tr>
<td>Oak, White</td>
<td>U.S.A.</td>
<td>pink tan to ochre</td>
<td>plain to flake</td>
</tr>
<tr>
<td>Paldao</td>
<td>Philippines</td>
<td>gray tan to ochre</td>
<td>plain to flake</td>
</tr>
<tr>
<td>Pearwood</td>
<td>U.S.A. and Europe</td>
<td>tan, black to brown streaks</td>
<td>stripe to mottle</td>
</tr>
<tr>
<td>Prima Vera</td>
<td>Central America and Mexico</td>
<td>pink or cream</td>
<td>leafy, sometimes mottled</td>
</tr>
<tr>
<td>Rosewood, Brazilian</td>
<td>South America</td>
<td>cream</td>
<td>stripe, feather, mottle</td>
</tr>
<tr>
<td>Rosewood, East Indian</td>
<td>India, Ceylon</td>
<td>pink, brown and violet</td>
<td>wide range figure</td>
</tr>
<tr>
<td>Sapeli</td>
<td>Africa</td>
<td>purple to straw</td>
<td>striped and figured</td>
</tr>
<tr>
<td>Satinwood</td>
<td>Ceylon, West India</td>
<td>medium to dark brown</td>
<td>broken or ribbon stripe</td>
</tr>
<tr>
<td>Teak</td>
<td>India</td>
<td>cream</td>
<td>figured, wide range</td>
</tr>
<tr>
<td>Tigerwood</td>
<td>Thailand, Burma</td>
<td>light tan, dark brown</td>
<td>plain, ripple, mottle, stripe</td>
</tr>
<tr>
<td>Walnut, American</td>
<td>Africa</td>
<td>golden brown</td>
<td>ribbon stripe, blister</td>
</tr>
<tr>
<td>Yew, English</td>
<td>U.S.A.</td>
<td>soft gray brown</td>
<td>typical figure or stripe</td>
</tr>
<tr>
<td></td>
<td>England</td>
<td>pink and cream</td>
<td>close grained, figured, knotty</td>
</tr>
</tbody>
</table>

## Burls

<table>
<thead>
<tr>
<th>Commercial Name</th>
<th>Origin</th>
<th>Color</th>
<th>Type of Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elm, Carpathian</td>
<td>France, England</td>
<td>tan to red</td>
<td>medium to fine</td>
</tr>
<tr>
<td>Maple</td>
<td>U.S.A.</td>
<td>white to pinkish brown</td>
<td>fine, typical burl</td>
</tr>
<tr>
<td>Myrtle</td>
<td>U.S.A.</td>
<td>brown</td>
<td>prominent</td>
</tr>
<tr>
<td>Thuya</td>
<td>Algeria</td>
<td>deep red brown</td>
<td>small “eyes”</td>
</tr>
<tr>
<td>Redwood</td>
<td>California</td>
<td>brown</td>
<td>true burl</td>
</tr>
<tr>
<td>Walnut, American</td>
<td>U.S.A.</td>
<td>soft gray brown</td>
<td>fine, typical burl</td>
</tr>
</tbody>
</table>
Glossary of Terms

Hardwoods: Woods which come from the leaf-bearing, deciduous trees as opposed to those from the needle-bearing coniferous trees or "evergreens." Not all hardwoods are actually harder than all softwoods but this is generally true.

Fitch: (a) A hewn or sawed log or a section of a log made ready for cutting into veneers by shaping up the edges, etc. (b) After cutting, a complete bundle of veneers laid together in sequence as they were sliced or sawn.

Crossband: The veneer sheet between the core and the face veneer. Its grain runs at right angles to the grain of adjacent layers, thereby providing the remarkable stability of hardwood plywood.

Core: There are four types of core construction used in plywood panels:

a. Lumber Core: Consists of a heavy core of sawn lumber between crossbands. The thick center core permits doweling, splicing and dovetailing.

b. Veneer Core: Method of plywood construction consisting of 3 or 5 or 7 or more plies of veneer laid with grain direction of adjacent plies at right angles to each other.

c. Particle Board: This type of core consists of chips or flakes of resin coated wood fused together under heat and pressure to form a core for plywood.

d. Mineral Core: Used for fireproof panel construction. Veneers are bonded to a thickness of hard non-combustible material.

Face Veneer: The fine hardwood veneer sheet on the front side of a plywood panel. Its grain runs at right angles to the grain of the crossband.

Back Veneer: The veneer sheet on the underside of a plywood panel, corresponding in thickness, and often in species, to the face veneer on the upper or exposed surface. Its grain runs parallel to the grain of the core, and crosswise to the grain of the cross-banding.

Lamination: The process of gluing or bonding the component sections of the plywood into a single permanent unit stronger than the original wood itself.

Grain: Size and arrangement of the cells and pores of the living tree. Grain is not synonymous with figure. Woods fall into three groups: Fine grained (birch, cherry, maple, etc.), medium grained (walnut, mahogany, etc.) and coarse grained (oak, etc.). Coarser grained woods can usually be cut to develop a more conspicuous pattern.

Figure: Figure is the natural design or pattern seen on the surface of wood.

List of Members

Alexander Wood Products, Inc.
P.O. Box 1588
Athens, Georgia
Liberty 3-5278

Amos-Thompson Corporation
P.O. Box 217
Edinburg, Indiana
640

Ashby Veneer & Lumber Co.
Jackson, Tennessee
7-2791

Bacon Veneer Company, R. S.
4702 Augusta Boulevard
Chicago 31, Illinois
EStebrook 8-8500

Stockton, Alabama
2021

Bonneau Company, J., J.
3621 Steinway Street
Long Island City, New York
SState 4-4014

Central Veneers, Inc.
2143 Winter Avenue
Indianapolis 7, Indiana
WA 5-8404

Curry & Sons, Inc., B. L.
P.O. Box 77
New Albany, Indiana
5-6623

Curry-Miller Veneers, Inc.
3724 East Thirteenth Street
Indianapolis 1, Indiana
MeIrose 8-2326

Dean Company, The
427 West Randolph Street
Chicago 6, Illinois
ANdover 3-4288

Dean Company—Divisions:
Dixie Veneer Company
Portsmouth, Virginia
Olympic Manufacturing Co.
Gresham, Oregon

Foreign & Domestic Veneers, Inc.
108 South Tenth Street
Louisville 2, Kentucky
JUniper 4-8131

Fox River Veneer Company
1849 West Packard Street
Appleton, Wisconsin
REGent 3-3873

Freiberg Mahogany Co., The
P.O. Box 23160
New Orleans 23, Louisiana
VERnon 5-1711

Hartzoll Industries, Inc.
Roosevelt Avenue
Piqua, Ohio
PProspect 3-7411

Hill Brothers Veneer Company
Edinburg, Indiana
28

Hoosier Veneer Company, Inc.
P.O. Box 5103
Indianapolis 18, Indiana
Liberty 6-1506

Marshall, Ltd., Wm. L.
450 Fourth Avenue
New York 16, New York
MURrayhill 4-3800

Mitchell Veneer Corporation
P.O. Box 30
Greensburg, Indiana
3-8501

Monteath Company, J. H.
2500 Park Avenue
New York 51, New York
CVypress 2-8333

Montgomery Veneer Corp.
P.O. Box 5004
High Point, N. C.

National Veneer & Lumber Co.
Seymour, Indiana
Jackson 2-1121

Neeley Veneers
P.O. Box 1834
High Point, N. C.

Palmer & Parker Company
103 Medford Street
Charlestown 29
Boston, Massachusetts
CHarleston 2-2200

Penrod, Jarden & Clark Co.
P.O. Box 6068—Milen Station
Norfolk 9, Virginia
MAddison 5-1691

Pearson-Hollowell Co., Inc.
630 North College Avenue
Indianapolis 2, Indiana
MeIrose 2-5237

Southern Veneer Mfg. Co.
2201 Standard Avenue
Louisville 10, Kentucky
SPRING 3-7381

Stem, Inc., Chester B.
New Albany, Indiana
WHitehall 5-6646

Swords-Morton Veneer & Lumber Co.
37th Avenue & Seventh Street
Rock Island, Illinois
8-4515

Thiesing Veneer Company
1501 West McCarty Street
Indianapolis 21, Indiana
MeIrose 2-8349

Thompson Mahogany Co.
Edmund Street & Bleigh Ave.
Philadelphia 36, Pennsylvania
MAYfair 4-1866

Van Veneer Company
Malvern, Arkansas
BD 2-3421

Williams & Sons, Inc., Ichabod T.
220 Eleventh Avenue
New York 1, New York
WATkins 4-4343

Wood-Mosaic Corporation
5000 Crittenden Drive
Louisville 9, Kentucky
EMerson 3-3531
Veneer Matching

BASIC MATCHING EFFECTS

BOOK MATCH
All types of veneers are used. In book matching, every other sheet is turned over just as are the leaves of a book. Thus, the back of one veneer meets the front of the adjacent veneer, producing a matching joint design.

SLIP MATCH
In slip matching, veneer sheets are joined side by side and convey a sense of repeating the figure. All types of veneer may be used, but this type of matching is most common in quarter-sliced veneers.

RANDOM MATCH
Veneers are joined with the intention of creating a casual unmatched effect. Veneers from several logs may be used in the manufacture of a set of panels.

VERTICAL BUTT AND HORIZONTAL BOOKLEAF MATCH
Where the height of a flitch does not permit its fabrication into the desired height of panel, it may be matched vertically as well as horizontally.

DIAMOND

REVERSE DIAMOND

HERRINGBONE

SPECIAL MATCHING EFFECTS

FOUR-WAY CENTER AND BUTT
This type of match is ordinarily applied to Butt, Crotch or Stump veneers, since it is the most effective way of revealing the beauty of their configurations. Occasionally flat cut veneers are matched in this manner where panel length requirements exceed the length of available veneers.

Figured Teak
Government Employees Insurance Co., Chevy Chase Maryland

Architect:
Vincent G. King
Walnut, American Quartered

Walnut, American Figured, Flat Sliced

Oak, English Brown

Oak, Rift White

Mahogany, African Mottled

Mahogany, Tropical American Fiddleback

Maple, Northern Hard Blistered

Rosewood, Brazilian

Butternut, Flat Sliced

Ebony, Macassar

Cherry, American

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