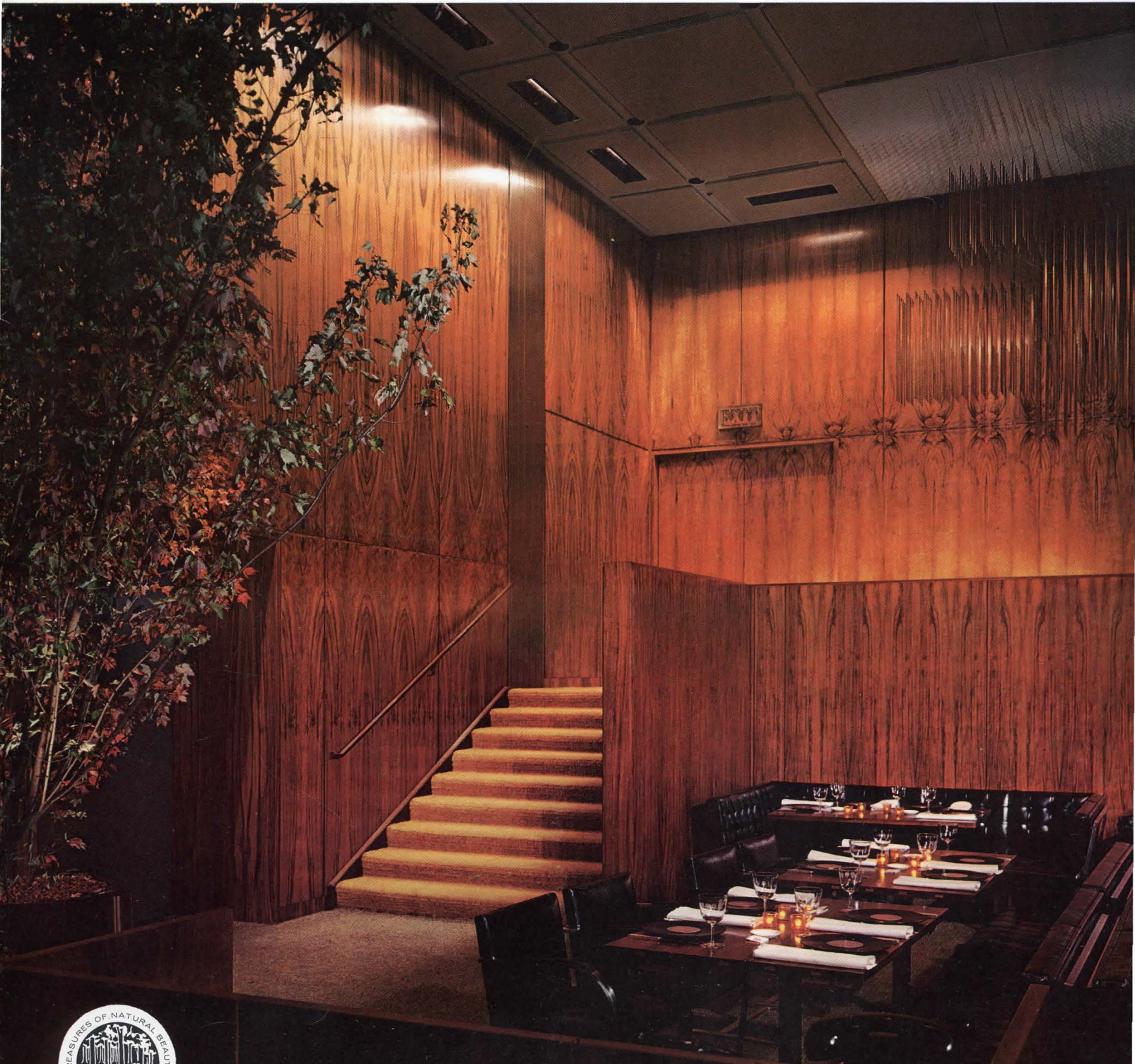


FINE HARDWOOD VENEERS

for Architectural Interiors

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

Architects: Mies VanDerRohe and Phillip Johnson



FINE HARDWOODS ASSOCIATION, 666 Lake Shore Drive, Chicago 11, Illinois



Benge Executive Office, United States
Plywood Corporation, New York, New York



French Walnut Executive Office,
Seagram Building, New York, New York

Architects
Mies VanDerRohe and Phillip Johnson

New dimensions through the use of Hardwood Veneers

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.

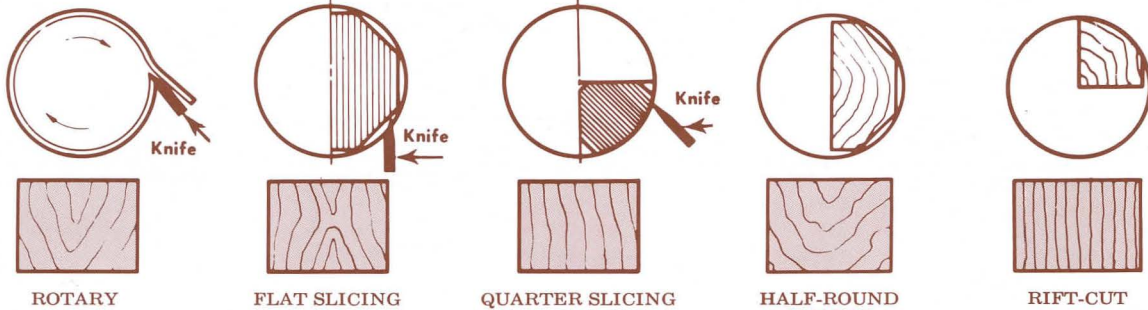
The Fine Hardwoods Association presents this folder to architects and designers as a guide to creating beautiful hardwood interiors.

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.

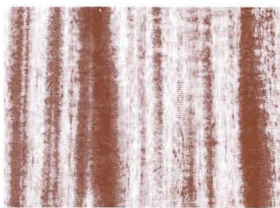
HALF-ROUND SLICING
A variation of rotary cutting in which segments or flitches of the log are mounted off center in the lathe. This results in a cut slightly across the annular growth rings, and visually shows modified characteristics of both rotary and plain sliced veneers.

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 high-lights 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.

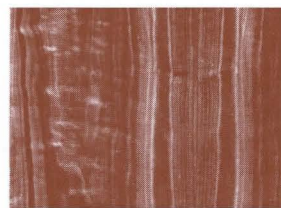
VENEER FIGURE TYPES



Ribbon Stripe



Broken Stripe



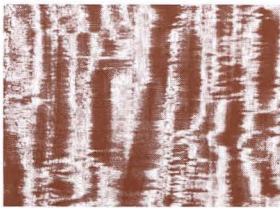
Flat-Cut



Cross-Fire



Swirl



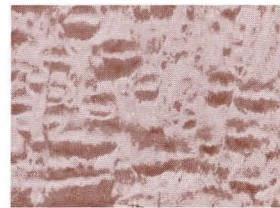
Mottle



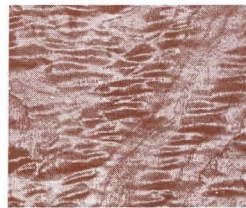
Crotch



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 1/4" 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

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

BURLS

Elm, Carpathian	France, England	tan to red	medium to fine
Maple	U.S.A.	white to pinkish brown	fine, typical burl
Myrtle	U.S.A. West Coast	golden brown	prominent
Thuya	Algeria	deep red brown	small "eyes"
Redwood	California	red brown	true burl
Walnut, American	U.S.A.	soft gray brown	fine, typical burl

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.

Flitch: (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, splining 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 51, Illinois
EStebrook 8-8500

Bacon-McMillan
Veneer Mfg. Co.
Stockton, Alabama
2021

Bonneau Company, J. J.
3621 Steinway Street
Long Island City 1, New York
STate 4-4014

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

Curry & Sons, Inc., B. L.
P.O. Box 72
New Albany, Indiana
5-6623

Curry-Miller Veneers, Inc.
3724 East Thirteenth Street
Indianapolis 1, Indiana
MElrose 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
JUUniper 4-8131

Fox River Veneer Company
1849 West Packard Street
Appleton, Wisconsin
REgent 3-3673

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

Hartzell Industries, Inc.
Roosevelt Avenue
Piqua, Ohio
PRospect 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 4-3600

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

Monteath Company, J. H.
2500 Park Avenue
New York 51, New York
CYpress 2-9333

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

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

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

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

Penrod, Jurden & Clark Co.
P.O. Box 6068—Milan Station
Norfolk 9, Virginia
MAdison 5-1691

Pierson-Hollowell Co., Inc.
630 North College Avenue
Indianapolis 2, Indiana
MElrose 2-5537

Southern Veneer Mfg. Co.
2201 Standard Avenue
Louisville 10, Kentucky
SPring 8-7361

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
MElrose 2-8349

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

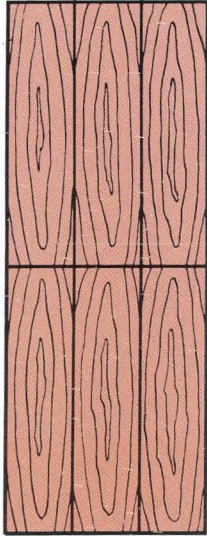
Van Veneer Company
Malvern, Arkansas
ED 2-3421

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

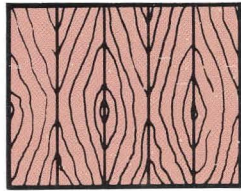
Veneer Matching

BASIC MATCHING EFFECTS



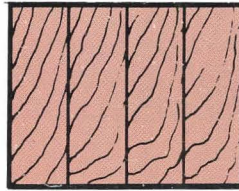
VERTICAL BUTT AND HORIZONTAL BOOKLEAF MATCH

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.



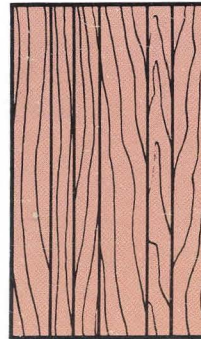
BOOK MATCH

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

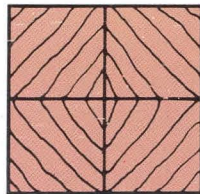
In slip matching, veneer sheets are joined side by side and convey a sense of repeating the flitch figure. All types of veneer may be used, but this type of matching is most common in quarter-sliced veneers.



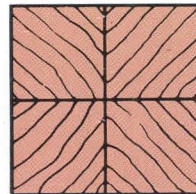
RANDOM MATCH

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.

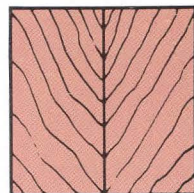
SPECIAL MATCHING EFFECTS



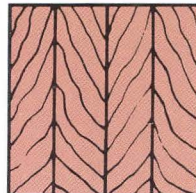
DIAMOND



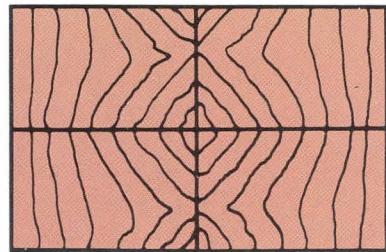
REVERSE DIAMOND



"V"



HERRINGBONE



FOUR-WAY CENTER AND BUTT

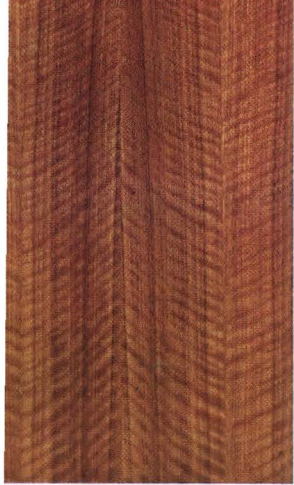
This type of match is ordinarily applied to Butt, Crotch or Stump veneers, since it is the most effective way of revealing the beauty of their configurations. Occasionally flat cut veneers are matched in this manner where panel length requirements exceed the length of available veneers.



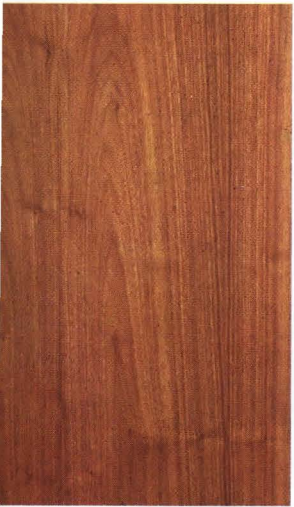
Figured Teak

Government Employees Insurance Co., Chevy Chase Maryland

Architect: Vincent G. King

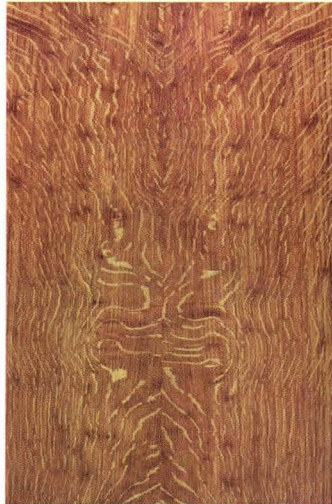


*Walnut,
American Quartered*

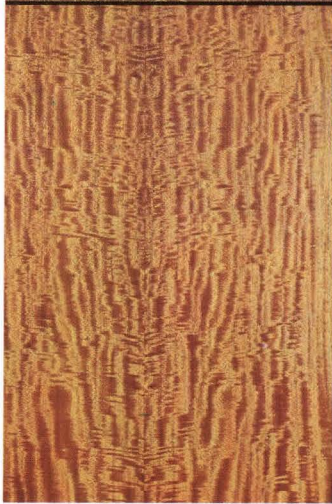


*Walnut,
American Figured,
Flat Sliced*

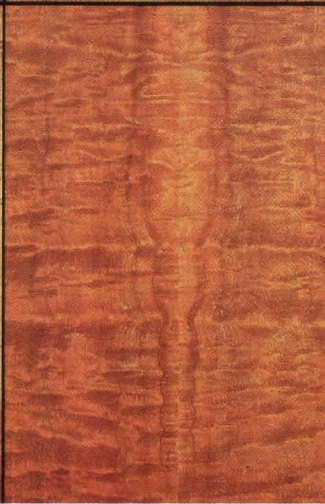
*Oak,
English Brown*



*Oak,
Rift White*



*Mahogany,
African Mottled*



*Mahogany,
Tropical American
Fiddleback*



Teak



*Maple,
Northern Hard
Blistered*



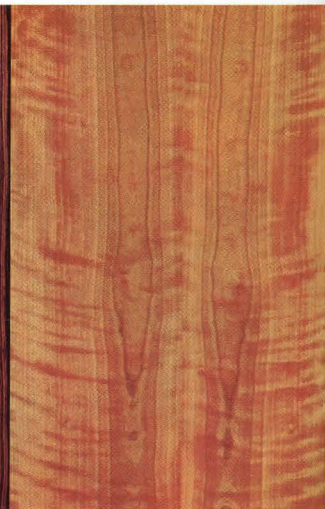
*Rosewood,
Brazilian*



*Butternut,
Flat Sliced*



*Ebony,
Macassar*



*Cherry,
American*



**FINE HARDWOODS ASSOCIATION, 666 Lake Shore Drive, Chicago 11, Illinois
Telephone: Whitehall 4-1252**