

July Meeting

Safety

Reese White recently has developed an allergic reaction to something in his woodworking. The symptoms are blisters that initially developed on the tips of his little fingers. They dried and the skin would peel off. Now the blisters are developing elsewhere on his hands and can dry, crack (painfully) and bleed. He is trying latex gloves covered with leather gloves to no avail. He has contacted a few dermatologists that have had no suggestions.

Don Sloan had a need to work with treated plywood. Home Depot would not cut the sheet for him since the saw dust can be toxic in high levels and their insurance wouldn't allow it. We need to be careful when working with treated lumber. Don't use the saw dust or shavings in any animal bedding.

General Safety Tips

- Lift heavy items with your legs to prevent back injuries.
- Wear steel toed shoes when working in the shop and handling logs.
- When trimming trees wear a hard hat to limit head injuries.
- When using power tools (in the shop or afield) wear your safety glasses.

Problems and Solutions

Wood garage doors use long (1.5 inch) tenons. The router/shaper bits necessary to make these cuts require high powered machines.

- Suggest switching to a loose tenon joint, i.e. a mortise in both pieces and a tenon/spline to match.

Filler for porous woods being used in pens and pencils.

- Use the turning dust mixed with a quick-set glue (15 second type) also use latex gloves to prevent sticking.

Lee Palfreyman is having some problems with Bartley's drying in his garage shop when the humidity and temperature is high. (He is limiting his finishing this summer.)

Mike Turner is looking for help in finding Homecraft lathe parts (a 1963 model).

Art Chester is looking for recommendations on the Ace Stapler/Nailer (electric type). The only experiences are with a similar Sears and not necessarily all that happy. Most suggest the Stanley/Bostich air version with pancake compressor.

Dooley George is finding it difficult to get delivery on the new Porter Cable Profile Sander. Others are finally getting delivery after ordering at the Pasadena Industrial show back in May.

Sharon Buckley is looking for a small amount of nitric acid. The suggestion is to go to a local pharmacy or Fisher Scientific.

Show and Tell

Larry Barnes showed his small white oak table. He used classic Shaker styling but the intent of the project was to try out his new sprayer system. The finish is a lacquer that was suggested by the people at Town & Country in Baytown. Check with Larry about the specifics.

Brian Owens brought another of his designs. This time it is a simple coffee table with a walnut top and skirts and mahogany legs. The long skirts are set into mortises in the legs and the short skirts are through mortised and wedged. Brian finished with 5 coats of a Danish oil and Bartley's blend mixed 4:1 by volume. Two coats could be done per day.

Leonard Ekholm showed a set of double-six dominos made for senior citizens. Each maple and walnut tile is 1.25" by 2.5" for easier handling. Using a jig he designed the patterns are drilled through the maple to show the walnut. The simple box was made from scraps around his shop. The dominos will be given to senior centers as part of the WwCH charity program this fall and Christmas. This is a project of the Sw Wood Guild.

Leonard also showed three simple spanners he made to fit the guide bushings on his routers. Each is made for a specific guide bushing.

Jimmie Harp is moving to a new house and they decided to install a new front door. They found two leaded glass panels in New Orleans. The door is made from long leaf pine (that Jimmie has lots of) with pinned through mortise and tenon (over 100 sq. in. of glue surface at each corner). Finish is McCloskey's Man-O-War Spar varnish available from Finisher's Supply. This is self leveling and very controllable.

Making Dominos: A Jig and Procedure by Leonard Ekholm

The Jig -

To make dominos that look good and do not require a lot of measuring, a jig is needed. This jig, for 1 1/4" by 2 1/2" tiles, is simple to make and use but requires very careful layout and assembly.

I made the jig base from a piece of plywood 12" square, centered and held on my drill press with blocks on the bottom of the jig. With the jig on the drill press table, drill a small hole (1/8 inch or less) to index the table to the base. From this point the guide rails are oriented. The last items needed are two spacers 5/16" by 5/8" by 4". The guide rails and spacers need chamfers on the bottom edges for chip clearance.

The Procedure -

My dominos are made from laminated walnut and maple. I rip them slightly larger and size them on a thickness planer and use a cut-off saw with a stop to cut to length. Forty blanks are cut to assure I get 28 final tiles for a set. You may do better. Each tile is rounded over with an 1/8" bit top and bottom.

For the drilling process I recommend having a set of dominos as a guide. Set the depth stop to just drill through the top layer to show the contrasting color through as the dots. A 1/4" drill bit gives good proportions to the dots and are easy to see.

The first tile is the double six and shows the process:

- without spacers drill two corner inside dots.
- place a 5/16" spacer at the vertical guide and drill two holes next out from the first ones by turning the tile.
- flip the spacer to the 5/8" and drill two more holes.

You now have three dots along one side of each half of the tile.

- place a 5/8" spacer along the horizontal guide and take out the vertical spacer and drill two holes as before.
- place the 5/16" spacer along the vertical guide and drill two holes
- flip the vertical spacer to the 5/8" side and drill two holes on the outside corners.

Next is the 6/5 tile that shows how to drill the center dot.

- drill out the 6 side as above
- drill the four corners of the 5 side as you would the corners of the 6
- drill the center dot by placing a 5/16" spacer at the horizontal and vertical guide rails.


The rest of the tiles are just variations on these steps.

To cut the center 'divider' groove in each tile I used an 1/8" straight bit in my router table with two guide blocks to center the tiles.

Make a simple box and finish as you wish.

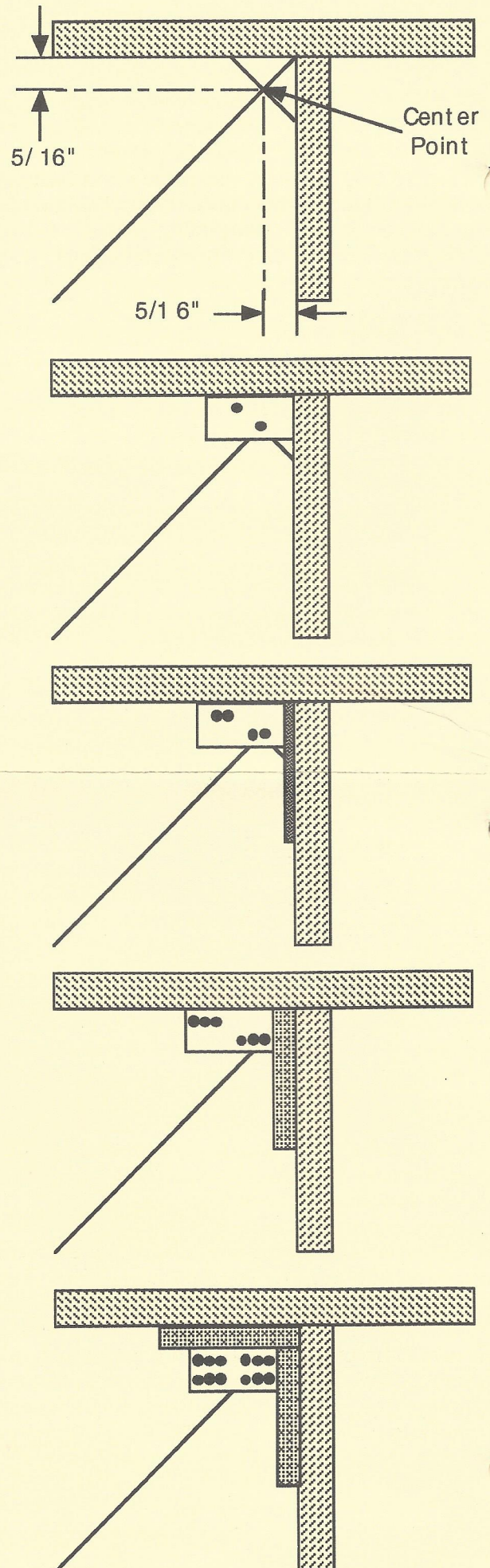
The last set took me a little less than an hour.

Spacers

 5/8"

 5/16"

Domino Tile Jig



The Dynamics of Wood

by Don Richardson
A Summary

Wood Species.

About 45,000 different species of wood forming plants are identified in the world. About 30,000 of these species could be considered as timber producers in some form or another. About 10,000 species are "commonly exploitable".

Wood Classification.

Scientific classification: Family - usually contains several types of familiar tree names. The family Fagaceae (Beech family) contains all the true Oaks (over 40 species). Genus - The first part of the two part Latin name given trees is the genus name. All of our true Oaks are in the genus Quercus (though they are divided into timber groups of White Oak [12 species] and Red Oak [28 species]). Species - Always begun with a small letter. Live Oak is (Quercus virginiana).

Growth and Structure.

Layers in the tree: Bark - Protects the precious bast layer beneath it. Bast - A skin-like layer just under the bark is the conveyer of food and minerals up and down the tree. Cambium or growth layer produces two types of tissue. Bast on one side and sapwood on the other. Sapwood - Several growth rings (most recently produced) make up the sapwood which eventually hardens into heartwood. Heartwood - The oldest inner rings, provide the strong stiffening rib that supports the tree Pith - The center of the rings where the decayed remnants of the original twig remain.

Growth rings: The annual growth ring is produced by the cambium layer during the growing part of the year. In spring the growth is most rapid. In later summer the tree's growth slows, the outer part of the annual ring grows more slowly and forms more dense material.

Tree parts: Bough wood is from boughs or limbs that are not vertical like the trunk. Internal stresses in this wood make it difficult to control when sawing.

Tropical hardwood often shows no growth rings because the tree grows continuously under uniform moisture and temperature conditions.

Felling

It is customary to fell a tree in fall or winter rather than in spring or early summer. More than 50 extra gallons of water are contained in the timber of a medium tree felled in spring.

Saw-Milling

Plain or Flat Sawn - Growth rings run edge to edge. This cut gives beautiful grain patterns to the lumber but is the least stable cut in terms of warpage.

Quarter Sawn - Grain runs from wide to wide edge. It is the most stable regarding warpage.

Seasoning and Moisture Content.

50 percent or more of the weight of a growing tree is water. One cubic foot (12 board feet) of green Oak has 28 pints of water. That same piece of Oak ready for the wood shop has 4 pints of water. About one year per inch thickness of the lumber is allowed for drying to equilibrium (15 to 20 percent).

Permissible Moisture Content.

15 to 22 % - Usual limits of moisture content in thoroughly air dries wood.

20 % - Dry rot safety line.

16% - Outdoor furniture.

11 to 14% - Furniture in rooms, addition rooms (enclosed porches), and out buildings where climate control is not continuous.

9 to 11% - Furniture in rooms where climate control is continuous.

Using wood which is properly seasoned is important. Wood which is too wet will continue to shrink resulting in failed joints and warped pieces. While using properly cured wood in furniture projects is important, proper design and engineering are more important.

Shrinkage.

View the wood as a whole log rather than boards or pieces. Longitudinal shrinkage - Shrinkage along the length of the wood. It is almost non existent. The only reason longitudinal shrinkage is important is that it is not equal to other shrinkage considerations. Radial shrinkage - Shrinkage in a direction across (perpendicular to) the growth rings is radial shrinkage. It corresponds to the radius of the trunk. This shrinkage is considerable but usually less than tangential. Tangential shrinkage - Shrinkage along or in the direction of the growth rings (tangent to the rings) is tangential shrinkage. It is where the greatest shrinkage takes place.

The table below shows values for radial and tangential shrinkage for some common woods used in the U. S.

<u>Wood type</u>	<u>Radial</u>	<u>Tangential</u>
Mesquite	2.2%	2.6%
Red Oak	4.7%	11.3%
Hickory	7.7%	11.0%
Pecan	4.9%	8.9%
Yellow Pine	4.8%	7.4%
Maple	4.8%	9.8%
Cottonwood (Poplar)	3.9%	9.2%

Continued on next page

Movement.

When radial and tangential shrinkage differ, warping, twisting and other disfiguring characteristics occur. Ring length tends to shrink more than ring thickness. (Tangential shrinkage is greater than radial shrinkage). The result is that rings want to "straighten out" as the wood dries. Flat sawn (plain sawn) boards tend to cup in the opposite direction of the curvature of the growth rings. Flat sawn boards shrink more in width than in thickness. Quarter sawn boards shrink more in thickness than in width

Joinery Considerations

Uni-dimensional considerations. (Shrinkage of the width of boards is important but not the thickness.)

Edge joining includes any situation where you join the edges of flat boards to make a wider board. Examples are table tops and door panels. Edge joining flat sawn boards should be done so the curvature of the rings is alternated up then down across the total surface width. The alternations cancel the effect of "cupping". The shrinkage of flat sawn boards is greater than in quarter sawn boards because the width is along the tangential direction.

End Connections, special procedures are required where cross grain is joined to longitudinal (long) grain. Short spans of cross grain can be joined to long grain without fear of splitting as with a mortise and tenon joint. Long spans which connect cross grain and long grain must be mechanically arranged so movement within the joint is allowed.

Floating panels are constructed with a frame around the panel. The panel "floats" in the groove. If you must glue the panel in place, just glue one small spot on each of the two cross grain edges at the center of the cross grain length.

Breadboard edging is popular on table tops. The cross grain of the table top is joined to the long grain of the breadboard edge. The joint is made by fashioning a tongue and groove joint. Three pegs are used to hold the edge board in place but the peg holes in the tongue at the ends are elongated so the pegs will hold the board onto the end but can move laterally. The only glue in the joint is at the center peg position.

Drawers: Construct a drawer so it will remain constant in width and depth. That way it will fit even after any shrinkage has its effect. Make the grain run around the perimeter of the drawer so the dimension changed by shrinkage is its height. Make the drawer bottom with the grain running from side to side. When the bottom shrinks, it will not fall out of the side grooves.

Drawer carcasses are constructed with grain running side to side on the top and bottom. Sides have the grain running vertically. Any change in the size of the carcass due to shrinkage will be in the depth. Any other configuration will eventually pinch a drawer door and cause a problem with the fit.

Bi-dimensional considerations: Shrinkage in both the tangential and radial dimension are important, especially when they are different. Use wood pieces that are equally dry for joints that fit one piece inside another (mortise and tenon). If a wetter wood is fit inside dryer wood, the joint will loosen and fail. If a drier wood is fit inside wetter wood, the joint will tighten and the outer piece may split.

Mortise and tenon joints: Construct the joint so the cheek to cheek distance of the mortise remains equal to that of the tenon or tightens on the tenon with shrinking.

If the mortise cheeks are parallel to the growth rings (cut into the quarter sawn side), using flat sawn wood for the rail will result in a stable joint.

If the mortise cheeks are parallel to the growth rings (cut into the quarter sawn side), using quarter sawn wood for the rail will result in a loosening joint.

If the mortise cheeks are perpendicular to the growth rings (cut into the flat sawn side), using quarter sawn wood for the rail will result in a stable joint.

If the mortise cheeks are perpendicular to the growth rings (cut into the flat sawn side), using flat sawn wood for the rail will result in a tightening joint.

Consideration of sawyer cuts in the breadboard edge: If the main boards and the edge boards are all quarter sawn, the tongue and groove will shrink the same so the fit will remain constant and snug. The shrinkage of the main board will be minimum and the gap between the end of the tongue and the top of the groove will be minimum. If the main boards and the edge boards are all flat sawn, the tongue and groove will shrink the same so the fit will remain constant and snug. The shrinkage of the main board will be maximum and the gap between the end of the tongue and the top of the groove will be maximum. If the main boards are quarter sawn and the edge board is flat sawn, the tongue will shrink more than the groove so the fit will loosen. The shrinkage of the main board will be minimum and the gap between the end of the tongue and the top of the groove will be maximum. If the main boards are flat sawn and the edge board is quarter sawn, the tongue will shrink less than the groove so the fit will tighten (and may break). The shrinkage of the main board will be maximum and the gap between the end of the tongue and the top of the groove will be minimum.

Casegoods Construction by Steve Proctor

Casegoods construction is a branch of woodworking involved in the creation of furniture such as cabinets, bureaus, desks, armoires and shelving units. Although such pieces can be made entirely of solid woods, this requires design elements to deal with wood movement. Modern practice usually involves sheet goods with veneers, which can greatly simplify construction. There are many advantages of sheet goods:

- Large flat surfaces without gluing up panels
- Dimensionally stable in 3 planes
- Uniform strength
- Economical use of wood resources
- Veneers can achieve effects difficult to duplicate in solids
- Ease of construction

There are several different types of sheet goods. The main distinguishing characteristic is the core type; solid or ply. Plywoods are made of cross banded veneers. Solid cores can be solid woods or particles of wood bonded with glue. Each has its advantages and disadvantages:

Plywood-Advantages

- Stronger in shear and bending (shelf applications)
- Less susceptible to damage or swelling from moisture

Plywood-Disadvantages

- Face veneers may suffer from subsurface defects telegraphing through
- Most plywoods have voids in the core plys
- Generally more expensive than particle boards
- Thickness may be odd dimension-metric or in odd 32nds

Particle cores have the above features reversed. In addition, they come in a greater variety of thicknesses. Some particle cores don't hold fasteners as well as plywoods.

My personal choice for most furniture applications, with the exception of long span or high load shelves, is Medium Density Fiberboard (MDF). This is a high quality, modest cost sheet good, available in exact sizes (3/4 et al), with exceptionally smooth surface. Because of the smooth face, often very thin veneers are used, which contributes to the lower cost. MDF is also available in a large variety of veneers, including paper and melamine.

Since sheet goods are typically large dimensions like 4'x8', layout of cabinet parts becomes very important. Several issues to be considered in layout:

- Efficient cutting to minimize waste
- Grain matching
- Grain Direction
- Minimized saw settings
- Saw kerf dimension

To facilitate production, plan cuttings on scale drawings of sheets. Make mistakes in pencil, not wood. Label each part, indicate dimensions, and show grain direction. For example, don't have one drawer front horizontal, the other vertical grain. Try to match grain by cutting parts that will be seen together from the same panel, in the order which they will be used. This shows grain consistently in the piece. I have even grain matched sides to make grain run up over and down the sides and top to give the effect of a single board folded in two places.

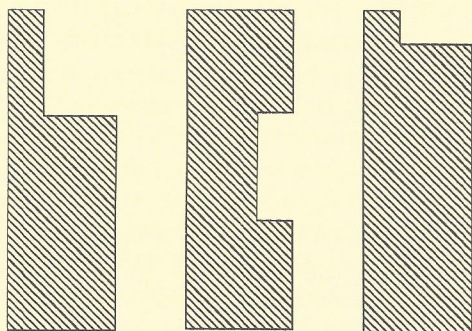
Plan similar dimensioned items to be cut at once, to minimize saw settings. This also provides consistent dimensioning of parts.

Allow for the saw kerf. If the panel is exactly 48" x 96", you cannot get four 12" wide cuttings lengthwise from the panel. The last panel would be 12" minus 3 times the width of the saw blade. For this reason, I often use dimensions 1/4" less than an even number of inches. For example, 11 3/4" shelves instead of 12". The lost 1/4" may be recovered by edge banding, or the whole carcass may end up smaller. Some MDF sheets are 49" x 97", which allows extra width to accommodate saw kerfs.

Continued on next page

Casegoods continued

Construction is usually a simple assembly of boxes, using dado and rabbet joints, glue and fasteners. Rabbets are basically dados with one side missing, so all are cut with the tablesaw dadohead. I generally use only 3 types of dado/rabbet, so there are only 3 saw settings.



$3/4" \times 1/2"$

A

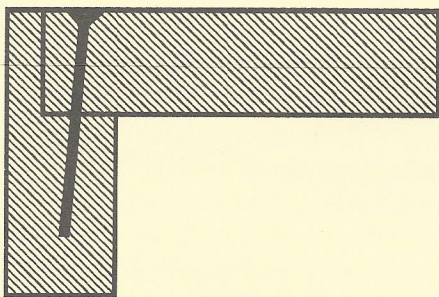
$3/4" \times 1/2"$

B

$1/4" \times 1/2"$

C

A is $3/4" \times 1/2"$ and is used for rabbeting side pieces to allow top and bottom panels to be inset. This is used if the top/bottom joints are not seen, as in kitchen cabinets or furniture with separate tops. The $1/2"$ ledge allows plenty of room for a fastener.



B is $3/4" \times 1/4"$ and is used for fixed shelves or dividers. The $1/4"$ bearing is plenty. A $1/2"$ dado would weaken the panel. Typically no fastener other than glue here.

C is $1/4" \times 1/2"$ and is used to inset a back panel. The $1/4"$ lip hides the edge of the back. If the panels are made accurately, a good fit will automatically square the carcass. I make mine tight enough to be tapped gently into place. I pin backs with brads or screws but not glue in case they have to be removed later.

Fastening is typically with drywall screws or brad nails. Screws are more time consuming, since they must be pre-drilled. MDF will split easily, and is too dense to crush as the screw enters. Use a countersink combination with the proper dimension for screw shank and head. Screws hold far better than nails, and cordless drills make the job easier. Screws can also be reversed, which is handy for temporary assembly or alignment.

Nails are adequate for parts of assembly such as backs, trim and to act as pins preventing movement during glue up. If using an air nailer, be careful. Long, thin nails can curl or exit the side at an angle. An air nailer has no 'feel', so you won't know until too late. Carefully line the gun up straight. Use finishing nail sizes- large nails will split MDF.

Biscuits are another way of assembling carcasses. Used properly, biscuits are strong enough to allow butt joints instead of dados. This can be useful on a large carcass that is awkward to dado.

All fasteners are planned to be invisible. Most are hidden within the carcass.

Properly planned, a large number of cases can be produced quickly. With a helper to assist in handling the heavy (100 lb. for 4x8 sheet) material, I can cut out, dado/rabbet and assemble a room full of carcasses in a few hours. Details such as edge banding and shelf pin holes can take longer than basic construction. The speed is particularly convenient for pre-finished materials like melamine. Do as much work on the panels prior to assembly- shelf pin holes, sanding, even pre-finishing the interior face. That will be easier and make a nicer job.

August Meeting

When: August 12, 1995 9:00 AM
Where: Bayland Community Center
on Bissonnet at Hillcroft
Program: Casegoods Construction
Steve Proctor

From the Board Meeting


The Board met at Luby's Cafeteria immediately after the July regular club meeting. Those in attendance were: Jimmie Harp, Saul Harris, Andy Anderson, Art Chester, Don Richardson, Steve Proctor and Walt Turpening.

Group Purchases- As was noted in the last newsletter there are a number of different tools and supplies that we as a group can order. To make this easier the order forms will be sent in the newsletter.

Membership Cards- To make it easier for the members to take advantage of the discounts at local suppliers, membership cards are being made and will be available at the next meeting.

WwCH Shirts- Included in this issue and future issues will be an order form for the WwCH shirts. When we have 20 or more order (no matter the sizes) we will place the order. Note that the form (and check) is to be given or mailed to Lee Palfreyman.

Don Richardson has been contacted by John Franklin of Texas Park & Recreation. John is responsible for the WWII PT Boat restoration project. Help is needed to complete the cabinetry of the boat. Those interested can contact John at work (713) 964-6105 or at home (713) 341-6426.

 Art Chester says that the North(west) Ministries is interested in working with us in our Charity projects.

Last Month's Error

Boyer Gahagan is really Boyce Gahagan

From the Editor's Workbench

As you can see the issue is larger thanks to Don Richardson, Leonard Ekholm and Steve Proctor. Don sent in the notes from his presentation last month and Leonard sent in the Domino Jig. As a preview of Steve's presentation this month he sent in his notes.

Quote for the Month

Come to the woods, for here is rest.
There is no repose like that of the green deep woods...
Sleep in forgetfulness of all ill...

- John Muir

Woodworking Opportunity

Harvin Moore (Frontera Furniture) announced that Texas Pioneer Furniture Company (14326 Brown Road, Tomball, Texas 77375, (713) 351-2131) is hiring experienced woodworkers. This is one of the factories that builds some of the Texas reproduction furniture for Frontera. Contact them.

Texas Pioneer Furniture Company

Barto L. Parker has, at the Texas Pioneer Furniture Company, a Band Saw Mill and is willing to do log milling for the WwCH members.

Buy & Sell

Buy-

Compound Miter Saw

Contact: Bob Stroman @ W: 789-7713 x318

September Newsletter Deadline August 28th, 1995

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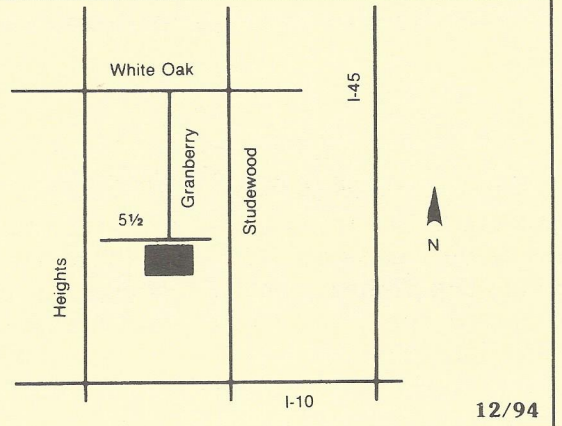
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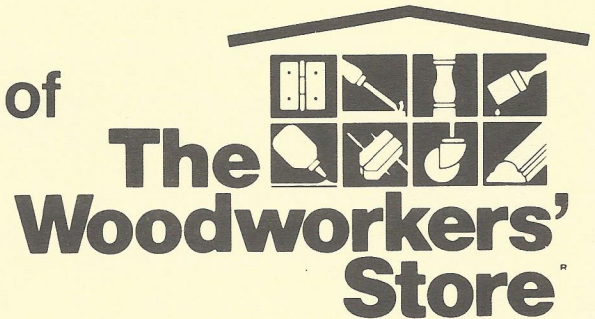
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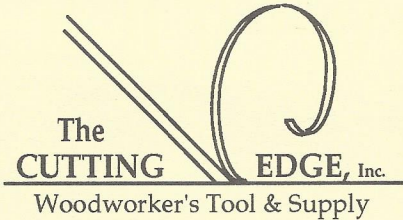
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Mon. - Fri. 9 am to 6 pm
 Sat. 10 am to 5 pm
 Sun. Noon to 4 pm

WwCH Membership

To Join the Woodworkers Club of Houston for 1995, bring this form to a regular meeting or send your dues to:
 WOODWORKERS CLUB OF HOUSTON, P.O. BOX 34481, HOUSTON, TEXAS 77234
 Make checks payable to Woodworkers Club of Houston.

Renewal Membership \$24.00

New Membership is prorated if 1st year is less than 1 year.

WwCH Membership Form

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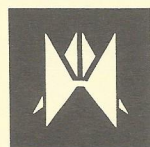
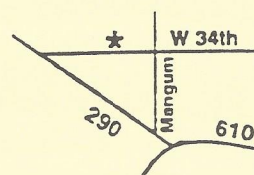
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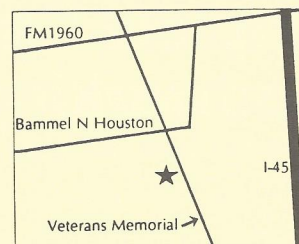


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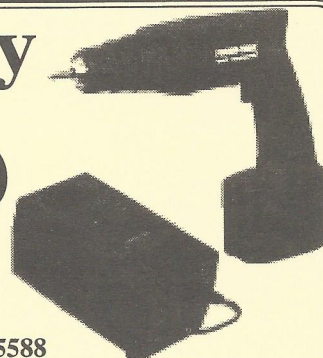
Porter Cable #9853S 12V Cordless Drill Kit

- Adjustable clutch 10 to 230 in. lbs.
- Two speed ranges: 0-350 & 0-1,000 RPM
- Variable speed, reversing
- Extra battery
- Includes steel carrying case

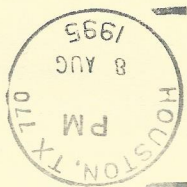
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Up Coming Meetings and Speakers

- | | |
|-------------------------|--|
| August 12th — | Steve Procter, "Casegood Construction" |
| September 9th — | Walt Turpening, "Considerations for Custom Design" |
| September 16th - | WwCH Bar-B-Q at Brian & Jimmie's Shop |
| October 14th — | Southwest Wood Guild, "Christmas Projects" |
| November 11th — | Open |
| December 9th — | Open |