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THE CHARLOTTE SAWDUST

The Official Journal of
The Charlotte Woodworker's Association
www.charlottewoodworkers.org

Small Talk

Well, the summer's almost over. I am finishing up repairs and restorations on my boat and will soon batten down the hatches for the September hurricane season and begin to think inside my workshop again.

My wife has already outlined some of her requests for this season's projects, including an antebellum bird house, a jewelry cabinet and new bedside tables. They sound like fun to me.

I hope some of you will send me pictures of your workshop in the next months so that we can share ideas with other members.

See you at next week's meeting.

Sincerely.

Mike Dyer
mdyer@adwarchitects.com
(704) 379-1919 days
(704) 814-9580 evenings

August Program

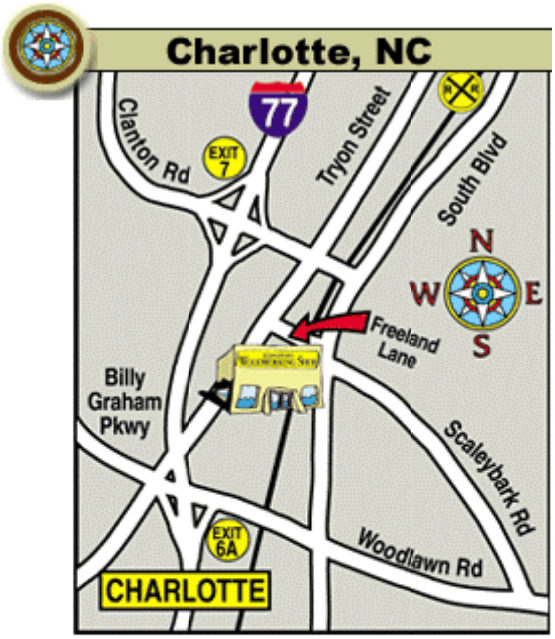
Kyle Edwards will give us a report of the proper storage and drying of wood.

September Program

We are asking in advance for you to bring some of your jigs and fixtures to the September meeting. Be thinking of something unique that you have built to help you with your work.

Meeting Time

Meetings of the Charlotte Woodworker's Association are held the third Monday of each month, except for December. Meetings are typically held at THE WOODWORKING SHOP of Charlotte, 116M Freeland Lane, Charlotte, NC. Exceptions will be announced well in advance. If you need directions to the shop, visit their web site at http://www.woodworkingshop.com and click on the link to "Store Locations".



116 M Freeland Lane
(Queen Park Business Center)
Charlotte, NC 28217
(704) 521-8886

Get Directions:
MAPQUEST.

Following a social and refreshment time that starts at 5:30pm, our meetings start at 6:00pm. Get to the meeting early and get to know your fellow woodworking enthusiasts. Please refrain from placing food, drinks and trash on worktables and shelves around The Woodworking Shop.

$$$ Save Money at the Woodworking Shop $$$

As a member of the Charlotte Woodworkers Association you can save 10% off all your purchases from The Woodworking Shop, excluding wood and power tools. Thanks to our hosts at the Woodworking Shop for allowing us to have our monthly meetings and extending 10% off to CWA members.

Write an article for Sawdust (thanks for all the help from those that have)

Please consider writing an article for The Sawdust, this is your newsletter what do you want from it? What do you want to share with your fellow woodworkers? Everyone likes to share, share your successes, failures, mistakes, have fun with it and share with others at the same time!. Contact Mike Dyer @ secretary@charlottewoodworkers.org or call (704) 379-1919 days or (704) 814-9580 evenings.

CWA Mentor Program

The following members have offered their help to anyone interested in learning skills or new techniques in their area of interest. Contact each person to arrange times to get together if interested.

Name	Area of Interest	Phone	Email
Wayne Cooper	***	704.409.1417	cooper@arconmfg.com
Bill Golden	Shopsmith & Accessories	704.525.9691	popstoyshop@juno.com
Dwight Hartsell	Woodturning	704.598.6029	woodwight@aol.com
Jeff Jacobs	any woodworking	704.309.1263	jacobj@meckco.com
Wayne Manahan	Sharpening	704.786.0768	wmanahan@vnet.net
Gil Milsaps	Windsor chairs	704.875.0758	gad32about@aol.com
Alvin Tench	any woodworking	704.824.7717	alvintench@netzero.com

*** Wayne Cooper has a fairly complete shop and would actually like an experienced woodworker to use it and teach him how to use it properly in exchange for use of the shop. If you are interested in helping Mr. Cooper please contact him directly to make appropriate arrangements.

Classified Section

$$ For Sale $$

Approximately 1000 board feet of 1 inch thick Oak – various widths from 6" to 10", the boards are about 12 feet long. Asking $1/bf with a 100 bf minimum, would like to sell all 1000 bf for $900. Contact Mike Patterson @ 1-704-435-5179.

8" Inca Tilt Table Saw ($295), Makita 9820-2 Electric Sharpener ($150) and a Makita 9045N ½ Sheet finish sander ($50) are available from George Fryling at 704-752-0121 or George@fryling.com.

Delta Rockwell Jig Saw with Dunlap 1/4 hp motor. Good condition, cuts very well. $95 Ralph Lombard 704-542-3103 - lombardr@asme.org

Craftsman Shaper with Craftsman 1/2 hp reversible motor. Set of Bits. Excellent condition, used very little. $150 Ralph Lombard 704-542-3103 - lombardr@asme.org

Shopsmith Mark V - Very good condition. $500 Ralph Lombard 704-542-3103 - lombardr@asme.org

David Cress (non-member) is looking for a lathe in the $250 price range – dbc8762@netzero.net

Dust Control in the Woodworking Shop

John Foust, MD (reprint from July meeting)

A mother, driving her 5-year-old daughter home from Sunday school, asked her what she had learned. The girl replied, "We learned that people come from dust and when they die they return to dust." Shortly after returning home the mother heard terrible screams from the girl in her bedroom. Frightened, the mother ran to the bedroom to find the girl bent over looking under the bed. The girl said, "Look mother there is someone under my bed either coming or going."

The inventor of the microscope, Anton Van Leeuwenhoek, reported in 1694 that mites live in dust. Now more than 300 years later it is an established fact that dust mites are indeed the main cause of the allergy problems we have with house dust.

Wood dust is an entirely different substance from house dust but if you have your workshop in the basement or an attached building your spouse may not think so.

Most woodworkers have been around long enough to remember either visiting someone else's shop, or heaven forbid, working in their own shop in a veritable cloud of dust. Dust covered the tools and machinery, the floor, the walls, the ceiling and even the woodworker.

In recent years much information about the hazards of wood dust have come to light so that we all make an effort to avoid dust or at least control it. The U.S. Department of Labor Office of Safety and Health Administration, better known as OSHA has issued requirements for safe levels of exposure to wood dust in the work place. I will get into those standards shortly.

Wood is an important worldwide renewable natural resource. Forests extend over approximately 1/3 of the earth's total landmass. There are 12,000 species of trees, each producing a characteristic type of wood, some more toxic than others.

In the plant kingdom trees belong to the division of spermatocytes, which are divided into two subdivisions based on seed types. These are gymnosperms, which have exposed seeds, and angiosperms, which have encapsulated seeds. Most of the 12,000 tree species are angiosperms, which are the hardwoods. Only 800 species are gymnosperms or softwoods. The terms hardwood and softwood refer to the species and not necessarily the hardness of the wood. For example Balsa, which is light and soft, is a hardwood. Hardwoods though are generally denser than softwoods, but the density varies greatly within each group and the hardness of the two groups overlaps somewhat. Most trees harvested worldwide are hardwoods, about 58% of volume, much of which is used for fuel.

Wood dust is a complex mixture that is a light brown or tan fibrous powder. Its chemical composition depends on the species of tree and consists mainly of cellulose, polymers and lignin with a large and variable number of substances with lower molecular mass. These are tannins, flavonoids, quinines and lignins and are more prevalent in hardwoods. It is these substances of lower molecular mass that cause most of the health problems in woodworkers.

What are these health problems? First let's consider our anatomy. The skin and eyes are obvious. The respiratory tract is more involved. It begins with the nose and mouth, extends into the pharynx or throat then through the larynx or voice box into the trachea or windpipe. The trachea divides within the chest cavity into the right and left bronchi that extend into each lung. There the bronchi divide into smaller bronchioles and finally terminate into tiny air sacs called alveoli where oxygen and carbon dioxide are exchanged. Of course this is one of the most important body functions to sustain life.

The lungs are estimated to contain approximately 300 million alveoli and on a volume basis one of the largest organs in the body. The surface area of lungs is roughly 70 square meters: the size of a tennis court.

The entrance to the nose is lined with hairs, that is, if you men at the insistence of you wife haven't cut them out. Beyond the opening of the nose the respiratory tract is lined with a membrane that produces mucus. This membrane contains cilia, which are microscopic projections that move back and forth in the mucus moving it to the throat and nasal opening. The purpose of this mechanism is to trap and remove foreign material from our body. The most dangerous dust ranges in particle size between 0.3 and 10 microns. The nose is capable of entrapping particles larger than 7 microns and prevents them from entering further down the respiratory tract. What is not trapped in the nose then passes into the lungs.

Respiratory response to wood dust can be extremely variable and complex. Damage varies according to individual susceptibility, nature size and amount of particles and the duration of exposure. The impact of wood dust inhalation can either be immediate which is irritation or delayed which is an allergy. Statistics say 2 to 5 % of all people develop an allergic sensitivity to one or more of the extractives in wood. With enough exposure, wood dust will bother most everyone. Generally speaking, the smaller the particle, the further it can penetrate into the deepest areas of the respiratory tract.

In addition to being and irritant causing skin rashes, irritated watery eyes, a runny nose and a cough all of which would be considered less severe reactions, some people when exposed to wood dust, or for that matter pollen, molds and animal dander, may after repeated exposures over time become sensitized to those substances. Once sensitized it takes only a small level of exposure to trigger an allergic reaction, the worst of which is asthma, which can cause death. But continued exposure may result in even more serious problems such as chronic bronchitis, or alveolitis, which can lead to permanent and irreversible lung damage.

Though statistically rare, cancers, particularly adenocarcinoma, a tumor of mucosa, have been associated with exposure to wood dust. Cancer of the nose and sinuses occurs in a ratio of 1 per million of all cancers in people. So you say: "What's the big deal?" The problem is that more than 2/3 of all nasal and sinus cancers affect woodworkers.

One of the adverse affects of wood dust to the nose over time is damage to the cilia and mucus glands causing a dry nose or mucostasis. When this occurs the dust in the nose is not properly removed and remains there causing prolonged irritation. This has been postulated as a contributing factor in the development of nasal and sinus cancers. It has been determined that 1 of 9 woodworkers exposed to a mean concentration of 2.2 mgm/m3 of wood dust developed mucostasis. It has also been noted that the mean duration in woodworkers who developed nasal and sinus cancers is 35 to 40 years.

This brings us to the matter of safety. OSHA has determined that exposure to air born wood dust in excess of 5 mgm/m3 over 8 hours is hazardous to your health and exposure in excess of 2.5 mgm/m3 for western cedar, a soft wood, is equally hazardous. Then to add confusion to the issue another organization, the American Conference of Governmental Industrial Hygienists have set a threshold limit of 1 mgm/m3. Achieving this level in a shop, even a commercial shop, would be difficult. Getting to 2 mgm/m3 is not as difficult.

Now what is 5 mg/m^3 of dust? Five mg/m^3 of dust equals two/ten thousands of an ounce and a dime weighs 8 hundreds of an ounce. According to OSHA standards a moderate-sized workshop 15 x 30 feet with 10-foot ceilings will reach permissible exposure limits when there are two hundredths of an ounce of wood dust in the air. These standards might sound absolutely strict and unrealistic. The bottom line is wood dust is not good for us. Those of us who have experienced some of the symptoms of woods dust sensitivity or allergy have no trouble understanding the problem.

Some woods are more toxic than others. I have a handout listing the ones that have been reported causing symptoms and listing the symptoms associated with each wood. Inclusion in this list does not automatically mean its use will result in adverse effects. Many of them are used regularly without apparent effect, but this depends upon the species involved, the concentration and extent of exposure, and the levels of toxic agents within the wood, as well as the sensitivity of the woodworker.

The final question is: What can we do to decrease dust exposure? As we all know this dust is caused by all of the machines we use, some more than others. Sanding is probably the worst. It may surprise you to learn that the grit of sandpaper has no effect on the amount of dust production; the coarser grits just produce it faster. Using compressed air to clean the shop is probably the worst for the atmosphere.

So first you need to do everything possible to collect waste at the source before it can disperse to trash the whole shop. That is a dust collector's job. The term “dust collection” is really somewhat of a misnomer. Dust collectors are actually collecting mostly chips and particles. The dust, for the most part, winds up in the air. In many cases the 30-micron filter bags are not enough to capture the sometimes 5-micron dust. If you skimp on the bag material you end up forcing the dust through the medium and into the air. Given that even every dust collection system doesn’t capture 100% of dust you’ll need some sort of air-filtration system to remove the fine dust that otherwise remains suspended long after the machines are shut down. To protect yourself from this dust you need a double-barrel approach. First use an air filtration system such as the Jet or JDS systems. These high quality systems capture up to 98-99% of 5-micron particles and about 90% of 1-micron particles. One of these systems clean and circulate the air in a 20 x 20 x 8 ft. shop in under 5 minutes. Secondly, the ultimate is the use of a dust mask. The only ones with using are the ones with exchangeable filters. The problem with these is they are hot and uncomfortable. They are somewhat expensive but that should not be a factor. They are of no value if they do not fit properly and if you have a full beard they will not fit effectively.

In closing, let me thank you for inviting me. I realize I am preaching to the choir, but I hope I have made you think. Thanks.

Veritas Standard Block Plane

Review by Wayne L. Manahan

While building the name badge box for CWA with Wayne Cooper, I had the opportunity to try a new block plane that he'd purchased from Lee Valley Tools. This plane is Lee Valley's Veritas Standard Block Plane model number 05P22.30.

From the price on the Lee Valley web site, you'd expect the plane to work better than something that you'd buy at the local discount outlet, but I wasn't prepared for the level of performance that this plane was ready for right out of the box. It cuts whisper thin shavings with ease in cherry, and feels solid in my hand.

The adjusting mechanism is a new design, different from that typical of the Record and Stanley block planes and imitations of that style. It works very well.

The plane has an adjustable nosepiece, a 2" x 6" footprint, a 1/8" by 1 5/8" wide blade of A2 steel, and ships razor sharp. Honest!

This plane is cast of ductile cast iron, rumored to be able to stand severe shocks (like dropping on a concrete floor) without cracking as normal cast iron might. It is heavy, and the mass makes it easy to use effectively reducing the overall effort required to work in stubborn woods.

I always preferred Lie-Nielsen planes until last Thursday. I have now added another modern company to the list of companies whose planes I can endorse (at least whose block planes I can endorse). Lee Valley Tools was really on top of things when they designed this tool. I was very impressed with it and I think you'd be happy with it as well.

Here's a photo from their web page, which is at:
http://www.leevalley.com/wood/page.asp?page=47881&category=1,41182,48942&ccurrency=2&SID=

Proper Storage and Air Drying of Wood

By Kyle Edwards

One thing is certain is that lumber is expensive. The expense is directly related to the time and care needed to process the wood into usable form. There are plenty of high quality timbers available in raw form and the cost is relatively low compared to the final finished cost. There are some simple steps and methods that are time proven that will improve the quality of your air-dried lumber and insure a final usable product.

1- If you have logs sawn make sure your timber is end coated first to prevent checking and splits later while drying. Use an aluminum paint or a product like Anchorseal or Baileyseal.

2- Cut your wood as soon as possible. In the summer logs on the ground start to breakdown in a few weeks. In the winter it can take months.

3- Before sawing the logs, determine the lumber thickness needed. As a general rule, it is very difficult to manufacture and dry lumber thicker than 2-inches. If projects require thick lumber, it is better to saw 1-inch boards, dry them and glue them together in the same order as they were sawn. The glue lines will be almost invisible using this procedure. Do not plan to resaw thick dried lumber into thin boards or turning squares after drying – do it before drying. It is also advisable to Avoid sawing lumber into pieces thinner than 3/4-inch, as warping will be a problem.

4- Green lumber will stain quickly if not stacked.

5- Stacking of the lumber should occur in an area with a good breeze. The pile should be 12” off the ground and no weeds or grasses around the pile.

6- Neat layers with thickest material on the bottom and each layer must be of the same thickness with the longest boards on the outside edges. Each layer must be separated with stickers ¾ to 1” thick and 1.5 inches wide. Stickers should be placed every 12-18” perpendicular to the lumbers length. Stickers should be in line with the one above it. Purpose is to keep the lumber flat and air moving through the lumber. Every end should be supported by a sticker.

7- The stacks should be covered with plywood, old boards and weighted. I prefer to use a covered shed for most of my product.

8- Air-drying to 20-25% moisture content takes 45-60 days of warm not too humid weather for 1-inch material. 60-90 days for 2-inch material.

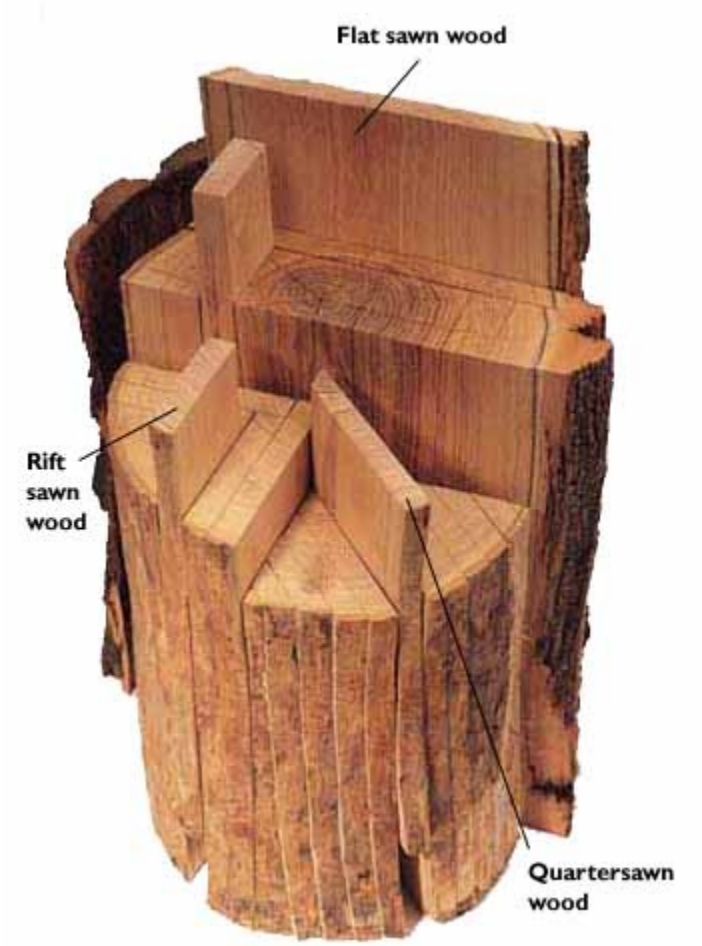
9- Drying from green is the optimal, but is also more expensive unless you build your own solar kiln. To prevent most drying defects, air-drying is preferred before final kiln drying.

10- Lumber dried too quickly will exhibit degrade. You can monitor air-dried lumber with a meter but a meter is worthless with green lumber.

Maximum Moisture loss per day.

Beech	4.5%
Birch	6.1%
Hard Maple	6.5%
Soft Maple	13.8%
Red Oak	3.8%
White Oak	2.5%
Walnut	8.2%

You can finish dry your lumber in an attic enclosure if you follow the same rules.



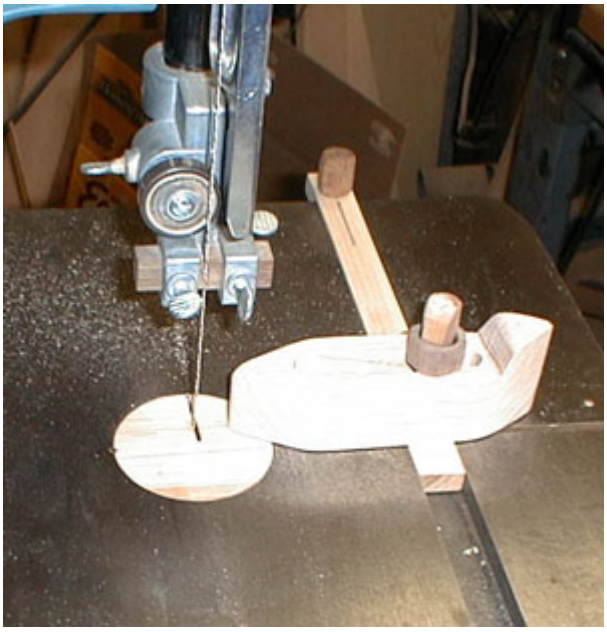
Bandsaw Fences for Re-sawing

Ellis Walentine: I used to have a fence for my old Walker Turner bandsaw, and I don't ever recall using it. My aversion to bandsaw fences stems from the fact that if your blade leads a bit, the fence should follow the angle of the lead, or else the cutting pressure can mess up the cut in one direction or the other. If you like the idea of a straight fence, you can make an L-shaped plywood fence that you clamp to the front and back of the table once you've figured out how much lead to allow for. For resawing, I prefer a "point fence," which provides a single vertical point of contact even with and parallel to the blade you're using. Clamp it to the table and you have a fixed width of cut. If the blade leads, you can adjust the angle of feed. A point fence can be an L-shaped plywood fence as tall as the piece you're resawing, with another piece screwed inside the L for clamping to the table. I use something simpler than that (see pic)...a 3 x 8 (my saw has an 8" resaw capacity) about 9" long that is perfectly square in all directions. I cut a couple bevels on one end so I can reverse it or lay it flat for shorter cuts.

Paul Anthony: I think you'll find that a shop-made wooden fence works just fine for resawing. Mine is L-shaped, and made from thick, straight hardwood. The horizontal section of the L allows clamping the fence to the bandsaw table. The biggest problem with resawing is accommodating "blade drift"--the blade's tendency to pull to one side or the other. One way of dealing with drift is to use a single-point fence, as Ellis suggests. The problem I find with a single-point fence is that--for me, at least, it doesn't yield pieces as consistently thick as will a properly set up straight fence. If your saw is tuned properly and the fence set to accommodate drift, you shouldn't have a problem resawing. Here are a few general resawing tips that may help:
Use the widest blade your saw will accept, and tension it so there is no more than 1/4-in. flex with the blade guides set at maximum height. New blades cut and track the best.
Set the thrust bearings just a few thousandths of an inch behind the blade.
Set the guide blocks a few thousands of an inch (the thickness of a dollar bill) to the sides of the blade, and just behind the tooth gullets.
Make a tall, flat, straight fence, and set it to the angle of your blade drift. (See below.)

Saw using steady, even feed pressure, holding the workpiece firmly against the fence just in front of the blade.
Pull the last inch or so through from the outfeed side of the saw.
Before making each subsequent slice from a workpiece, joint the face that will abut the fence.
Setting the drift Angle:
Gauge a line parallel to the straight edge of a piece of scrap about 20 inches long.
Carefully cut freehand to the line, stopping about halfway through the cut. Without changing the feed angle, hold the scrap firmly to the table, and turn the saw off.
Trace the straight edge of the scrap onto the bandsaw table using a fine-tipped felt marker.
Set the fence parallel to your marked line at a distance equal to the desired resaw thickness plus about 1/32 in., and clamp it in place.
Test the setup using scrap. The blade should track nicely without pulling the workpiece into or away from the fence. Adjust the fence angle as necessary to fine-tune the drift angle.

Stephen Shepherd: If you have a long fence, you can not crab into the cut if the grain causes the blade to wander. Try using a single point rip fence.



Member Project

By Bruce Bradford

The accompanying photos are of a rocking chair that that I made that will be displayed at the Kentucky Museum of Art + Design in their upcoming exhibition "Rocking Chairs: Contemporary Seating at its Best". The exhibition runs from September 4th thru October 31st. The Kentucky Museum of Art + Design is located in downtown Louisville, Kentucky.

The rocking chair measures 44" high by 22" wide with a depth of 52". This rocking chair is made of solid Bubinga with Peruvian Walnut accents.

H & S Lumber
Mr. Robert Boland, Manager
4115 Monroe Road
Charlotte, NC 28205
704.333.3130 (sponsor)

Harbor Freight USA
Mr. Martin Treadwell, Manager
3852 E. Independence Blvd.
Charlotte, NC 28205
704.569.0182 (contributor)

The Woodworking Shop of Charlotte
Mr. Tony Collums, Manager
116M Freeland Lane
Charlotte, NC 28217
704.521.8886 (contributing/sponsor – except power tools and wood)

Woodcraft
Mr. David Boyuka
1725 Windsor Square Drive
Matthews, NC 28105
704.847.8300 (contributing)

Show your CWA membership card at any of the listed places and receive benefits (except for Woodcraft and Harbor Freight USA, which are not able to provide sponsorship in the form of discounts).

2004 CWA Officers

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Next Meeting:
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At the Woodworking Shop