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The Journal

of the Guild of New Hampshire Woodworkers

Joe Barry
Linda Howarth
C Peter James
Bob LaCivita
Jim Morris
Bob Oswald
Ron Pouliot
Jim Seroskie

Reminder:
Membership Renewal Time



Jim Seroskie

Timber Framing at Homestead

Air Compressors C Peter James

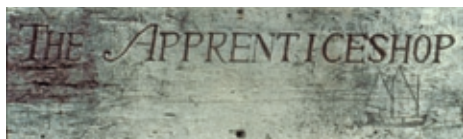
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"Bringing together the diverse interests of the New Hampshire woodworking community."



Above — The sign at the Apprenticeshop in Bath, ME circa 1978.

Right — The Susan skiff built as an Internship project.

Far Right — Custom roll-top ladies desk in walnut. Note the hidden drawer in the base.



member Profile introduces a member of the Guild — professional or otherwise — which I hope you find inspiring. — editor



Joe Barry The Education of a Woodworker

When I was asked to write a personal profile, I thought it was a bit presumptuous and that there are other guild members with more impressive portfolios than mine. As I thought about it more — it occurred to me that we all owe a debt to those who shared their knowledge with us along the way. This profile is more about those that shaped me as a woodworker than it is about me.

I was in the "college track" in high school and as such not allowed to take shop even when I had an excess of study halls in my senior year. My sole exposure was in 7th and 8th grade to wood, metals and drafting. Our teacher, "Steady Steadman," had a tremor from 30+ years of teaching middle school shop that he

controlled with nips from a bottle in his desk drawer. I thought he was a genius because he could rattle off the dimensions of our project to the fractional inch. Years later I realized he had been making the same project every twelve weeks for over three decades. More than enough reason to take up drinking!

When I was stationed at Fort McNair I found myself with plenty of time to indulge in my lifelong love of reading and eventually in need of a bookcase. There was a great craft shop on post but the ladies running it didn't know anything about using all the industrial Delta machinery. Brookstone used to advertise *Cabinetmaking & Millwork* as the ultimate woodworking bible so I bought a copy. It was less than useful after the numerous revisions and political correctness had





Shaker candlestand —
Cherry and curly maple.

diminished the useful information from what was designed as a high school text book. Despite the limited information, I was able to make a workable bookshelf without bodily injury — and I was hooked.

I got back from overseas and out of the Army in 1977 and my first stop after seeing Star Wars (Episode IV) was the Woodcraft store. It was a couple of years before I could competently use what I bought on my mustering out buying spree. At the time there were very few resources available regarding fine woodworking. It all fell into the “Make a bookcase from a sheet of plywood in just a weekend” category. Fortunately, Taunton Press had begun to publish Fine Woodworking magazine and I was able to ride the wave of the craftsmanship revival. I got the benefit of years of experience from authors like Tage Frid, Ian Kirby and Chris Becksvoort. Now I was buying woodworking books (and needing still more bookcases). James Krenov was making the book signing tour rounds and stopping at Woodcraft with every new book.

I used the GI Bill to get a degree in Industrial Arts Education at Keene State College. Carl Hoffman and Del Ogg took me under their wings and mentored me as I tried to get as much woodworking education as I could. The Dean of the Industrial Education Department was worried that we would become too specialized if we took more than 9 credits in any one area. With creative use of

independent studies, I graduated with over 20 credit hours in woodworking much to the dean’s chagrin. As his lab assistant, Carl taught me how to maintain machinery which was one of the most valuable skills I took away from KSC.

Industrial Arts had changed from what I had expected as a shop teacher. It had moved more towards “the processes of industry” and away from craftsmanship. It was a strong education in machine woodworking and mass production but weak in hand tools.

It was a revelation the first time I used a sharp hand plane at the Apprenticeshop. I did an internship at the A’shop one summer to learn boat building and I learned much more than how to build a boat. Founder Lance Lee and Master Builder Dave Foster brought a joy to woodworking and the discipline of working in a medium where sloppy work would manifest itself in accusing streams of cold water. Nothing was straight or square. It was all curves and changing bevels! That’ll challenge your skill level! At the time there was a real sense of urgency to preserve the tradition of wooden boat building because all the old guys with experience were dying without having passed on their skills.

At the ‘Shop I learned that woodworking knowledge was to be shared and not hoarded. I’ve now got degrees from two colleges and I still consider the Apprenticeshop to be my Alma Mater. It is the place that most changed my life.

I taught for several years before the program cuts finally forced me out of the classroom. Richard Starr of Hanover was never more than a passing acquaintance but his book *Woodworking with Kids* was an inspiration that changed how I taught and made me a better teacher. I have always envied him the administrative support he had for his program.

I spent a couple of years as a journeyman woodworker in commercial cabinet shops and semi-custom furniture shops. That was an eye-opener! There was no time to be precious about the work as James Krenov taught. It had to get done, done well, and done FAST!

I continued to go to weekend seminars and workshops to expand my knowledge. In the early 90’s Micky Callahan and I

convinced the suits at Woodcraft that offering classes might just be a good idea and we taught many of the first offerings.

Longer courses are harder to make the time to attend. I have attended the Institute of Guitar Research and Design when Charles Fox was still here in Vermont to learn to build acoustic guitars. It is painstakingly detailed work that is very rewarding when you first play your instrument!

Windsor chairs were interesting so I did Michael Dunbar’s sackback class and followed that up with a tutorial with David Sawyer. It is amazing how many skilled woodworkers we have here in New England that are willing to share their knowledge.

I am currently taking classes with Garrett Hack. With the assistance of the guild scholarship fund, I took a class in building a demi-lune table with Garrett last spring. Even after 30 years in woodworking, there is always more to learn. It is fun to spend time with someone like Garrett and learn how he approaches the tasks of design and construction at his level of the game. Plus, there is just the unmitigated satisfaction of a gleaming hand planed curly maple table top. — Joe Barry ■

A much younger and thinner Joe Barry at the Apprenticeshop — my hair wasn’t always white!.





SPIRAL STAIRS — How do you make wooden railings for spiral stairs? I've got a friend with an existing staircase with a wrought iron railing, who wants to add a wooden rail on top of it, but doesn't know how. — DJ DELORIE

BOB LACIVITA REPLIES: To make curved hand railings for a spiral stair requires a lot of clamps and money. If you are using a stock profile, you can buy pre-milled laminates from any good lumber yard. Most stair part companies sell this product. You are limited by the product you choose.

If you plan to do this with your own custom profile, determine your profile in a drawing. Slice the profile into about 1/8" segments. From here you have a series of knives ground for a shaper, molder or custom router bit maker. I would suggest putting a reference joint in as well, like a tongue and groove. You then saw your stock into the sizes needed for each shape. Profile each piece and make sure they fit together flat and straight.

Now you must build a form to match the stair run and rise of the stair, or you can use the stair and build a form on the treads. If the stair is not open or spaced at the landings, this can complicate matters. You then spread glue on the appropriate surfaces and clamp the whole mess to the form. You will need glue with a long open time. You unclamp the piece after 24 hours. You then scrape, plane and sand away the glue.

This is a very basic step answer. I could write a long article on the complexities of your question. Please note that this is not a project for a beginner or even an intermediate. Circular stair work is very complex. You must check all state and local building codes. When houses are

inspected, the stairs are where the most building violations occur. You would hate to have to remake this piece. I hope this is caution enough.

SEALING WOOD — When you seal a piece of wood before turning it, how much longer will it take to dry and will it still continue to dry or will the moisture stay in the wood? — MATT NEWTON

KEN KEOUGHAN REPLIES: I hope you are only sealing the end grain. This will slow the drying process and possibly double the "shelf life" of the wood. Beware, however. If the spalting process has already begun, it will continue.

RAG DISPOSAL — How do you dispose of highly combustible, oily furniture-finishing rags? I'm thinking spontaneous combustion. An infrequent user like me doesn't have much use for an elaborate, airtight metal can. And anyway, where do you empty it? I'm looking for a solution that's simple, safe, and environmentally decent. — DAVE CORBETT

GARRETT HACK REPLIES: A safe and simple solution is to hang your rags out to dry. Allow a day for poly finishes, maybe several days to a week for linseed or tung oil, or until the rags are stiff and the finish smell dissipated. They can then go into your household trash.

JON SIEGEL REPLIES: I can answer your question in two words — WOOD STOVE.

WATER BASED LACQUER/VARNISH — Does anyone have a water based lacquer or varnish that they really like? I would prefer to spray it, but a brush-on water based product would be interesting too. — ANON

JOHN WHITESIDE REPLIES: After filling the air with poisonous vapors and running the risk of explosions using sprayed nitrocellulose lacquer, I searched for a water-based alternative that would work well for the impeccable, high-gloss finish required on guitars. Fortunately there is such a product — KTM-9.

This water-based lacquer is clear, non-flammable, not known to be toxic, and dries to the touch in less than an hour. It cross-links into itself when an additional layer is applied provided that the next coat is put on within 24 hours of the previous coat. That means no sanding between coats is required. If you wait more than 24 hours between coats, then a light sanding is required (as is the case with varnish) to get the new coat to adhere well.

As is the case with lacquer, if the plan is to buff the finish to a high gloss, it is wise to wait for a week to let the finish harden before the buffing. Sanding between coats, if required, can be done without the wait.

It is possible to apply with a brush. One expert recommends foam brushes. Another favors a high-quality bristle brush. I prefer to spray it and have had good results. My spraying setup involves a good-sized compressor with an oil filter installed in the spray line. The spray gun is a simple, inexpensive, gravity-fed cup sprayer. I have had the best results running the sprayer at 40 lbs of pressure.

The material is surprisingly resistant to runs and drips; you really have to load it on to get a run or sag. Some practice is required to hold the gun at just the right distance from the surface being finished. Too far and you get orange peel, too close and you might get runs. I set up a bright raking light that shines across the surface so I can see when just enough spray has been applied.

If I am doing a series of coats, say four in a day spaced two hours apart, I do not clean the gun after each coat. Simply putting the gun in a zip-loc bag works

The Q&A archive is now available on the Guild web site. Give it a try by going to www.gnhw.org, click on *Publications* and then the *Search Archive* link. It is a terrific resource! — editor

well. When spraying is done for the day, I clean the gun out with alcohol.

The finish is absolutely colorless so my technique has been to put down any stain or dye first. Also, I always seal the wood with shellac. KTM-9 adheres well to shellac, just make sure the top shellac coat is dewaxed.

The degree of perfection and glossiness in your final product is a question of how much you sand. I typically wet-sand at 320 (or 400), 600, 800, and 1000 grit and then switch to the buffing wheel. The wheel is a floppy muslin wheel, 12" in diameter, rotating at no more than 900 rpm, and impregnated with fine abrasive. This produces a show-room quality finish than has stood up very well to daily handling.

The main drawback is expense — KTM-9 costs about \$30 a quart, though the price goes down if you buy it by the gallon. It is available from Luthiers Mercantile International (www.lmii.com). Look under "Finishing."

PETER BREU REPLIES: I have been spraying Target Coatings "Emtech EM6000" which is a water based acrylic lacquer for three years now and really like it. I was using traditional nitrocellulose lacquer before and was very tired of the powerful solvents. It is very easy to spray - straight from the can gives great results. It levels very well, dries quickly (I can recoat in 90 minutes) and the clean up is amazingly easy - just soap and water. You can't leave it in the gun overnight, but the clean up is so easy that is really not a bother.

I have done a number of large and small projects with it and won't go back to solvent based lacquers. It is available from Maine Coast Lumber (207-363-7426) www.maineoastlumber.com for \$40 a gallon.

TABLESAW TUNEUP — How does one tune a table saw for accuracy? — FRED CONLEY

PETER JAMES REPLIES: I assume that the question refers to tuning the saw to make straight and square cuts. The key is to have everything in alignment. The alignment should be done in reference to the left miter gauge slot.

First align the blade and arbor by

selecting a tooth on the blade that is tipped or set towards the left slot. Mark it with a marker or pen. Measure the distance from the tooth to the slot using a dial indicator or other accurate measuring device with the tooth at the front of the blade opening. Then rotate the blade so the tooth is at the rear of the opening. Measure the distance again. If there is a difference, adjust the trunnions until the measurement is the same in both locations. Now adjust the fence to the left slot using the same accurate measuring device. I like it dead on parallel to the slot, but some prefer to have it open slightly from front to rear, no more than 0.005".

The stops for the blade angling should be checked using an accurate square. It is easier to make a cut and measure the cut than to try to measure the blade because the blade may be taper ground and not flat. Adjust the stops and indicator strips when you have made cuts that are square and also 45°.

This was covered in an article I wrote in *The Old Saw* (June, 2006) www.gnhw.org/whatWeDo/pubDownload.html.

PRESERVING GREEN WOOD — What is the most effective way to preserve green wood for turning? Does it vary with species? Which is best — which is worst. I've used Anchor Seal on whole logs and on logs cut thru the pith but less than 50% of my logs are usable. — TONY IMMORLICA

KEN KEOUGHAN REPLIES: Cut it into turning blanks and double-coat each blank with Anchor Seal. Remove the pith before sealing. If you want to preserve a whole log, Anchor Seal the end grain (double coat), and any open cuts such as where a branch might have been cut off. Maple, cherry and ash are all pretty stable. Birch is not. Do not coat the whole log with Anchor Seal unless your wife is a direct descendant of "Old Man Seal."

PLANE SELECTION — What planes would you suggest as a minimum for basic woodworking? — ALLEN EVERETT

JOHN WHITESIDE REPLIES: In terms of approximate percentage of use, here are my choices: 1) Lie Nielsen low angle block plane (80%); 2) Lie Nielsen 4½ smoothing plane (10%). Add the other



Founded 1990

The Guild of NH Woodworkers

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10% worth of planes as your interests and needs require.

BOB LACIVITA REPLIES: I suggest buying the following planes. A low angle block plane, No. 5 jack plane, No. 4 or 4½ smoothing plane and a shoulder rabbit plane something around the size of a Stanley 93. If you are not buying them all at once, buy them in that order. When buying hand tools, price usually reflects quality. Used hand tools can be very nice and some are less expensive. With a little work you can make them look like new. If you are new to the craft, ask a fellow Guild member for help selecting planes. ■



Wood Shop Air Compressors



Have you watched Norm Abram use his brad nailer to secure a shelf or watch Terry Moore do a demonstration of his sprayed on glass smooth lacquer? Have you wondered if the time had come for you to purchase an air compressor so that you could begin to use air tools? When you went to the big box store to check them out, there seemed to be so many different sizes and configurations and what did all the strange numbers mean? I hope to take some of the mystery out of air compressors and give you some insight and knowledge so that you can choose the right one for your needs now and in the future.

An air compressor is made up of several components. The most obvious are tank, pump and motor. The tanks are rated in gallons of capacity. The motors are rated in horsepower (HP), and the pumps are rated in cubic feet per minute (CFM) at a given pressure per square inch (PSI). Compressors are usually sold by the horsepower. This can be a problem.

The horsepower ratings are often greatly exaggerated. A better measure is the actual output of compressed air. That

number can usually be found either on the compressor itself, or on the attached literature. This will allow you to compare different machines on an equal basis.

Air compressors can be divided into groups that have similar characteristics. The first characteristic to consider is whether it needs to be portable or will it become permanently hooked up in the shop. If it is to be portable, do you want to carry it by a handle so that it can go up and down stairs or can it be on wheels?

The size of the machine will determine this and it will also figure into the volume and pressure of the air output. A small unit on a flattened round tank (called a pancake tank) can be fine for doing finish nailing and blowing dust off surfaces, but the output will not run a spray gun with good results. A larger unit on wheels with a ten to twenty gallon tank may pump enough air to run most nailers and do some spray work, but probably will not run an air sander.

Large permanently installed compressors can have either a vertical tank or a horizontal tank. The tank may be as large as eighty gallons or more in size.

The vertical tank configuration is more desirable if space is a problem.

The second characteristic is the type of lubrication. Does it have oil in the crankcase like an automobile engine or lawn mower or is it “oil-free.” Oil-free compressors use sealed ball or roller bearings similar to table saw or lathe arbor bearings. The plus for this is that it eliminates the need to maintain the oil in the crankcase and also there is no oil to contaminate sprayed on finishes. The negative is that they are noisy, have a shorter service life and usually are of lower output. The noise is something to be aware of if you are planning on using it in the shop and the shop is in or near your home. Oil-free compressors usually have pumps that have aluminum housings to reduce weight and better dissipate the heat created.

Oil lubricated compressors are usually larger and may or may not be portable on wheels. The pumps may have aluminum or cast iron housings. They will run quieter and last longer. The oil levels must be maintained and the oil changed from time to time.

A Note About Our Newsletter — The Old Saw

As you may know, The Old Saw has reverted to its original role as a means of communicating the announcements, reports, president's message and other affairs of the guild.

The dues being spent in the past on a comprehensive Old Saw have been shifted to The Journal (printed quarterly). The Old Saw will be primarily an internet publication available for download off the guild web site. When published (currently planned for five times per year), it will be announced and a link provided in the weekly TouchUps email.

The cost to print and mail an eight page, not-so-high-quality, black and white newsletter runs \$5 per member per year. Sending this to every member becomes cost prohibitive in addition to printing The Journal.

Typically, six to seven percent of our membership do not have email. We intend to continue serving those members with a printed version, but if you do have access to the internet, you will benefit the Guild greatly by downloading The Old Saw instead. File sizes will be kept reasonable for those on dialup.

Beginning with the November issue, printed copies of The Old Saw will be made available only for those with email on an **Opt-In** basis only. You can do this by either checking off the Opt-In box on the member application form or by going to the members site at <http://members.gnhw.org> and adjusting your profile. The default will be that you will *not* receive the printed version beginning with the November issue unless you take some action.

Those without email will automatically continue to receive the printed Old Saw by default. — JS ■

A third characteristic that divides compressors is whether it is a single stage or two stage pump. A two stage pump is capable of higher pressures and is more efficient in most cases at pressures over 100 PSI. A single stage compressor may be a single cylinder pump or it may be a multi cylinder pump with the cylinders connected in parallel. A multi cylinder, single stage pump is used to produce larger volumes of air at lower pressures. The multiple cylinders help to balance the air flow. A two stage compressor pump has two different sized cylinders connected in series. The air is first compressed in the larger cylinder to about half the final pressure and then transferred to the second smaller cylinder to complete the compression. This method is more efficient for higher pressures. Two stage compressors are almost always oil lubricated and not portable. They are generally three horsepower and up.

Other components of an air compressor include a pressure control switch that starts and stops the motor/pump to maintain the desired pressure, several pressure relief/safety valves to prevent overloading the system should the pump

fail to shut off, and there may be included a pressure regulator/filter. The regulator is used to reduce that tank pressure to the desired pressure needed for a specific tool or operation. It maintains a constant pressure even as the tank pressure goes up and down as the compressor cycles on and off.

A very important item is the tank drain valve located at the bottom of the tank. It is used to drain the water that collects when moisture in the compressed air condenses. It is surprising how much water can collect in a short time.

The decision on which compressor to purchase depends on the air flow and pressure required by the tools you intend to use and whether it needs to be portable. Add about 50% to the determined air flow, thirty percent is to allow the compressor to cycle on and off to give it a chance to cool down and rest and 20% is to allow for exaggeration on both the tool specifications and the compressor specifications. I would also suggest that you upgrade from this if at all possible, because once you find how easy air tools can make some jobs, you will want to use it for more and more things. If you

compare an electric random orbital sander with an air powered one of the same disk size, the air powered one is half the weight and works twice as fast. You can put several horsepower in the palm of your hand with an air tool. ■





Watch for Dangerous Decibels

Protect Your Hearing

Working in a woodworking shop is fun. It can also be a noisy thing to do. I know you have heard about protecting your ears but do you understand why and how?

I am a woodworker and I also coordinate a program at the Oregon Health & Science University called Dangerous Decibels. Our program is designed to teach kids about protecting their hearing. We focus on 4th graders because they are the perfect age — they listen to us, they like us, and most importantly they learn the lesson. They are given this seed of knowledge that will be with them, hopefully, for the rest of their lives. We have found that if we target all our materials, hands-on activities and exhibits to that age group, we can present the same stuff to all ages and they get it too. Our goal is to train people early and often so that when they get to be our age they already know about protecting their hearing. They will naturally seek out hearing protection in the work place and in the rest of their lives as well.

We teach three concepts that I'd like to share with you because they will help you understand what, why, and how.

What are dangerous decibels? — Decibels are a measurement of sound just as inches and feet measure distance. According to the National Institute for Occupational Safety and Health (NIOSH), 85 decibels (dBA) is safe for up to 8 hours. That is 8 hours over a 24-hour period. That means that you can be working in a factory or other occupation where the noise level is 85 dBA for 8 hours and most people will be fine. But if you then go to the shooting range or loud club or go into your workshop after work, you add more noise to the equation.

For every additional 3 dBA, your safe listening time is cut in half. That means, if the sound is 91 dBA you have just 2 hours of relatively safe listening time per

24 hours. Don't worry about the "A", it just gives a more accurate reading of the sound.

So what is 85 dBA anyway? 85dBA is the sound of a busy street corner. Next time you are standing at one, listen to the sound. That is about 85 dBA. 91 dBA is the sound level of a gas lawn mower. A band saw is about 98 dB when measured at the ear drum.

How Loud?

Nail Gun	110 dB
Chop Saw	108 dB
Router	107 dB
15" Planer	105 dB
10" Tablesaw	103 dB
Palm Sander	103 dB
Dust Collector	99 dB
Bandsaw	98 dB
Shop Vacuum	97 dB
10" Tablesaw	93 dB
6" Jointer	90 dB

J. Vernon, Taming Woodworking Noise —
Fine Woodworking Jan/Feb 1995.

The Occupational Safety and Health Administration (OSHA) says that 90 dBA is the limit for 8 hours. This difference between NIOSH and OSHA is because OSHA is specifically for industry. Economics and politics come into play for their limits. Many countries in Europe are more conservative and put the 8 hour limit at 70 dBA.

How do loud sounds damage our hearing?

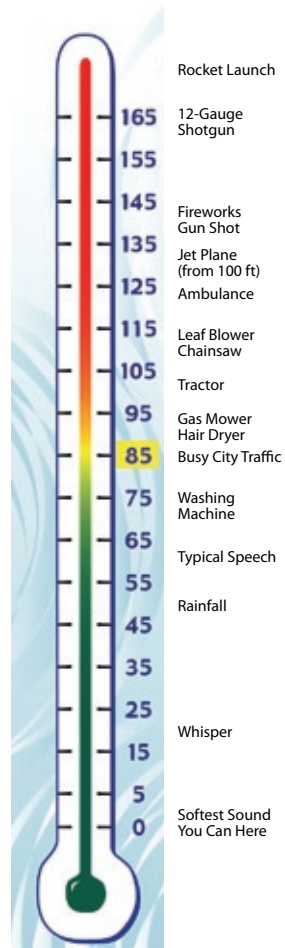
You probably already know that sound is vibration. The vibrations are the sound waves. They strike the ear drum to make it move. The ear drum makes the middle ear bones move to send that energy into the cochlea of the inner ear. Within the cochlea are tiny cells called hair cells

because of the hair-like structures called hair bundles on the top of them. There are 18,000 hair cells in each ear. The sound moves the hair bundles, which in turn changes the movement into electrical energy stimulating the auditory nerve. The signal travels up the nerve to the brain and the brain recognizes the sound.

These tiny hair cells are very important in the process of hearing. They are also very tiny (all 18,000 could fit on the head of a pin), sensitive, and delicate. If too much movement (sound) pushes them over too much or too often, they can break off. If too many of them are damaged, the whole cell dies.

Think of hair cells as you would a patch of grass. You can walk across that patch of grass and the grass bends but comes back up straight. But if you walk over the grass over and over again, or you drive a truck over the grass, not all the grass will come back up straight. Many blades will be broken. The truck is like loud noise. The blades of grass or the hair bundles bend over and are broken off, killing the cell underneath. The death of the cell is permanent. No hair cells will grow back to take its place. Lose enough of those cells and you have lost a whole frequency of sound.

It is the hair



cells that we need to protect. They have to last our whole lifetime. Even if you have already lost some of your hearing you should protect what you have left so you don't lose even more. Hearing aids will only amplify sound, they will not take the place of the hair cells you have lost.

What can you do to protect your hearing?

— There are three ways to protect your hearing.

TURN IT DOWN — If you turn it down below 85 dBA you can listen to it for as long as you want. A rule of thumb for personal stereo users — if I am an arm's length away for you as you listen to your player and I have to raise my voice for you to understand what I am saying, the volume is too high.

WALK AWAY — Just by moving away from the sound will reduce the decibel level enough to make it safe depending upon how loud the sound is at the source.

WEAR HEARING PROTECTION — Wear ear plugs or ear muffs. Depending on the circumstances, your own comfort and needs, and personal preference either of these options works.

Proper insertion of the ear plugs is important. You can get foam plugs in grocery and drug stores but there are many types of plugs available.

Foam plugs take some finesse to put in properly. Roll the plug between thumb and finger tips, pull the top of your pinna (outer ear) up to straighten the ear canal, insert the plug and hold it there for a few seconds while it expands to fill the space.

Personally, I like the flange, reusable ear plugs. They are easy to fit into the ear canal and fit many sizes of ear canals. There are large and small ear canals. Find the plugs that fit best and most comfortably for you. Again proper insertion is important. With this type of plug, pull your ear up with one hand and insert the plug with the other. As you are pressing the plug into the ear, twist the

plug slightly and it will fit nicely into your ear canal. When removing the plug twist slightly again and pull. They often come in little boxes and with strings attached so they keep clean and ready for use. You can even get them specially for listening to music. Etymotic puts out high fidelity plugs that reduce the volume by about 20 decibels but also maintain the integrity of the music — great for concerts! You can get them for about \$12.

Ear muffs are good for the shop also. They are comfortable and you don't need to insert them. Watch out if you wear glasses. The seal around the muff might not be as tight as it should be so it might allow in more noise than you want. Lots of ear muffs are available depending on what you are looking for.

My husband Gig wanted ear muffs that allowed him to hear the radio and other sounds but still protected him. I got him a pair of Bilsom Impact muffs from Howard Leight. They have a microphone to allow him his listening choices but keeps all sound lower than 82 dB.

You can get muffs that connect to your iPod or have a built-in AM/FM radio. Whatever your situation or need, there is an ear muff that will do what you want.

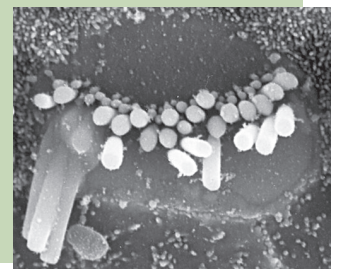
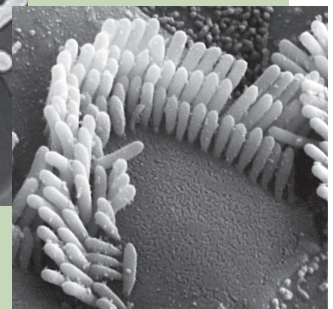
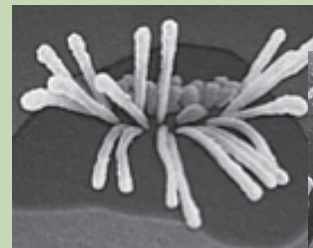
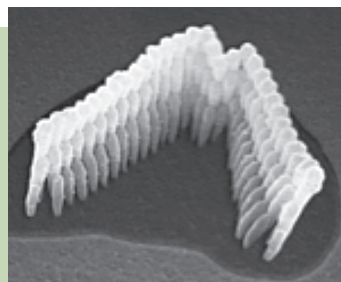
Most ear plugs and ear muffs are rated at about 25 dB which means that it should reduce the sound level by 10 - 15 decibels. It is very approximate — basically one-half the Noise Reduction Rating (NRR) rating until standards are better set. The

NRR is a single number rating which is required by law to be shown on the label of each hearing protector sold in the United States. If you are dealing with a lot of noise, you can try combining the plugs with the muffs for the most protection.

Places to buy ear plugs or muffs are safety supply stores or go online to www.earplugstore.com, or directly to manufacturers such as Howard Leight (www.howardleight.com/products) or Aeoro (www.aeoro.com), etc.

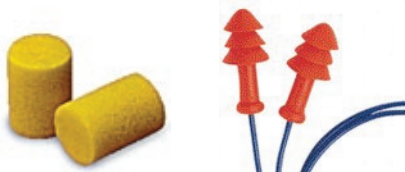
Remember to have several sets of ear muffs or plugs available in your shop. They are only effective if you use them properly and you will only use them if they are handy. ■

Continuous dB	Permissible Exposure
85 db	8 hr
88 dB	4 hr
91 db	2 hr
94 db	1 hr
97 db	30 min
100 db	15 min
103 db	7.5 min
106 dB	< 4 min
109 dB	< 2 min
112 dB	~1 min
115 dB	~30 sec
www.dangerousdecibel.org	



These pictures illustrate varying types of damage to the sensory cells of the cochlea caused by noise or drug exposure which result in a loss of hearing. Clockwise from top left:

- Normal inner ear hair bundle
- Noise damaged inner ear hair bundle
- Mildly damaged hair cell. Stereocilia are somewhat disarrayed, linkages between them are at least partially damaged impairing the function of the cell.
- Significantly damaged hair cell. Stereocilia are slightly disordered but several have fused together to form a "giant" stereocilium.



Conquer the Lock Miter

by Bob Oswald



"Lock miter router bits are unique in that simply by running one piece of stock face up, and the other on edge, an exceptionally strong and self aligning miter joint can be made. Tip: once you get the bit set-up for a tight joint, save a scrap cut to speed set-up the next time the bit is used!" — McFeely's

**Close Enough
Good fit on the corner**

The lock miter router bit is a fussy bit to set up — much worse than the dovetail. After hearing it talked about at a meeting a while back, I had to take on the challenge of understanding the setup process — and seeing if I was smarter, of course.

I had bought this router bit at the Portland tool show two years ago (yep, two) for a project that really could have used it. But the setup process did *not* go like the blender salesman demo'd, so splines were used instead.

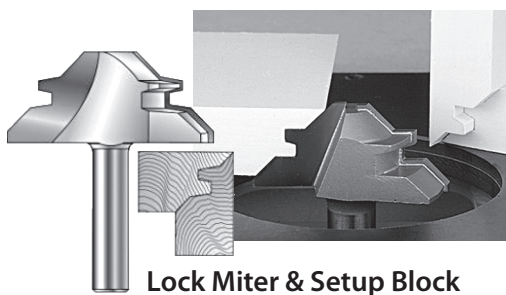
This bit cuts both the front/back and sides of the box. One set is cut against the table, the other against the fence. You can, and probably should, buy a setup block. Some experimenting with the setup block proved that it gets you close but definitely not good enough for a tight corner. You have to fine tune the setup. The bad news is that the

bit height and the fence spacing are inseparably related. And there is no good news. If you move one, you must move the other to compensate. The difficulty is which way to move what. You are striving to avoid any of the symptoms shown in Figures 2, 3 and 4.

First and foremost, marking the boards is essential — Figure 1. It will take many test cuts and you must have a system for keeping track of progress. This process eats a lot more lumber than dovetail testing. It is necessary to rip off the whole edge, not just trim the end.

When a cut is too deep, that is, the fence is too far back or the bit is too high, the results are quite obvious immediately after you start the cut. You are over-cutting the stock. The exit part of the board is not touching the table or fence. Stop right now — see Figure 2!

In Figure 3, the bit is too low



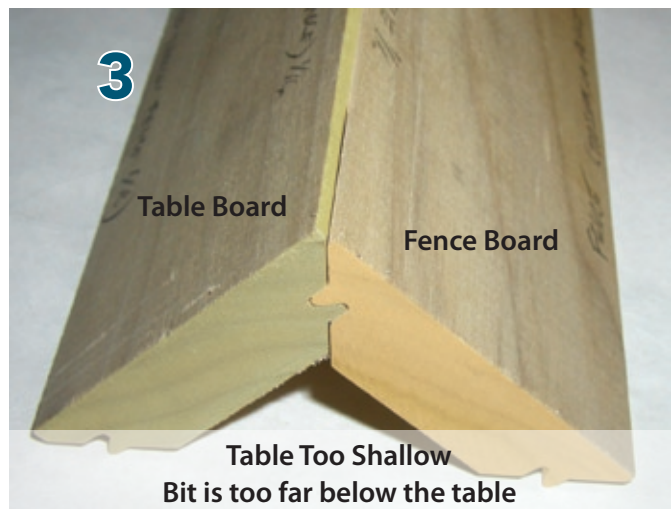
Lock Miter & Setup Block



**2
Either Table or
Fence is Too Deep**



**1
Marking is Essential**



**3
Table Too Shallow
Bit is too far below the table**



**4
Fence Too Shallow
Bit is too deep inside the fence**

A Horse of a Different Shape

by Bob Oswald

Sawhorses always look like sawhorses. Triangular legs are splayed wide for stability with a 2x4 rail for a top. What else could there be? Well take a gander at this one. It is simple to build and a million percent more functional. Ultimate, some magazines would say.

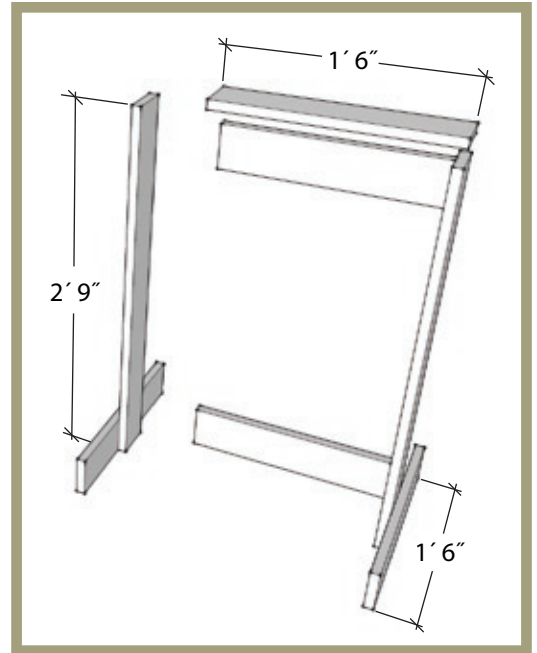
Standing upright, it's a convenient work height — 34". The flat board on top provides an excellent place to apply a clamp. No brackets or angled cuts required to build it. I used this style all summer (2007) in building a major project — a Concord stagecoach. So I made a couple and they have been used a lot more than any other horse. They are essentially a configurable work table. Clamp things to it for assembly or modification. Lay a scrap of plywood

on top to make a painting table. You can even run a wood screw through the thing that needs holding, into the horse. It only takes one horse to hold small items. On it's side, it's a different working height.

Construction time is less than an hour with some cheap Big Box 1x4 and a small handful of Kreg style wood screws.. Countersink the screws on top to provide a flush surface.

They stack well if you pay attention to the one small construction detail — mount the bottom stretcher at least $\frac{1}{4}$ " above the top of the base leg.

Use them and abuse them. Burn, sand, saw, clamp, paint on them. A year later mine has the patina of a well used coffee cup. Each blemish invokes a memory of the project that created it. ■



LOCK MITER — continued

in the table, so the fence board has a flat edge. Raise the bit.

In Figure 4, the fence is too far forward covering the bit, so the table board has a flat edge. Set the fence further back. If both are out of adjustment, both boards will have a bigger flat spot on them.

The dominant symptom appears as the widest flat spot in these photos. Adjust for

this first. Notice the pencil marks. If you don't mark them, you will likely never converge on a solution. It will be a back and forth on the fence and height process that gets very confusing.

In the photos, the flat spot was about $\frac{1}{32}$ ". So in moving the fence back for a $\frac{1}{32}$ " deeper cut, it was necessary to lower the bit height by the same amount to avoid over-cutting.

After quite a series of experiments I was able to use this process to sneak up on a perfect corner fit.

These settings are EXTREMELY dependent on the stock thickness. So when you have your good lumber planed to the correct thickness, be very sure you have prepared a good amount of test stock of exactly the same thickness. ■



much time estimating. I get asked for a ballpark 90% of the time. Only in a weak moment do I ever give a ballpark. I would rather tell the potential customer that I will have a real number for them as quick as I can. I explain to them the reasons why. We are all better off for it. Woodworking and building is quite expensive and I have had clients start to cry when I tell them what their new 2000 SF addition with hot tub and hand painted tiles from Belgium are going to cost. A very awkward moment for everybody. Once they get over sticker shock, they usually go ahead with the project.

The first thing you must do is figure your shop rate. I'm going to use an hourly rate because it seems to make the most sense for woodworking. The hourly rate is comprised of wages, taxes, insurance, benefits, all shop costs and general supplies. The wage is based on the pay of a very good journeyman. All hours are charged at this amount.

A little note on general supplies. For years I threw in some off the cuff cost for sandpaper, glue, dust masks, paper towels, etc. I did not know the cost of this and I could not say accurately that this project would take 5 pieces of sandpaper or 50. To make my life easier I tracked these cost over a period of time and put them in my hourly rate. Now it is close.

- \$28.00/hr — Journeyman rate with taxes, benefits and all the trimmings
- \$14.46/hr — Shop rent and utilities/hr based on 255 working days a year
- \$42.46 — Total shop rate

I figure I get 35 hours a week out of a worker with coffee breaks sweeping and goofing off. I take the \$42.46 multiply that times 40 hrs. and divide it by 35 hrs. and get the actual rate of \$48.53.

For our purposes, I am going to make up hourly rates, material costs and profit margins. Please do not use these on your projects because they have little to do with your or my particular needs. They are examples to show you my method.

Over the years I have worked for a number of architectural woodworking companies. I was the chief estimator at one. Each company had their own method and they all worked. It would amaze me at bid time how close the numbers would be. Knowing that the readership are usually doing one piece at a time and have no employees and very basic operations, I have picked out a table I built a little while ago.

For large projects, I usually break the project down into a project scope. I do this on jobs that have more than one item such as an architectural woodworking project. I suspect you are not doing jobs this large.

Once you have established your scope, break out one item. Normally this is done off a drawing rather than a photograph. The table has dimensions of about 26" high x 17" wide x 24" long. It is made of cherry — no sap. The china platter is supplied by the owner — so don't break it. It was an antique when it was given to them as a wedding gift back in the fifties. I next compile a quick

Estimating is a big mystery for a lot of people. It was for me for some time. My background is in woodworking and design, and other than one semester of a course named *Business for Artists*, an oxymoron to begin with, that was the extent of my formal business education. This course brought in a series of speakers who delved into their particular expertise — a business lawyer one week and an accountant the next and so forth. Most of this made little sense to me and still doesn't. The course offered nothing on estimating and not much on day-to-day real world problems which I deal with.

Estimating is an educated guess based on certainties and uncertainties. Certainties are the cost of materials, shop overhead items which include but are not limited to insurance, rent, utilities, general supplies and the like. Uncertainties are knowledge of you and your workers abilities, machine capability, weather and past history.

I usually try to do very accurate estimates. Sometimes this cannot always happen. With an accurate estimate, I can later do a material take off and I have the work tasks broken down. I know how far I can go if I need to negotiate. Negotiate means lowering the price. Pricing can be difficult because you need to be realistic. People buying one of a kind can afford them because they are generally well educated, bright and business savvy. Unlike writing a hit song, artisans usually get paid for the work once. There are no royalties and nothing off the back end. If I have to do a quick estimate, I make sure it will not cost me money to produce it. I do not recommend doing this often. You can get in trouble.

Then there are the dreaded words from a client — "What's your ballpark on this." This can break a job before you use all your special charms to sell it to a client. It is a 50/50 gamble. You might be very high or worse, very low. If you are high and they don't flinch, that is good. When the real quote comes in at a significant reduction people warm right up to that. On the other hand, if you are low and then come back with the real quote and it is exceptionally higher than the ball park, you have wasted

parts list based on gross measurements. Remember you do not have the job yet and estimating needs to be quick and concise. Most small estimates you will do for free. There should be room in your hourly rate for this but, I estimate for free unless it is a large project or a house which can take 40 hours or so.

The detailed materials list to the right is straight forward except for material waste. I have yet to see perfect wood but would like to.

I use a waste factor in the range of 20% to 55%. I base this on the material and species. If it is dimensional lumber, I use 20% unless the sizes give me a great yield. For example, I'm building pine shelves and the length is 33" each. I can most likely get four shelves out of a 12' board. Trust me, that rarely happens. Cherry and walnut are usually full of sap, I would put them on the high waste side, while the oaks and ash are in the middle. The margin is your profit margin. This can go up or down depending on how close you come to your estimate. It is your vehicle for making profit.

I use different margins depending on how much work I need. If I am busy and someone wants it yesterday, I hit it hard. First, it interrupts your schedule, it's a pain in the !@#, and I have to be under pressure. If things are slow, I have worked for wages only. You can't do this often or you will be out of business quick.

The labor estimate is broken down into a few items. The operations are the steps to make the project complete. The task quantity is the number of times you have to do the process and the hours are the number of hours or minutes it will take to do each process. Set up is the time to set up a machine to do the process which includes test pieces. The total time is just that. The amount of time it takes to do the entire operation.

I add this up, add the materials and come up with a price. I will judge the price and make the final number based on work load and my current business situation. If you are selling through a gallery they will add 40% to 50% to this number. Estimating and selling work is a large part of my job. I enjoy it and love when the customer gets more than they expected. ■

Materials	Actual	Wasted	Cost	Material
Part	Footage	Footage	Per Unit	Cost
Legs 5 – 8/4 x 2" x 30"	4.2	6.5	\$6.80/bf	\$44.20
Stretchers 2 – 4/4 x 1" x 30"	4.1	6.4	\$6.30/bf	\$4.60
Minor Axis Apron 2 – 10/4 x 5" x 24"	2.0	3.2	\$7.90/bf	\$25.51
Major Axis Apron 2 – 10/4 x 5" x 30"	3.6	5.6	\$7.90/bf	\$44.64
Bottom Plywood Birch 1 – 3/4" x 24" x 48"	8 sf		\$1.88/sf	\$15.00
Finish			\$25.00	\$25.00
Shaper Knives			\$175.00	\$175.00
Sub Total				\$333.95
Margin 20%				\$66.79
Material Charge				\$400.74

Labor	Task Quantity	Total
Operation	& Unit Hours	Hours
Drawing and Layout		6.00
Mill Stock		3.00
Turn legs	5 @ 1.0 hr	5.00
Hand Shape the Curved Foot	4 @ 0.5 hrs	2.00
4 Pattern Shaping Jigs, 2 I.S., 2 O.S.	1.0 set up, 4 @ 1.0 hr	5.00
Band Saw Curved Blanks	4 @ 0.25 hrs	1.00
Shape Blanks	1.0 set up, 8 @ 5 min	1.75
Sand Apron Molding	4 @ 0.5 hrs	2.00
Rabbit Apron Bottom	0.5 set up, 4 @ 5 min	1.00
Joinery 8 Leg Jts., 5 Stretcher Jts.	1.0 set up, 13 @ 0.25 hr	4.25
Corner Blocks, Note Curved Face	4 @ 0.5	2.00
Carve Corner Blocks for Platter	4 @ 0.5	2.00
Make Bottom, Shape and Drill Access		1.00
Turn Stretchers	2 @ 0.5	1.00
Sand Again		0.50
Assemble		1.00
Sand Again		0.50
Finish		4.00
Delivery – sometimes a material cost if it is shipped		2.00
Total Hours		45.00
Labor Rate		\$48.53
Labor Dollars		\$2,183.85
Material Dollars		\$400.74
Labor Plus Material		\$2,188.59
Estimate — Round Up or Down		\$2,190.00



by Jim Seroskie

Timber Framing

furnace extracts heat from these escaping gases, not the fire below.”¹

Al puts in a load of 3-4 logs (16" long at 12"-16" diameter) for a 12 hour burn. The coals retain enough heat that if the furnace is not needed over a two day period, it will restart itself automatically.

Anatomy of a Timber Frame — I think many woodworkers understand the function posts, sill plates, top plates and rafters perform in a structure. But a timber frame has a few other oddly named parts which have always intrigued me. So I looked them up. You can see how Al incorporated two of them into his plans on the facing page.

Girt — “A girt is a horizontal structural member in a framed wall. Girts resist lateral loads from wind and support wall cladding materials. Girts are supported by the columns and typically pass outside of one or more columns.”²

Purlin — “A purlin (or purline) is a horizontal structural member in a roof. Purlins support the loads from the roof deck or sheathing and are supported by the principal rafters and/or the building walls. The use of purlins, as opposed to closely spaced rafters, is common in some timber frame construction. In traditional timber truss construction purlins rest on the principal rafters of the truss.”²

Knee Brace — “These connections would

typically occur on all main posts. The knee braces are better used in opposing pairs as they are much stronger in compression than in tension. Arranging them in pairs ensures that one of them will always be in compression regardless of the direction of the force applied.”³

Raising Al's Wood Shed — And so, on an unseasonably chilly and misty day in July, Al attracted a crowd of 120-plus helpers and spectators as he raised and assembled a traditional timber frame to shelter his yearly supply of split logs. Although he burns just 7-8 cords per year, Al's appetite for building evolved into a plan for a “shed” designed to hold 25 cords.

Al's approach was to first place eight concrete filled tubes to support the 16' x 36' timber structure. The sill plates are 8" x 7" pine, posts and top plates 8" x 8" pine, and diagonal knee braces 3" x 5" oak. The 36' rear sill plate was spliced from two timbers. The traditional scarf joint was secured with metal bolts — is this cheating a little? When finished, stone rubble will line the edge of the foundation between the piers. The remainder will be filled with crushed stone.

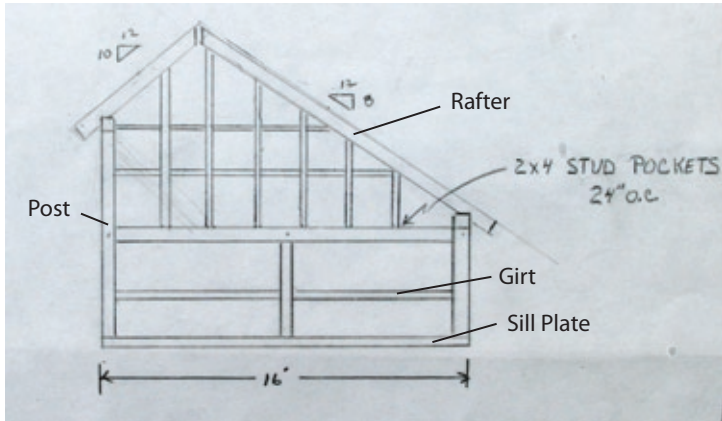
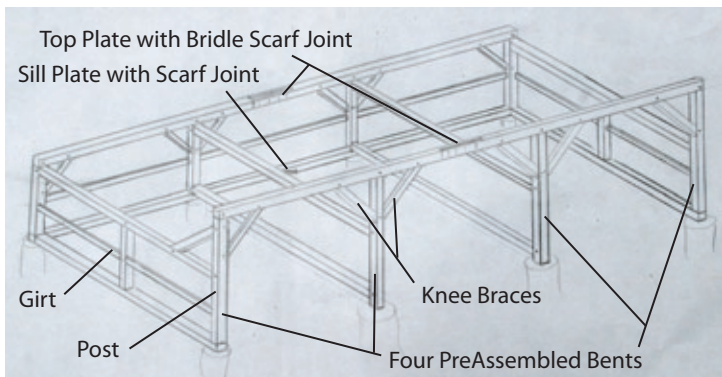
With the help of Tom DeBlauw and others, sill plates were cut and installed on the piers. However, the interesting part of the structure were the four bents they pre-cut and assembled on the ground

The barn raising that wasn't A wood shed for Al Mitchell

Al has a passion for heating with wood. His renovated home was originally constructed in 1768 and sits across the road from another passion, his Homestead Woodworking School in Newmarket, NH. This gives him the space (150 acres total) to store the whole and split logs to feed his clean burning Greenwood furnace in the winter months.

Greenwood Furnace — “The Greenwood firebox is cast four to six inches thick and surrounded by outer layers of insulation designed to keep the heat in. The natural draft system pulls air into the furnace which fans the flames and creates a roaring fire with sustained temperatures of 1800° to 2000° F. Heat from the fire is captured by a water tube heat exchanger located above the firebox in the path of the escaping superheated gases. The





prior to "barn raising" day. Tom loaned his chain mortiser to speed the work.

The brawn for a traditional barn raising may have been manpower in days gone by, but today, the heavy lifting is done by equipment. An excavator was brought in to gently lift and place each bent on the sill plates.

Temporary bracing maintained vertical while top plates were added. To fabricate the 36' long top plates, two timbers were spliced with a complicated connection I have not seen before — a bridle scarf joint. Long tapered pins were pounded in place to temporarily hold the structure together as assembly proceeded.

The final step was to replace each temporary pin with air dried shop made red oak pegs. These were simply ripped on a tablesaw, chamfered on a router table and hand planed into final shape. One end was machine sanded to create the taper for easy insertion. The other end was left square and proud.

Later this summer, rafters, purlins, studs (for the gable ends) and a roof will be added. Surely, this structure will outlast all that came out that day to witness and help raise the "barn." ■

Sources:

1. Greenwood
2. Wikipedia
3. TimberFrame HousePlans Ltd





Make a

by Ron Pouliot

Peppermill

I had the pleasure of being one of the presenters at the guild's New England Woodturning Symposium in May of this year. My presentation was *How to Make a Peppermill*, so I thought that I'd clean-up the handout to use as the basis for this article. What follows is the process I use to create a peppermill. This is by no means the only way to proceed in creating a peppermill, but they are the ones I use and with which I have had success in creating a mill for my personal use or to give away as gifts.

Making the peppermill is a combination of turning to first make the blank into a cylinder, drilling to create the cavity for the mechanism and the pepper, and turning to the final shape which you determine yourself.

The first thing to do is select a piece of stock of suitable length. Suitable in this case is a dry blank that is 1" to 2" longer than the finished mill. For this article, I chose a 3" x 3" blank of walnut that was 11" long. Mount the blank between centers and turn it into a cylinder and make a dovetail on each end so the cylinder can be held using a chuck as shown in Figure 1 and Figure 2.

To prepare for the mechanism, I drill a shallow hole into the bottom — 1 5/8" diameter x 1/2" deep — to house the hardware you see in Figures 10 & 12. The drilling operation is shown in Figure 3.

Next is a smaller 1 1/16" hole that is the cavity where the peppercorns are held. Since I'm making a 10" mill and the base is 8" tall, I need to drill a hole 8" into the base. I'm not going to do it all from the bottom because the bit might wander off the mill's axis resulting in the cavity being off center. This would give you a problem later on. So, I drill in about 5 1/2". See Figure 4.

After this operation is done, I next turn the tenon for the top and prepare to part off the lower portion of the mill. I

make the tenon 1/2" long and a little under 1 1/16" in diameter to fit into the soon to be drilled mating hole in the lower section. I cut it 8" from the bottom of the base. The tenon is responsible for keeping the top and bottom of the mill together when assembled. Figure 5 shows the tenon complete and ready to part.

Figure 6 shows the lower portion of the mill parted off and ready to drill the hole in the top of the mill for the mill shaft. The hole in the top is 5/16" although 1/4" also works.

By drilling the top at this time, the operation is still on the same axis as the drilling already done on the lower section and the tenon created in the last operation. Care needs to be taken here to not force the drill through too quickly and cause the bit to wander off center.

Figure 7 shows the lower portion of the mill in the chuck and ready to complete the drill of the 1 1/16" cavity. This insures that the hole is drilled on the same axis as the rest of the operations we've done so far. Should the bit wander during drilling, the intersection of the two drilling operations in the lower section will occur lower than where the tenon of the upper section intersects.

Now that all drilling operations are complete, I join the bottom section to the top and measure 10" from the bottom section. I make a mark to guide me when I'm parting off the top section in the next operation. Since the top of the mill has to move freely when joined with the bottom section, I use a paper or cloth shim to make a tight fit for the two pieces as shown in Figure 8. I reverse the mill by putting the bottom section in the chuck. This allows me to part the mill to the desired length. Note that I use the tailstock to hold the mill securely while I turn the mill to the desired shape. Once I have the shape I want, I remove the



tailstock and complete the top. Figure 9 shows the mill ready to sand

Once all sanding operations are complete, it's time to install the mill mechanism. Figure 10 shows the mill side by side with the mechanism stacked as they are when installed.

Installing the mechanism involves drilling two holes in the bottom to hold the grinding mechanism and the shaft, plus two holes in the bottom of the tenon. After drilling the holes, screw the drive mechanism to the tenon in the top. The rest of the mechanism goes into the bottom section in the order shown in Figure 10. Figure 11 and Figure 12 show the pieces installed in each of the sections.

Now join the top to the bottom and install the screw at the top and there you have it, a completed peppermill. Finally, add peppercorns and give it a whirl! ■





by Jim Morris

Learning about Water Base Stains

With all the talk about water base topcoats, little light has been shed on the use of water base stains. The first step is to decide which type of stain to use — pigments or dyes. Pigments tend to sit on top of the wood. They do not cause as much blotchiness but cover up the grain hiding the full beauty of the wood. Dyes tend to be the more popular form of coloring than stains. They dive into the wood showing off any figure or grain pattern, but special care needs to be given to control blotchiness.

Controlling Blotchiness — Manufacturers of water base products offer conditioner coats to be applied before staining begins, but if you don't have any on the shelf a simple receipt can solve that problem. Take your standard acrylic topcoat and mix it 1:1 with water. This will work just as well as any conditioner.

A conditioner coat is important for two reasons. It helps take care of any grain raising and also levels out the base that is being stained. Grain raising happens when sanding flattens out the fibers instead of cutting them off. As moisture is applied, the fibers stand back up. It's important to choose a conditioner with solid content so

that when the fibers stand up, the solids will hold them up to be sanded off.

When working with wood such as maple, birch, alder, cherry or any wood that has a problem with grain changing

back and forth, a conditioner coat should be used to control blotchiness. The conditioner works by sinking deep into the wood and drying there so that the wood will soak up the stain evenly. The



Two pieces of cherry from the same board and using the same stain but one has the conditioner coat and one doesn't.



Applying the water base shellac onto cherry as a conditioner coat.



Sanding the shellac with 320 grit after a one hour wait.



Applying the Golden Maple stain making sure to apply a liberal amount so the cherry can soak it up.

conditioner can be used on all types of wood to achieve a nice consistent color over the entire project.

The conditioner coat will give you a light color of stain because the wood will not soak as much stain as a piece without the conditioner coat.

Staining Wood — Once you decide on your conditioner, it's important to apply an even coat as this will regulate how much stain is soaked up. If an uneven amount is applied, then stain will be lighter or darker in spots. You can apply the conditioner with a rag, brush, or spray. If using a rag or brush only put on enough to wet the surface not flood it, any drips or runs will show up in the stain.

Spraying is the easiest way to apply the conditioner, just make sure to apply a liberal amount and get in the corners equally. Once dried sand lightly with some 320 grit to take care of any grain raising. If you choose to skip the conditioner coat, spray the wood with some water to raise the grain and then sand off any grain raising.

Applying the stain can be done in the same fashion as the conditioner, rag,

brush, or spray. When using the rag or brush method, make sure to put enough stain on to flood the surface giving the wood a chance to soak up as much as possible. Also keep the whole surface that you're staining wet so you are able to wipe the off the excess before drying. If spraying the stain on, only spray small enough area that you'll feel you have enough time to wipe off before drying. In both methods, you need too keep enough stain on or move quick enough to not let the stain dry. If you start to have dry spots, take a rag with a little bit of stain on it to reactivate the stain, then wipe off the excess. *It's important to wipe off any excess stain off before it dries or when you put the topcoat on the stain will reactivate and not allow the top coat to adhere to the wood.*

Once completely dry to the touch, the wood is ready to be top coated with your choice of finish.

Water Base Linseed Oil — Some manufacturers of water base stains use a base such as linseed oil emulsion to eliminate lapping. This is what happens when you put a coat on top of another. The linseed oil emulsion fills the grain and



Wiping the stain after a couple minutes making sure the stain doesn't dry before wiping off the extra.

doesn't allow any more stain to penetrate. Then when you wipe on another coat, the stain reactivates and controls the amount of stain the wood is going to absorb. This allows you to do a large panel or piece of furniture in sections without leaving lapping lines where you leave off. ■

The Ultima-WR Stain System is primarily designed for furniture and interior architectural applications. Go to www.targetcoatings.com for more information. To see a video demonstration by Jim Morris, go to www.youtube.com/watch?v=kMDvxquvzIM.

Members Gallery

photo by Jim Dugan

Myrl Phelps Danbury, NH

CHINESE COFFER — Cherry with custom made brass hardware by William Lowe of Owls Head, ME (22"d x 38"w x 32"h). Finished with Waterlox. I made this coffer while a student at the Center for Furniture Craftsmanship in Rockport, ME under the guidance of David Uphill-Brown. I went to the school with an interest in using Asian joinery which I had never done. I found a picture of this piece in a book and developed my own dimensions and joinery in order to build it. The coffer took approx. 500 hr. to complete.



William Thomas Rindge, NH

KETTLE STANDS — Based on an original carved by Samuel McIntire ca 1800. They were commissioned to accompany a pair of antique sofas believed to be carved by McIntire's son, Samuel Field McIntire — Mahogany 28¾" h x 11½" d.



photos by Bill Truslow

Peter Bloch New London, NH

MISSION STYLE LIGHTING FIXTURE — A collaboration with David Little, blacksmith from Meredith, NH. Two spalted and insect-tunneled aspen lampshades. Overall length is 80" and the lampshades are 18" diameter. Commissioned for a home on Lake Sunapee, design concept by the client's architect.

