

OREGON WOOD WORKS

THE PRESIDENT SPEAKS

ARIEL ENRIQUEZ, PRESIDENT

The state of the Guild is (to borrow a tag line from Uncle Freddy) My-Te-Fine! Witness these facts and you'll agree. We're getting it right.

Our monthly meeting, hosted this past week by Barbo Machinery, drew upwards of 75 members, guests and visitors. Yes, it takes more than gray skies and soggy roads to keep our people away from Rand Robinson's hangout. From his Saw-Stop™ demo ("cut the wiener!") to sharing the word about the Byrd Shelix helical cutter head on the Powermatic planer, he kept our people engaged and enthralled. Carrying the widest line around of serious machinery for woodworkers backed by factory-authorized technicians for service when you need them, it's no surprise that each time we meet at Rand's house, the joint is full! We're getting it right.

On the same night, our Board acceded to a request for assistance from a local non-profit agency. The need: stout dressers for a shelter for homeless families. Yours truly makes the announcement to the membership and passes

out a blank sign-up sheet for volunteers to help build this stuff. "Will they come?" I wonder. The sheet finally finds its way back to me and what do I find? Twenty-one names on it! We're getting it right.

While so much is going well, there is still work to be done.

We have two months to go until the Gathering of the Guilds Show. This combined effort of artisans and crafts folk will once again produce the largest single-weekend craft fair under one roof presented anywhere in the country. The show began 30 years ago by the Oregon Potters Association. It has evolved into a uniquely Oregon event, representing works in clay, metal, wood, glass, weaving and beads. We are very proud to be a part of it. For our Guild, the show serves three main functions.

(Continued on page 2)



Inside this Issue:

<i>LM: Barbo Machinery</i>	2
<i>Call for Woodworkers</i>	3
<i>Shop Teachers Wanted</i>	3
<i>Drum Sanding 101</i>	4
<i>What is PayPal</i>	6
<i>Website Wanderings</i>	6
<i>Sharpening IV: Grinding the Bevel</i>	8

NEXT MEETING — WEDNESDAY — MARCH 21, 2012 6:30 PM

TITEBOND, A BIT ABOUT GLUE

Franklin High School, 5405 SE Woodward Portland, OR

We recently heard about screws for fastening wood. Most of us use glue, and we have our methods, what works for us. There are things I'd like to know more about from the experts, like clamping pressure, cure time to certain strength levels, bonding to various materials.

So join the world's leader in chemical attachment methods. Jerry Walters of Franklin International will give us a little tour of adhesives and coatings they offer. This is the ideal meeting to bring your questions about adhesives. Jerry will have a short presentation and then focus on some of our special needs.



Directions: Crossing the Ross Island Bridge eastbound, take SE Powell to 55th, a left turn lane a couple blocks past the light. North to SE Woodward 1/4 mile to the end. Left on Woodward a block; the shop is on the corner on the right.

Social time begins at 6:30.

Board of Directors meeting at 5:30.

LAST MEETING: BARBO MACHINERY

BOB OSWALD

Rand Robinson, owner of Barbo Machinery, had a grand turnout tonight. The usual almost 100 guild members filled the showroom floor. So many tools, big and small, industrial and hobbyist. We look at what fits our space

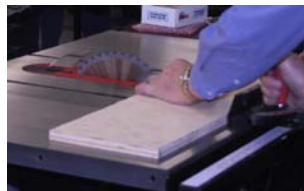


and our wallet, and we dream bigger when we visit Barbo. In business for eighty years in Portland,



saw the demo, sim-coming in ning saw blade.

Thud. It's over in three thousandths of a second.



famous hot dog ulating a finger contact with a spin-



Helical cutters are replacing jointer and planer knives in many industrial applications.

Because of their small size, they can be made of carbide at affordable prices. Several cutters placed side by side, in a spiral to allow overlap, form the cutting surface. Easy to replace, with four sharp edges to use before any kind of maintenance is required, it's pretty impressive for the smoothness of cut.

And true to his TOTAL customer service attitude, plenty of cookies and coffee to go around. Thanks a lot Rand, and the tech support folks who stayed late to answer questions.



Rand lays claim to fifty or so years, having started when he was nearly a child.



Today, Barbo is a major supplier to the industrial level woodworking consumer.

Rows and rows of grand tools, bandsaws, shapers, drill presses, on and on. But along side each mega-machine is also a hobbyist level machine. They cater to all skill levels.

Two featured demonstrations included the SawStop and planers and jointers with helix cutters. Rand talked at length about the features of SawStop, clearly a passion of his. A great safety device that most of you know about. And we

PRESIDENT (CONTINUED)

(Continued from page 1)

First and foremost, it is a venue for our professional members to put their work before thousands of visitors (projections of 7,000 in 2012) to the free-admission affair. Pros from all over Oregon and Washington are also invited to take part. Considering that it was professional woodworkers who gave birth to our Guild, it is very gratifying to see that we've come to a time when every one and two-man shop now has a way, at a very reasonable price, to reach such a wide market.

Secondly, the event now gives us a public venue for our annual Intra-Guild Show. Last year's event drew some fantastic work and we're expecting an even wider presentation this year. This is something for all of you, regardless of experience. I know from the record that you people have taken lots of seminars (80+ in 2011), practiced your skills and brought some beautiful creations into the world. Now I want to urge you to share these works with the rest of us and get yourself into the Intra-Guild Show. There's no fee to enter (duh!) and buckets of good camaraderie to be had from it.

Finally, we are holding the Second Annual Student wood-working exhibition for high school students. We're proud to share the stage with these young woodworkers who except for a few remaining schools out there, have seen so much of their industrial arts education budgets face cuts after cuts in the recent decades. Most boomers will agree that shop classes were enormously effective in giving young people useful and basic life skills, no matter where our career paths would take us. It's in that vein that we strive to encourage the development of wood-working skills for youth. Keep getting it right!

2011 FINANCIAL REPORT

ROGER CROOKS

2011 was a good year for the Guild. Our membership fees of \$10,163 funded a fantastic year. In spite of a couple of large one-time charges we basically broke even with a net loss of \$121. One time charges for 2011 included reinstatement of our state corporation status and we achieved 501-c3 status with \$1,150 in license fees. We also had \$750 in trailer maintenance.

Our extremely successful expanded seminar program came in with a small loss of \$266, mostly because of underestimated expenses. The big ticket item last year was a loss of \$2920 for the May Guild show due to lack of booth sales.

After a detailed analysis of 2011 expenses, the show and education committees have made adjustments in plans to address these problems in 2012. We ended the year with \$21,902 in the bank, a great start for a successful 2012.

GATHERING OF THE GUILDS: CALL FOR WOODWORKERS

ARIEL ENRIQUEZ

The Guild of Oregon Woodworkers invites you to participate in the Gathering of the Guilds on May 4th, 5th, & 6th, at the Oregon Convention Center in Portland, Oregon.

This event brings together six major Guilds and their artisans from all over the Pacific Northwest. This is the largest single-weekend craft fair under one roof presented anywhere in the country. Craft guilds represented will include ceramics, wood, metal, glass, weaving and beads. The event is admission-free to the general public.

This year marks the 30th anniversary for the founding of this event by the Oregon Potters Association. Their annual Ceramics Showcase is now the nation's largest show and sale of pottery, sculpture, garden art, home accessories and other works in clay exhibited in over 150 booths. This is an established happening, always on the first weekend in May, drawing well over 20,000 visitors over one weekend.

By combining our resources, our Guilds have secured the talents of a major NW advertising/PR firm and we fully expect, through print and radio advertising, to see even larger attendance figures than last year.

Our woodworking area will include the additional draws of the GOOW annual intra-Guild Show, our annual woodworking competition as well as a Student competition. What this means for you is more bodies passing by your booth!

Good people, this is a proven, successful, retail craft sale and should not be missed by any serious crafts person. Frankly, you can either stay in your shop for that weekend and possibly see a handful of visitors or you can get in the show and greet thousands! It's that simple.

Booth spaces are 10' X 10' and the fee is \$400 each. Half-spaces are limited but also available. Larger spaces can be arranged for folks wishing to share space. The fee for woodworkers not belonging to our Guild is \$455.

To get your reservation or to get answers to any ques-

tions you might have, please feel free to contact me via email or phone. I look forward to seeing you at the Gathering of the Guilds!

Ariel Enriquez. 503-286-4828, arielyphyllis@gmail.com

For the Professional:

Rent a 10x10 foot booth space. Multiple adjoining spaces are available but please make that commitment early to facilitate planning. A \$100 deposit is required soon to hold a space for you.



For the Guild member hobby level:

The Guild is sponsoring one booth space to be used to display items for sale. These are pieces built by hobbyist Guild members. Find out if there's a market for you.



For all Guild members:

All members are invited to enter the Eight Annual Intra-Guild show. Categories are Advanced, Intermediate and Beginner. Professional judges pick the people to receive awards and ribbons. The George E. Du-Bois Best of Show Award awaits the best of show winner.

For the High School Student:

Last year's participation by Gaston and David Douglas High Schools was extremely well received. Students had a chance to see professional woodworkers and display their projects to the public. Event attendees loved seeing the students projects, and loved being able to talk to some of them.



For all categories above, contact Gig Lewis asap at 503-646-7056 or gigin-

SHOP TEACHERS WANTED

LARRY WADE

We Love Shop Teachers - the Guild Board recently formalized its practice of supporting wood shop teachers by creating a new member category called EDUCATOR and waiving their dues. They are a dwindling breed, and rather than bemoaning the fact that schools are deemphasizing such programs, let's do something about it. If you know of any schools (middle, high, college) that have shop teachers please send an email to our membership chairman (larrywade@comcast.net) with whatever information you have and we'll locate the teacher and invite them to join.

GUILD IS NOW NON-PROFIT

Many of you have heard, but the Guild of Oregon Woodworkers is now a public charity exempt from federal income tax under Section 501(c)(3). Contributions to the Guild are deductible under Section 170 of the Code. The Guild is also qualified to receive tax deductible bequests, devises, transfers, or gifts under sections 2055, 2106, or 2522 of the Code.

Our authorization is DLN: #601257063 effective August 8, 2011.

Consult your tax advisor regarding your specific situation.

DRUM SANDING 101

TIM HALLER

So you finally took the plunge and bought that cool new drum sander, eh? Now what?

I've heard several complaints about getting good results from a drum sander, so I thought I'd share a few things that I have either learned the hard way, or applied from my previous life as a machinist.



Once you have the machine assembled, you need to adjust the drum and the conveyor bed to be parallel. This is the single most important step, and I suspect that all too often it is done improperly. The bottom line is that if the drum and bed are not parallel, your sanded boards won't be either. Make sure you understand how the adjustment is made, and take the time to get it as close as possible. The payoff will be seen in the results of your diligence.

For all practical purposes, a drum sander is nothing more than a surface grinder for wood. The key to surface grinding is that at ZERO LOAD, the drum should be parallel to the bed. It's a matter of simple physics (is that an oxymoron?) that when it is under load – i.e. removing any significant amount of material – the drum and the bed are going to be pushed away from each other, at least a little bit. This is especially true of open-end models, which move more, the closer you get to the open end. It applies to closed-end models too, but in a different way.

For the sake of argument, let's assume that you have set the drum and bed to be parallel at no load. When you are sanding a board (non-zero load) in an open-ended machine, the drum and the bed are going to be pushed away from each other. Finer grits may actually push harder, depending on the depth of cut. The result is that when your board comes out the other end, the faces are not parallel, side to side. They may only be out .010" in a 8" wide board, but that's not acceptable to me. The answer is to run it through the sander again, without changing the setting or the work piece's orientation – i.e. do not turn it end-for-end, that comes later. Depending on the situation – e.g. sanding an end-grain cutting board – you may have to run it through several times at this setting, but eventually it will flatten out. In the world of metalworking, these are commonly referred to as "dead", "no load", or "spark out" passes.

If you want to prove it to yourself, try this. Pick a wide, hard board that you know has flat, parallel faces, and run it through. Take a moderate cut – enough to clean the entire face of the board. When it comes out, make a few pencil lines that go all the way across the face you just sanded. Now send it back through in the



The first two dead passes (80 grit) removed all of the pencil marks, but...

same direction you did on the first pass, but don't change the depth setting. Don't be fooled if it takes all of your pencil marks off the first time or two. Just remark it



the third one reveals the truth about hard maple!



Two more and it's all cleaned up! Finer grits should get those numbers even closer.

and re-sand at the same setting. After a pass or two, you should see is that it is still cutting more heavily at the edge nearest the open end, while

leaving the pencil marks at the edge closest to the closed end.

You should also find that if you take another pass or two at the same setting, it will eventually clean up completely. As the load on the drum and table decreases, they will 'relax' back to their parallel position and remove that last little bit of material, making the board parallel end to end and edge to edge. On particularly hard woods, I will also turn the board end-for-end, and run a dead pass or three there, as well.

The other problem that using this process will greatly reduce is variation in thickness from one board to the next. This is true of both open and closed end machines. As we all know, no two boards are the same. If you just feed them through the drum sander, even taking a light pass (say ~.005"), you will see differences in the final thickness of each board. However, a properly set up drum sander should be able to consistently produce boards that are within .005" (or less) of each other in thickness. In fact, this is the primary reason for running dead passes on a closed end machine.

Regardless of machine type, listen carefully as the board goes through. Once you've done this a few (thouSAND) times, you'll be able to tell when it's done cutting by the sound it makes – even through your hearing protection.

Bear in mind that if you're removing a lot of stock – say you're working a piece of highly figured wood that your planer would tear to shreds – you should throw in a dead pass or two for every half turn of the depth crank (~1/32"). Again, listen carefully to what your machine is telling you.

Another thing to watch is your paper. When I change sandpaper, I have a process that I follow rigorously. The first time I use a new strip, I run a few light passes on a scrap and check for stretching. Sandpaper will stretch, with use, especially the first

time out.

Install the paper according to your machine manufacturer's instructions. However, there are three things that they often leave out. 1) Clean the drum EVERY TIME you change papers; 2) check the BACK side of the paper for any debris, before you wrap it; and 3) you may ignore the printed arrows on the paper. Those are ONLY relevant in a continuous belt. You can actually extend the life of your paper by reversing the way it's wrapped, unless it's badly burned or otherwise damaged. Check the drum for bits of resin, burrs, etc. It doesn't take much of a 'bump' under the paper to cause serious burn problems. The same goes for dust, wood chips, etc. that may be stuck to the back side of the paper.

On my Performax (now Jet) 16-32 Plus, the paper is always attached to the left end of the drum first. I aim to leave ~1/8" of the drum showing outside of the first wrap, because this seems to work out on the other end (based on a factory-cut strip – YAMMV). Once the first wrap is on, carefully feed the rest of the strip onto the drum, leaving a tiny gap between wraps – just enough to see the drum between them. Then, insert the end into the tensioner on the right end of the drum. Next, re-tighten/align each wrap, starting at the left end of the drum and pushing any slack you find toward the right end. Make sure that your wraps DO NOT overlap. If needed, re-clip the tensioner end.

Finally, I take one additional step to ensure that everything is where it should be. I turn the drum on, and slowly run a dressing stick down the drum from left to right a couple of times. The direction is important, because you want any slack to get pushed all the way to the right end where it will be taken up (within limits) by the tensioner. Then I turn it off, check the wraps one last time, and I'm ready to start sanding.

Sandpaper isn't cheap, so you want to make the most of your investment. In fact, your investment is where it starts. Buy GOOD sandpaper! I look at it this way, "You only cry once when you buy quality." I won't mention any names, but I did notice something on the back of the 'factory' strips that came with my Performax. The way to save money on good sandpaper is to buy rolls. A 50 meter roll of 3" paper (~\$85) yields ~21 strips for my sander. That's ~\$4 each, compared to \$10+ each for pre-cut strips. If you have a friend with a drum sander, split a few rolls and you both save!

A template will help tame those unruly coils of paper, and make it easy to get the length and taper angle right. Think of it as an anger management exercise. To make a paper cutting template (assuming you use 3" paper), rip a 3" wide strip of 1/8"

MDF, and cut it to the length of your sandpaper strip. You may need two pieces of MDF, duct taped end-to-end, if your sandpaper is longer than your MDF. Carefully trace the tapers from a 'known good' sandpaper strip on the ends. Cut and sand to your lines and you're done. Be sure to clearly mark the proper template AND sandpaper orientation on your template!

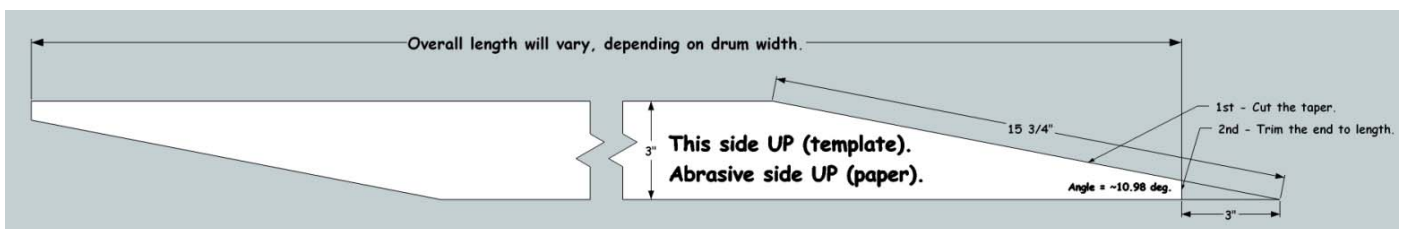
Once you have cut the correct taper on the end of your roll, use a spring clamp (or a friend, if you have one) to hold the paper in place while you cut the taper on the other end. DO NOT cut your strip to length first! Make the tapered cut first, and as straight as you possibly can. Then trim it to length. After you have cut the first strip from a new roll using your template, one of the tapers is pre-cut for the next one (IF you cut it straight). If you find that your strip is a bit too long, trim both the tapered edge and the end. Trim your template the same amount.

When it comes to sanding, glue is not your friend. Take the time to remove as much dried glue a possible BEFORE you start sanding. Glue 'dust' tends to clog the paper, which leads to burning. Those black stripes are difficult to remove once they appear – from your board AND from the sandpaper. The same is true of resin or sap pockets. Remove as much as you can with solvent. As you are sanding, get into the habit of checking your paper frequently and dress/clean/replace as needed.

Adequate dust collection is important too, and not just from a safety standpoint. The more air you are moving, the more heat you are removing. The more heat you remove, the less likely you are to trip the overload switch and/or burn your work piece. It may not completely eliminate either one, but it certainly helps. You can get away with adapting your shop vacuum to the 4" dust port, but plan on cleaning the filter A LOT! Take my word for it. A 'real' dust collector works much better.

Getting good, consistent results from a drum sander requires patience. Remember, this is NOT a planer. It was never meant to remove an eighth of an inch per pass. Not gonna happen. No way, no how. Don't even ask! On top of that, you have to decrease your depth-of-cut as you go to finer grits. At 220-grit on hard maple, for example, I advance the crank 1/12 of a turn or less on each pass, and I take several dead passes every half turn. On end-grain cutting boards, I run three passes at each depth setting – a 'rough' pass, a dead pass the same direction, and a dead pass with the board flipped end-for-end. It's a slow process, but it works.

The bottom line is that you'll know when your drum sander is happy by the sound it makes, and by the smile the results will put on your face.



This template will work with any open ended Performax/Jet drum sander except the 22-44 Oscillating model.

WHAT IS PAYPAL?

BOB OSWALD

With the new ability to register for guild classes on line, it is much easier and safer for the class coordinators if members pay using PayPal, instead of sending checks. Some people don't use it, or are leery of internet banking. Read on.

What is it? PayPal is a way to make payments on the Internet. It is a safe and guaranteed way to buy things like Guild classes, or a disk sander from Amazon. This system has been adopted by the whole world.

I've heard a reluctance from some of you to use this system. "It's too complicated", "I don't trust it". This article is intended to help you understand how to use it and trust it. When I first signed up for an account, I was a little nervous. I had to give them direct access to a checking account. But it's a totally accepted fact, hundreds of millions of people and businesses use this system every day, all over the world.

What's so great about it? It's like a credit card but you configure it to take the funds from anywhere you choose, a checking or debit account, a credit card. PayPal extracts the funds from that account and pays the seller.

PayPal is a central clearing house. You apply for an account, just like any other banking situation. They ask where you want the money to come from. You give them the account information that lets them connect to that account, an account number and a routing number.

To make sure it works properly and it is really you, they deposit a few cents into that account, two different amounts. They tell you to go to your account on line and find those deposits. They don't ask you for passwords or account names. You go on your own. You write down the amounts. Then you go back to your PayPal account and tell them the amounts of those deposits. That makes the connection and from then on you can pay using PayPal. So you are in control of the whole setup process. There's no automatic computer stuff behind the scenes.

If you have PayPal apply the charge to your credit card, you still get your monthly credit card statement and you still pay that bill the way you always do. PayPal just becomes that single steering wheel that lets you purchase things.

The Guild receives a lot of membership dues via PayPal. With the new ability to register and pay for classes on line, it can greatly reduce the hassle and risk of coordinators having to handle so many paper checks.

Handling checks causes us worry. It means we have to a) not lose the check b) get it to the right people c) address an envelope and stamp it, (extra cost to the Guild) d) get it to the post office e) get reimbursed by the guild for the stamp e) log the payment into the accounting system. PayPal really helps us. You can too, by using it.

WANDERING THE WEBSITE

BOB OSWALD

Professional Member Image

Enhance your presence on our website. Paid up professional members are listed on the professionals page. Put a photo of yourself and a description of your work in your profile.

The following information is displayed on the professional member page.

- Column 1—name, phone and email
- Column 2—business name and description
- Column 3—photo of your work (photo, project)
- Column 4—personal photo (photo, contact)

Where do you set it?

At the login area, click on "View Profile" On your profile page, click "Edit Profile"

Photo, Contact— Load a personal photo. Make it a SMALL size, not the huge photo taken on an iPhone. If you don't know how, write to me.

Business Description—Keep it short and to the point, one or two succinct sentences describing your business.

Photo, Project—upload a photo of a favorite piece. Again, make it a SMALL size.

For help, I'm at TimberCreek08@gmail.com

Email a Member

It's easy to communicate with another Guild member. Log in and go to Members Only. Select the Current Member Directory report. Without hitting any other key or mouse, just type part of the members name. For example "derso" will match with anyone who has Anderson in the name.

Click on the blue highlighted members name. Their profile will be displayed, including a button "Send Message". Click it, write it, send it.

Forums: What's Goin' On?

Many of you asked for this forum feature, so here's how to take better advantage of it.

Go to a forum page of interest. Click Subscribe. You will be notified of anything happening in that forum. The default reminder is once a day. After you have subscribed, you change the frequency OR delete it by editing your profile, and selecting the "Email Subscriptions" tab.

Woodworking Links, broken

The woodworking links page has not been maintained, so some of the links don't work. Let the Administrator know if you find one.

CLASSES

Basics of Fine Woodworking

Instructor: Various

This is a 10 class course on the fundamentals of fine woodworking. You will learn the proper use of the common hand and power tools, project design, construction methods, and finishing. Each class is taught by a different instructor, usually in their own shop. The small class size of five assures that there is plenty of time to ask questions and share tips and techniques. The cost is \$175.00 total for all classes.

Two sessions are currently being organized.

Session 12-2 Starts March 9, 2012

Session 12-3 starts April 21, 2012

Register on-line or contact Dennis Dolph at damd@xpirt.net or 503-238-6319

Knife Hinges

Instructor: Dennis Rodrigues

March 17, 2012. 9:00 AM to 1:00 PM.

\$65 for members. Location: Sherwood High School.

Well-made and accurately installed knife hinges can add an elegant touch to a finely crafted cabinet door. Come learn about these hinges and how to install them for a classic fit. The course will include a general overview of door types and hinge options. The fee includes lunch and a set of quality brass knife hinges (\$24 value)

Register on-line or contact : Ed Ferguson, edbikes@comcast.net

Scroll Saw Artistry

Instructor: Terry Foltz

March 31, 2012. 9:00 AM to 4:00 PM.

\$45 members. Location: Terry's Shop, Battleground, WA

Terry Foltz's scroll saw pieces are amazing because of the level of detail that he gets out of the wood. This is what sets him apart from other scroll artists.

This class will cover the Fundamentals of the scroll saw, pattern design, wood selection and prep and re-sawing techniques. Learn basic shape cuts and then create a pattern for a small take home piece.

Register on-line or contact
Jenny Jecmen 503-760-7276 jj@pacifier.com

FREE — WANTED

Wanted - Wooden Gearheads - if you or anyone you know has built a wooden gear clock or one of Clayton Boyer's pieces of kinetic art, please send an email to larrywade@comcast.net. I would like to mesh gears.

Free— a piece of 1/4" plate glass, 36" square. I can't stand to haul it to the landfill. Bob Oswald 503-985-7137.

PROJECT CLASS: Hall Mirror

Instructor: Bill Bolstad

May 19th & 20th, 2012 \$160 for Alder

Location: Bill's shop in Jefferson

This class is part two of a potential "ensemble" consisting of a Hall Table and matching Hall Mirror. Bill will help you modify the basic structure to match any furniture style you wish. Bill will also demonstrate how coving is created, how to make a corbel; as well as half-lap joints, and miters done both on a chop saw and table saw. You will construct your Hall Mirror frame using Alder and supply your own mirror (approx. 24" X 30").

Register on line or contact Ed Vachal.
edvachal@gmail.com or 971.275.3962

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WELCOME NEW MEMBERS

BOB OSWALD

Welcome to the Guild new members-Michael Molinaro, Jon Dickover, Robert Schwoeffermann, Frank Howarth, John Aten, Joan and Richard Haefle, Gary Sundquist, Robert Tilly, Dawn Anderson, Ed Larson, Tosh Dickenson, Wade Sims, John Stearns and Robert Theiss..

We're happy to have you with us. Do say hello to an officer or two at the next meeting. We like to know who you are.

SHARPENING, PART IV: GRINDING THE BEVEL...

JEFF ZENS

...and the Straight Scoop on Angles

At this point in the sharpening process the back of the tool should be flat and polished. You shouldn't see any errant scratches running the long way on the back of the tool - the polished surface should extend from side to side, and run off the end of the tool at the bevel.

Now it's time to discuss our approach to the beveled face of the tool.

There are two methods for honing the bevel to get it into the same shape as our nicely polished back. The first approach is to hone it flat - in other words, no grinding. This technique may appeal to a woodworker with an aversion to the grinding wheel, and there's no reason why a sharp edge can't be obtained this way. It may take you a bit longer to hone, because you'll be removing more steel. Changing the angle of the bevel in relation to the back will take much longer than at the wheel - but it can be done. I'll discuss the technique later in this post.

Grind Angles

Here are a couple of facts.

- You own your tools.
- You can put whatever bevel angle on the tools you choose.
- The tool manufacturer didn't know what you would use the tool for when it was fabricated. Consequently, the grind angle on that tool may or may not be the right one for your work.

If you don't like the results you get from the tool's bevel, you can change it again.

Most of these little "pearls" come from my own experience, and from teaching sharpening classes to others. I have found a general reluctance to grind tools, and I'll be the first to admit it can be scary and intimidating. I've had students who tell me they would rather use a dull tool - or buy a new one - rather than grind. That fear is the reason you shouldn't practice grinding bevels on a \$50.00 Lie-Nielsen bench chisel or on a valuable antique. Practice first on the one you've used to open paint cans, or buy one at a flea market for \$5.00. If you have replaced hand plane irons, save the old ones for practice. Get the technique down first, then grab the Lie Nielsen.

There are a lot of books written about sharpening, and a long discussion about the "proper" or "correct" angle at which a tool should be ground. You'll often read that the proper grind angle for a tool used in softwoods is about 25 degrees, and about 30 degrees for hardwoods. That's all well and good, but what if you use your tools for both? And what about those softwoods that are harder than some hardwoods, or hardwoods that are softer than some softwoods?

Here's the reasoning behind varying grind angles. Think about a razor blade: very acute angle on the edge; very sharp, but not suitable for working with wood. Why? Because the edge is too thin, and therefore it's too frail. Now think about a chunk of steel with an end that is cut at right angles to the sides. Picture a piece of bar stock. Very durable end, right? Not too likely you'll chip that flat end - also not much good as a cutting tool. The optimal angle for cutting wood is clearly somewhere in between; but at what angle do you find the optimal edge?



That's the million-dollar question. Here's the one rule everyone agrees on: less steel behind the cutting edge makes the edge more delicate than more steel. Examine a mortise chisel, and you'll see it is ground at about 45 degrees. Now look at a paring chisel: that might have a grind angle closer to 20 degrees. The two tools are used for much different purposes. That nice sharp paring chisel wouldn't last too long chopping out a bunch of mortises. And the big heavy bulk of the mortise chisel won't give you the fine control to shave off .001" or .002" from a tenon.

The "rule" that hardwood tools get a 30° bevel is simply aimed at beefing up the steel behind the cutting edge to make it more durable in "harder" woods. The opposite is true for the 25° bevel for softwoods. We talk a lot more about this in class.

More than anything else, the grind you choose really is a matter of preference that is related to the work you expect the tool to do for you, and how often you care to re-hone. An angle of 20° or 22° is fine for your paring chisel. Most of my bench chisels - and plane irons, for that matter - are ground at about 27° or so. I couldn't tell you precisely what the angle is. It's clearly a compromise between the extra sharpness of a very acute angle, and the durability of a less-acute grind. In your own shops, experiment a little bit, and don't be afraid to make changes. They are, after all, your tools.

Now for the Why. There are a few reasons to hollow grind your tools, which is what grinding with a wheel is commonly called. Both are related to simplifying your life. The first one is simply that when it is time to change the bevel angle on a tool, grinding is the most efficient way to get the job done. Secondly, honing by hand (which is the way a lot of honing gets done) is a lot surer process when you have the tip and heel of the bevel to register against your abrasive. Honing a flat-ground chisel or plane iron can be done - but since you have to remove a lot more steel the pro-

(Continued from page 8)

cess takes more time. Most woodworkers would rather be doing almost anything else than honing a tool, so any technique that reduces honing time counts in the plus column.

Getting the Grind

I use a hand-cranked grinder, a slow speed (1725 rpm) electric bench grinder and a Tormek wet grinder to hollow-grind my tools. The Tormek turns what started as a 10" wheel, now probably just under 9". You'll never burn a tool with a Tormek, but it is considerably slower than dry grinding. The electric bench grinder turns both an 8" and a 6" wheel. I use the 8" wheel for lathe tools, because the hollow is not as deep - leaving more steel behind the edge, and a more durable tool. The 6" wheel gives me a nice grind on plane irons and chisels, a little deeper than the 8", and therefore lasting through one or two more honings. The rotation speed and composition of the wheel are important for a number of reasons. The primary reason is heat buildup. Overheating tool steel destroys the temper, and untempered steel will not hold a cutting edge. The only way to fix that, short of heat-treating the entire tool, is to carefully grind away the blue steel. Just what you need, right? More grinding. The hand-cranked grinder is nice and slow, plenty safe to use, and keeps me in touch with the process.

For bench tools (chisels and plane irons) I use a 100 grit wheel rather than some of the coarser grits because the scratches are shallower. The trade-off is that grinding takes a bit longer, but I figure to make that time up when I hone. A white wheel is somewhat less prone to heat build-up than the typical grey wheel that comes with many grinders - but make no mistake, a white wheel can blue your tool in short order. You need to pay attention if you're dry grinding, or you need to spend much more money for a wet grinder.

Let me say up front that the art of grinding is one that doesn't translate well from the shop (or studio) to a blog, a book, or a magazine article. So if a lot of the following isn't entirely clear, don't fret. We will cover grinding technique thoroughly in class.

Once you determine the desired bevel angle, set your tool rest accordingly. If you use a rest similar to the Veritas® model, you may choose to use it with or without the optional jig. You can learn to grind free-hand (using a tool rest but no jig) just as easily as learning to hone without the assistance of a jig. It takes more practice to be sure, but you'll save a lot of time not fumbling around trying to get the tool precisely set in the jig.

There are a few keys to successful grinding. First, know what part of the wheel is actually taking away metal. If you have trued the stone recently (leaving it a nice, pristine white) you'll see the white abrasive turning grey or black in

the areas it is removing steel from the tool. This might be one little part of the wheel, or the entire rotating surface. You can also tell where the cutting is happening from the location of sparks coming over the top of the tool.

Second, aim for a bevel that is made up of a single concave facet. If you are seeing multiple facets in the bevel, something in your grip is changing, and you're varying the angle at which the tool passes over the wheel. Aim for consistent, even and smooth movement across the wheel. As you check your work, keep your hand position (grip) on the tool consistent.

Third, you don't need a lot of pressure to grind. Truthfully, you need very little, if any pressure. Move the tool gently into the rotation of the wheel and let the wheel do the work. Pressing the steel down on the wheel is a fast way to burn it, drawing out the temper. As you move the steel from side to side, keep your fingers close enough to the edge being ground to feel for any heat buildup. If the tool is getting uncomfortably warm, stop grinding and quench the tool in some water or set it down to cool off.

Fourth, you're usually aiming for an edge that is 90° to the sides of the tool. This is more important on chisels than on plane irons; in fact, plane irons are occasionally ground with a slight camber, and can be adjusted for a true cut when back in the hand plane.

If you are grinding without a jig, hand position plays a key role in getting all of these points coordinated. Using a jig takes more time (getting the adjustment just right) but eliminates some of the other variables.

There are a few schools of thought about how far down the bevel to grind before you stop. One view is to grind all the way to the end of the bevel, creating a wire edge on the back. That way you know you're done, and you have exposed fresh steel all the way to the edge. The argument against that technique is twofold. Part one is a concern with burning the steel, discussed above. The second concern deals with keeping the edge square to the sides. Concentrate on keeping the tool square to the grinding wheel, and examine your progress often. Make adjustments to your grip if necessary, but stop before you grind the edge all the way to one corner or the other. If you started with a square chisel or iron and you stop before the grind reaches the far edge of the bevel, you'll finish with a square edge.

Next Time: Honing the Edge

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