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March 2015

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*The damage
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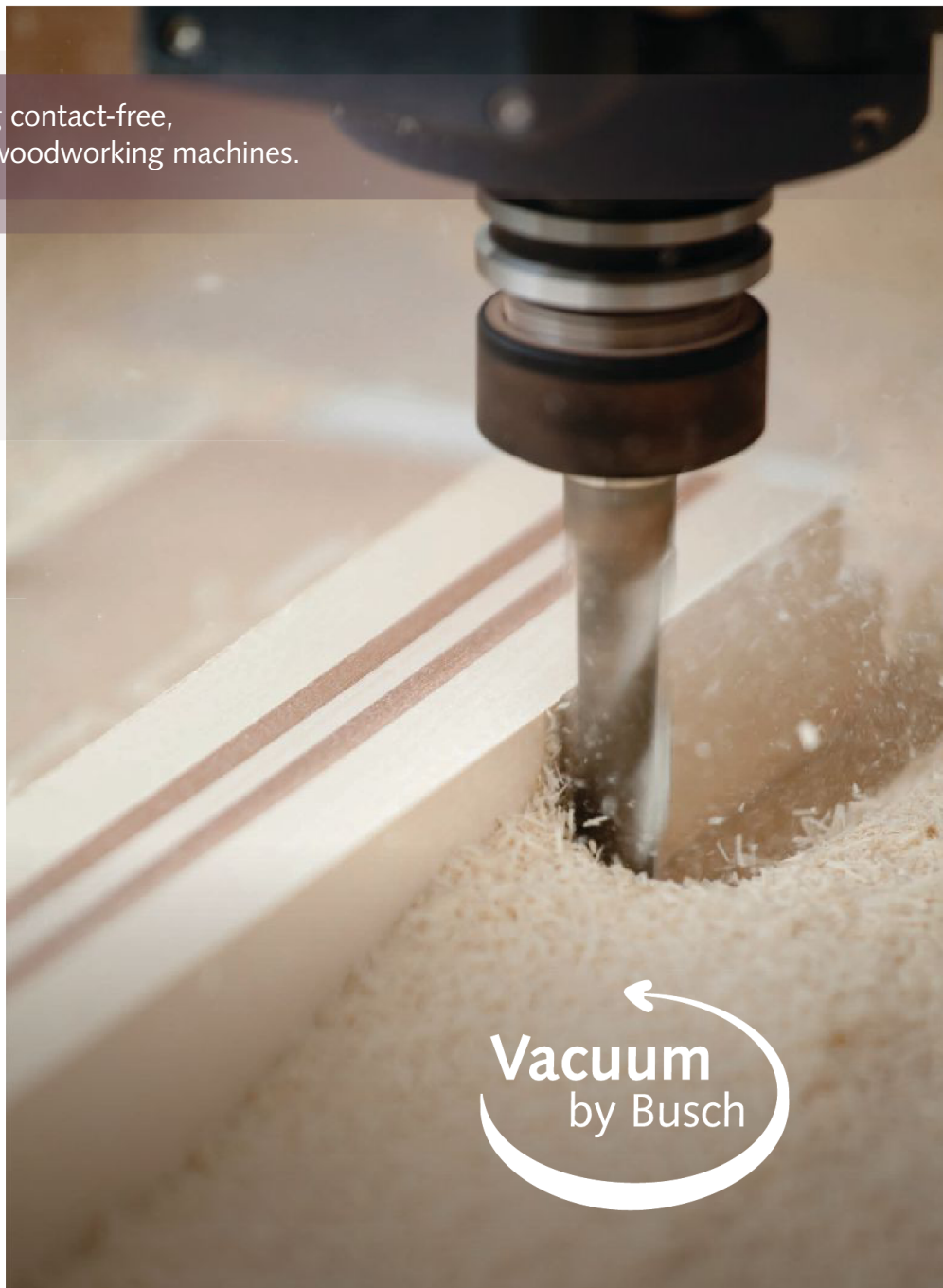
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BLOGS



Over the Workbench

Talkin' shop with former editor A.J. Hamler



This Business about Woodworking

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TAKING STOCK

with TOD RIGGIO

With progress, activism just isn't what it used to be

It's 18 years ago and I'm a former sports-writer showing up for the first day on the job at your favorite woodworking magazine. I'm immediately assigned stories dealing with environmentalists protesting clear cuts, rainforest destruction and the like.

My predecessor had stuck an "I love wood" bumper sticker on a file cabinet facing my desk, which I found incredibly annoying. I interviewed a woman living in a tree to stop a logging operation, though I was more interested that we were communicating with some newfangled device called a wireless telephone. My second question after "Why are you doing this," was "How do you bathe?"

I was on the mailing list of the World Wildlife Federation, Rainforest Action Network and other environmental groups that seemed to be bitterly against harming a perfectly good tree, yet were killing a few themselves with an onslaught of paper press releases.

I remember thinking on more than one occasion, "Dear Lord, what have I gotten myself into?"

I still have that thought on a daily basis, but for entirely different reasons. At the time, I viewed trees as potential firewood, something that might fall on the house and as a chair or other useful item. I was OK with "wood is good," but I wasn't about to hug a tree. And, from what I could see, growing up in New England, there were more than enough of them. Plus, we can always plant more. I was quite content with this simplistic view of the universe.

But the environmentalists were grabbing headlines, using the plight of endangered species to win court-ordered logging bans

and making the big-box stores squirm with boycott campaigns and in-store protests.

The wood industry rallied with the rise of third-party forest certification organizations. There were several at first before the Forest Stewardship Council become the dominant player. Certification is a basically a stamp of approval that wood comes from a well-managed forest with chain-of-custody proof.

This all made for good copy, leading to more stories about using certified wood as a marketing tool, promoting the use of secondary woods and substitutes for trade-restricted species like genuine mahogany and using recycled material.

The Great Recession diverted our attention from logging issues, but I haven't noticed many lately. The FSC seems to be doing a great job. The environmental groups have moved on to the Keystone pipeline. The magazine has shifted its attention to dust collection, formaldehyde and finish regulatory issues.

This all came to mind after a recent release from the Tropical Forest Foundation came, announcing it will close its headquarters on March 31. Founded in 1990 by the International Wood Products Association, the foundation took an active approach to improving forest management systems through education and outreach programs, based on a founding principle that if the economic value of the forest is realized through sustainable forestry, the pressure to convert the land to other uses will be reduced.

I thought this was big news, running the announcement as the lead story in our Feb. 11 e-newsletter.

In retrospect, maybe it's just yesterday's news. **W**

Working with tools and wood is inherently dangerous. We try to give our readers tips that will enhance their understanding of woodworking. But our best advice is to make safety your first priority. Always read your owner's manuals, work with properly maintained equipment and use safety devices such as blade guards, push sticks and eye protection. Don't do things you're not sure you can do safely, including the techniques described in this publication or in others. Seek proper training if you have questions about woodworking techniques or the functions of power machinery.



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NEWS DESK

Combined home-building shows see big Vegas crowds

By Jennifer Hicks

It was a strong turnout at the recently combined Kitchen & Bath Industry and International Builders shows, which were held Jan. 20-22 in Las Vegas.

Attendance increased 12 percent from 2014, when the two shows were first combined. The exhibitor count is also rising, according to Brian Pagel, vice president of show producer Emerald Exhibitions.

"A number of key brands continue to come back in," Pagel says. "We saw a lot of uptick in the appliance category, some in the cabinetry category, as well as accessories.

"Most of the general product categories we serve are seeing a resurgence, which is following the trends we're seeing relative to housing overall. So we're very pleased with that."

The shows focus on new products and technologies for the homebuilding and remodeling industries.

Pagel says next year's show will have more than 500 exhibitors.

"We left this year with 270,000 net sq. ft of exhibit space filled and with 265,000 net sq. ft.

of exhibit space booked for next year. We're excited about the commitment for 2016 and that we're experiencing a lot of growth."

Pagel also commented on product and design trends, noting there was a lot of focus on color and sleek finishes at the 2015 show.

"We're also seeing a lot more technology being put into the kitchen and bath," Pagel says. "We continue to see a lot of interest in lighting in drawers. And more manufacturers are breaking away to make

more products for closets and other areas of the home rather than just kitchens and baths."

The shows shared its dates and the Las Vegas Convention Center with the 2015 Las



KBIS and IBS are held in Las Vegas with several other trade shows.

Vegas Market, International Surface Event, Tile Expo, and International Window Coverings Expo. The combined event drew an estimated 125,000 designers, builders, dealers and suppliers, according to Pagel. [W](#)

WIC welcomes industry to San Antonio in April

By Jennifer Hicks

The Woodworking Industry Conference, an annual gathering of key decision makers from the machinery and supply side of the business, is scheduled for April 21-24 in San Antonio, Texas.

Members of the Woodworking Machinery Industry Association and Wood Machinery Manufacturers of America are welcome, along with those from partner organizations. It's a rare opportunity to build business relations through formal and informal networking functions, according to WMIA executive vice president Riccardo Azzoni.

"WIC is over 20 years old and historically WMIA, WMMA and AWFS [Association of Woodworking & Furnishings Suppliers] have been partners at this event. For the last four years, WMIA and WMMA have been the partners and two additional associations participating are AWFS and NBMDA [North American Building Material Distribution Association]. The four of us have come together to create this event," Azzoni says.

Last year's conference in Puerto Rico drew 240 attendees from 130 companies, the second largest turnout since Hawaii in 1999.

"We are expecting to meet last year's num-

bers," Azzoni says. "We think this year will be a good turnout because the economy has improved. People are in a better mood, they made money last year and will want to invest and come to event and see what's new for 2015. There will also be an AWFS trade show representative there this year to meet with everyone and tell them where they stand as far as booth sales for the July show."

The conference features seminars, social events and a contact table session, where attendees have the opportunity to meet face-to-face in 15-minute segments. [W](#)

For information, visit www.wmia.org.



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- Collection drum: Steel, 55 gallons
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- Maximum static pressure (inches of water): 14.73"
- Sound level: 84–88 dB
- Collection drums: Steel, 55 gallon x 2
- Overall dimensions: 76¾" W x 60" D x 139⅞" H
- Stand: 13-gauge steel
- Cyclone body: 16-gauge steel
- Blower housing: 11-gauge steel
- Approx. shipping weight: 1145 lbs.



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- Impeller: 18½" steel radial fin
- Air suction capacity: 4029 CFM @ 4.3" SP
- Maximum static pressure (inches of water): 16.8"
- Sound level: 87–90 dB
- Collection drums: Steel, 55 gallon x 2
- Overall dimensions: 76¾" W x 60" D x 139⅞" H
- Stand: 13-gauge steel
- Cyclone body: 16-gauge steel
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Fabio J. Fernandez

Society of Arts & Crafts hires new director

By Jennifer Hicks

As the new executive director for the Society of Arts & Crafts, Fabio J. Fernández is using his enthusiasm for the arts to keep handcrafted work alive and rejuvenated through the organization in the years to come. The SAC announced the appointment in January after a national search. He succeeds Beth Ann Gerstein who served as executive director for 21 years.

"[Getting] the position means a lot, but it also means being the person in charge and shouldering the responsibility of continuing to advocate for artists and craftsmen, while hiring and developing a smart and motivated staff. The weight of that has become real," Fernández says.

The SAC has been a non-profit craft organization since 1897. Fernández says one of the challenges for the organization is where it stands on new technology, such as 3-D printers.

"The 3-D printer in some ways is just another tool like the band saw or the chop saw, but it's also revolutionary and needs to be folded into the 21st century way of thinking about materials and methods into different program areas," he says.

The SAC produces CraftBoston, a juried show held twice a year, and operates galleries in Boston to promote handcrafted work in a variety of media.

"Each of our programs has an educational component so it's about connecting the artists' work with the general public, collectors, students and more," Fernández says.

Fernández says one of his main goals is finding the right foundation for long-term financial support.

"I know we don't have as much appeal as a school and the alumni base, but our programs are supporting students that have graduated from Rhode Island School of Design, North Bennet Street School, College of the Redwoods and so on. You just need to find the right language and the right people to more deeply fund what we do so we can do it better and at a bigger scale."

Fernández has served as the SAC exhibitions director for the last eight years and was associate curator at Cranbrook Art Museum in Bloomfield Hills, Mich., for three years. www.societyofcrafts.org

For information, visit www.societyofcrafts.org.

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TOOLS & TECHNIQUES

Festool offers new edgebander

By Jennifer Hicks

Festool is introducing its first edgebander, the Conturo KA 65, a portable tool that accommodates a variety of banding materials for use on straight and curved runs, convex and concave shapes, and internal corners.

The Conturo is part of Festool's system to fulfill a woodworker's entire range of banding needs, according to product manager Rick Bush.

"We wanted to think about application and the end-user when making it so we're introducing what we call the Perfect Edge System," Busch says. "We also have a new router, bits

and other accessories coming out that will work along with the Conturo. The customer will be able to apply the edgebanding, trim and machine it to a finished edge or what we would call the 'perfect edge.' "

The Conturo features a self-contained cartridge gluing system, called a Glue Puck. The pucks are available in four colors — "natural," white, black and brown — that are easy to change. The amount of available glue is displayed on a digital readout.

But the tool's standout feature is really its versatility.

"Shops that already have edgebanding ma-

chines that do straight work often need very expensive attachments for contoured work. The Conturo allows them to have that flexibility to do all types of custom work," Bush says. "And for shops without a stationary edgebander, the Conturo eliminates a big investment in capital and floor space. It can fit into one of our Systainers and go underneath a table for easy storage."

The Conturo sells for \$2,600. It will be available as a kit with a Systainer and accessories for \$2,800. [W](#)

For information, call 888-337-8600 or visit www.festoolusa.com.



Pony Tools rolls out E-Z Hold clamp

By Jennifer Hicks

Pony Tools showcased the Jorgensen E-Z Hold ISD-3 clamp at IWF 2014, which can be combined with a second clamp to get a wider bar length capacity.

"It has a very unique, exclusive patented feature," product manager Jim Luley says. "On the head it has a dovetail feature to hook up with a second E-Z Hold clamp so you can put two clamps together. For example, if I have two 24" bar clamps and I need a longer clamp, I reverse the head and slide the dovetails together. It becomes a 54" clamp because you get another 6" when you factor in the two heads.

"The E-Z Hold offers over 300 pounds of clamping force, enough to do the projects that just about any woodworker would need to get done, such as glue-ups and pulling mortise-and-tenon joints together."

The redesigned clamp also features a new quick-release mechanism, a reversible head for spreading and 2-3/8" throat depth.

The clamp is available with jaw openings of 6", 12", 18", 24" and 36". [W](#)

Contact: Pony Tools Inc. Tel: 312-666-0640. www.ponytools.com



RG Fine Finishes talks about the clear advantages of using Varicure® 275

We traveled to Santa Clara, CA, to talk with Robert Gomez, owner of RG Fine Finishes, and Donald Jones, owner of Chemcraft Distributor Cascade Coatings.

Founded in 2002, RG Fine Finishes, Inc. produces architectural millwork, cabinetry and custom woodwork for commercial and residential customers.

"I started my business in 2002 and began working with Don and Cascade Coatings that same year," said Robert Gomez. "It's been a great relationship.

"We specialize in custom, higher-end finish work involving multi-step processes with a lot of layering, so we needed a product that would hold its clarity and color. Don suggested we try Varicure 275."

"We make sure that we match our customers with the products and services that suit their application setting and desired results," said Donald Jones.

"In addition to locking in and holding its color on solid colors, Varicure 275 has other exceptional points that make it a good fit for the processes that Robert favors.



L to R: Luis Garcia - Foreman, RG Fine Finishes. Robert Gomez - Owner, RG Fine Finishes. Lydie Jones - Owner, Cascade Coatings. Donald Jones - Owner, Cascade Coatings.



"Another one of Varicure 275's great qualities is that it's a pre-catalyzed product," said Jones. "That makes it very easy to use in a production setting.

"You don't have to worry about mix ratio or under and over catalyzing," continued Jones, "it's taken care of for you. Just open the can and spray it out."

"Varicure 275 is very user friendly," said Gomez. "It's easy to spray and it's more efficient because we don't have to take the time to catalyze it.

"It works much better for us than the other 'lacquers we've used," continued Gomez, "it's

"very durable, it's chemical resistant, scratch resistant - just overall a very good, durable product for cabinet finishing."

Regarding Chemcraft product support, Robert Gomez said, "If I do have any questions or issues that come up, Don is always there to support me. He's very good at color mixing - very consistent.

"He shows up in person to make sure we're getting the results we need. The support I get from Don and Cascade Coatings is just phenomenal."

Visit chemcraft.com to locate your nearest distributor.

Grizzly debuts hybrid table saw

By Jennifer Hicks

Grizzly Industrial has introduced a new 10" hybrid table saw, combining the mobility of a contractor's saw with the quality of a cabinet saw.

"This machine has heavy-duty cast-iron trunnions that mount to the cabinet like a regular cabinet saw," Grizzly technical and quality control manager Todd Ransom says.

"Typically, a hybrid table saw has been defined as a combination between a contractor and a cabinet saw. Contractor saws almost always have the trunnions mounted to the underside of the table. It's an economical construction. Cabinet saws have the trunnions mounted to the frame of the saw and are further apart for strength in stance. A hybrid saw has trunnions mounted to the underside of the table, but it has a cabinet body."

The saw has a 21" x 19-1/2" table and weighs 286 lbs. It features 2-hp motor prewired to run on a 110-volt, 20-amp circuit.

"Not everybody has the 220-volt circuit in their garage, especially folks who are getting started. And having to run the 220-volt circuit is an additional expense because you will be hiring an electrician," Ransom adds.

The saw comes with a riving knife, splitter and T-style fence. It cur-



rently sells for \$675 with standard and dado table inserts and a miter gauge. A mobile base is sold separately. www.grizzly.com

For information, call 800-523-4777 or visit www.grizzly.com.

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Thermwood adds custom programming option

By Jennifer Hicks

Thermwood debuted its Cut Ready cut center last August at IWF, attracting a lot of attention for a CNC machine that doesn't require any programming. Instead, it's pre-loaded with thousands of cabinet, closet and other product designs.

The company has recently added a special products programming service for custom work. "If a customer needs a custom cabinet or just a widget of some sort, we will design and pro-

gram it for him and him only. Then the Cut Center will run the same way as it normally does, where the customer will pull the item up on a screen and pick the size and quantity they want," Thermwood vice president of marketing. Jason Susnjara says.

The programming can be loaded onto new and existing Cut Ready machines.

For information, call 800-533-6901 or visit www.thermwood.com. **W**

The Cut Ready produces pre-loaded and custom designs through a touch-screen control.

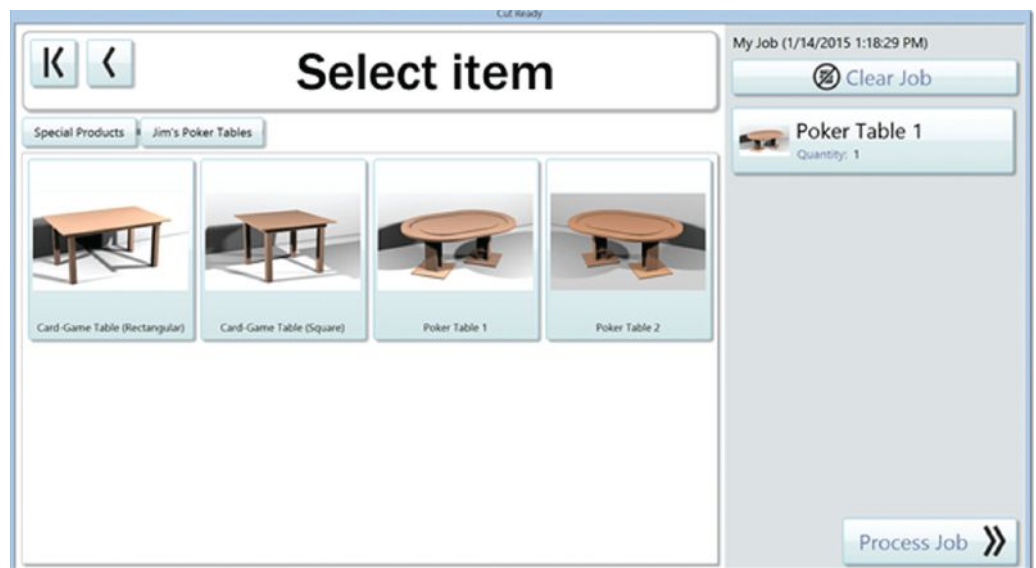


PHOTO: BEN ROOSA



Lumber lessons: Understand the rules and save big

By John English

"Go long!" That was all the advice given by a project manager 30 years ago on placing a hardwoods order with a mill. He was talking about lumber for an order of trim and the mill was selling random lengths. The point was this: a woodshop can always edge-glue boards to make them wider, but it's virtually impossible to make them longer. That specific order needed to read "random lengths, 11' minimum" so that the shop could mill trim for at least one side and the top of a doorway with minimal waste. Pieces measuring say, six feet, were essentially worthless.

Knowing the rules is essential when buying from mills or wholesale lumber suppliers. Understanding that those rules change from supplier to supplier is critical. Most yards claim their method is the industry standard, but unfortunately there is no industry regulation and that's especially obvious when buying from a small operator.

RESOURCES FOR BUYERS

The closest one can get to a universal code is a set of guidelines developed by the National Hardwood Lumber Association, a reputable organization with a self-determined mandate to become "the global standard for hardwood trade and commerce." Unfortunately, compliance is voluntary — the local sawmill is not legally bound to follow their rules. Fortunately, most of the industry does so voluntarily.

The NHLA, with offices in Memphis, Tenn., was founded in 1898 "to establish a uniform system of grading rules for the measurement and inspection of hardwood lumber." The association publishes a handbook with these rules that can be previewed for free online at www.nhla.com. It's an essential guide that every woodshop should own. The non-member price is \$11 for the 2015 edition and it will explain to new hardwoods buyers how most of the industry grades product and calculates the amount of lumber in an order. A shop that will be buying hardwoods regularly might

want to give Becky Miller a call. She's the contact person at NHLA for the education program and she can sign up a woodshop employee or shop owner for one of the association's Flex Day Lumber Grading short courses. These offer the flexibility of enrolling for three, four or all five days and include a thorough study and explanation of the basics of hardwood lumber inspection.

Another handy resource for shops is www.hardwoodinfo.com, the website of the Hardwood Manufacturers Association. One of the most valuable tools this group offers is an online species guide, which lets a woodshop buyer learn about hardwoods before placing an order. It includes specifications such as workability, strength and even an interactive widget that shows what each species looks like with different stains applied.

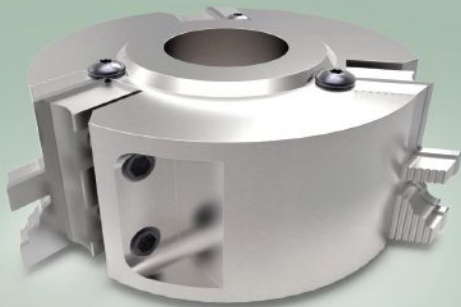
The Hardwood Plywood and Veneer Association (www.hpva.org) offers the "Veneer Species Guide" for \$25. It's a four-color publication that provides detailed information and photos for 150 wood veneer species that are commercially available in North America. The book was designed specifically to help shops specify species correctly. And if you're buying hardwood veneer already applied to a substrate, the HPVA also offers "American National Standard for Hardwood and Decorative Plywood," a guidebook detailing specific requirements for all face, back and inner ply grades, as well as listing specs on formaldehyde emissions, moisture content, tolerances, sanding and grade marking.



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PHOTO: AMEY LISCH

There won't be many surprises at the lumber rack if you know the rules before you buy.

The Architectural Woodwork Institute (www.awinet.org) is a particularly useful resource for hardwood buyers in shops that build casework and furniture for institutions such as schools and banks. Among its educational efforts are occasional tours of sawmills and veneer mills and the AWI also organizes visits to woodshops where members can learn from each other about regional resources such as hardwood suppliers. AWI publishes "Architectural Woodwork Standards," a guide for the specification, construction and installation of interior architectural woodwork. Between its covers, a buyer will learn about, for example, various cuts, colors, grain patterns and defects of hardwoods and veneers.

APPALACHIA

Woodworkers all over the world are familiar with the superior growth conditions for hardwoods in Appalachia. It's a 65.7-million-acre zone in the eastern U.S. that encompasses 344 counties between New York and Georgia and reaches as far west as Kentucky and Tennessee. Here, soil, drainage, minerals and precipitation combine in a way that is ideally suited to hardwood forestry. Species include ash, basswood, beech, birch, several maples, cherry, hickory, oaks, poplar and walnut.

Appalachian Hardwood Manufacturers (www.appalachianwood.org) is a 200-member trade association headquartered in High Point, N.C., whose members can provide a woodshop buyer with verification of the sustainability and legality of lumber that he or she is buying. That can be a strong marketing tool for the shop's products, as most of our customers like to know they are being environ-

mentally responsible in their buying choices. The group's list of producers includes sawmill owners and operators that provide green and kiln-dried Appalachian hardwood lumber, logs and wood products. Worth noting is that there are distributors all across the country. For example, a shop can buy certified Appalachian products at Swaner Hardwood in Burbank, Calif., Robinson Lumber in New Orleans and Northwest Hardwoods in Beaverton, Ore.

The American Hardwood Export Council (www.ahec.org) has an online database for suppliers by region, species or product.

The Northeastern Loggers Association (www.northernlogger.com) is a regional trade group representing more than 2,000 logging, sawmilling and forest products businesses. Its magazine, "The Northern Logger," covers sawmill and lumber issues from Maine to Minnesota, Missouri and Maryland. A woodshop buyer who wants to know what's happening in the domestic hardwoods market can learn about topics such as tree diseases, how trucking is affecting prices or weather is impacting supply and so on. Recent articles covered, for example, the decline of poplar as well as biomass issues in the wood industry.

Membership in the Northern Tier Hardwood Association (www.nthardwoods.org) is comprised of about 60 forest products-related companies and organizations in northern Pennsylvania. Its online directory will help a woodshop buyer locate regional suppliers of quality hardwood lumber, flooring, veneer and millwork. Pennsylvania has one of the nation's largest concentrations of hardwoods, including red maple, sugar maple, cherry

and red oak. The Pennsylvania Forest Products Association (formerly the Hardwood Lumber Manufacturers Association) has published a visually stunning guide to the state's hardwoods at www.paforestproducts.org.

Another great resource can be found on Wood Components Manufacturers Association's website at www.wcma.com.

A FEW TIPS ON BUYING

Ask a new supplier up front how it does a tally (figures out how much lumber to bill you for). The way a mill or lumberyard calculates an invoice can sometimes surprise a buyer. For example, some suppliers measure the board feet of straight-lined lumber and then add an allowance of 10 to 15 percent for the waste that they removed. This isn't a labor charge — it's a fee for wood you don't receive. A more correct practice would be to sell a certain number of board feet in the rough and then charge the customer for labor. And it can be very surprising to buyers how much a sawmill operator might slice off a board when straightening one edge: most woodworkers would perhaps be more conservative.

Another unusual charge is shrinkage because of kiln drying. There are actually suppli-



Be prepared to pay for surfacing and other sawmill services.

ers out there who figure the boards were dried down from, say, 20 to 8 percent, so they need to charge you for the lost volume. That is apparently illegal: check with your state weights and measures watchdogs if it comes up.

A tally will often be rounded off to a full board foot (7.9 becomes 8, for example). Be

wary of a mill that always rounds up. You deserve to have equal treatment: if the fraction is less than half, they should be rounding down. A gross tally is rough lumber before milling and a net tally is what you actually get after processing.

If the grade you're buying isn't an NHLA grade, then ask the mill to tell you which NHLA grade it meets and get it in writing. A lot of small suppliers make up their own grading system and that's actually legal. The problem is that it's also very subjective: the mill decides, so if you end up in small-claims court the mill definition will probably be accepted.

On the other hand, be prepared to pay for ripping, surfacing and even jointing, if you're asking the mill to do these jobs for you. Those are legitimate fees that use the mill's time and equipment.

The bottom line on buying is that the vast majority of suppliers are conscientious, honorable and far more concerned with making a customer than making a single sale. It's in their interests to treat you well. And it's in your interest to know their rules before you buy. **W**

PHOTO: BEN ROOSA

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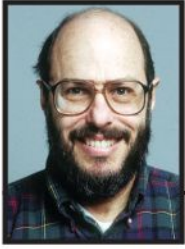
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FINISHING

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Airless sprayers have their own unique flair

Using one doesn't need to be a pressure-packed experience

Many finishers use airless pumps and spray guns even though they don't produce the highest quality results. Conventional compressed air, HVLP turbine and compressed air, and air-assisted airless are all capable of producing noticeably less orange peel if adjusted properly.

But airless sprayers are very popular with painters because of the much larger area that can be covered in less time. And many of these

painters also do finishing with non-pigmented coatings. So it's only natural to continue using these systems when spraying cabinets and furniture.

Here are some tips for getting the best possible results:

SET THE PROPER PRESSURE

Proper pump pressures for getting the best results vary with the viscosity of the coating being used and the temperature. All coatings,



whether clear finish or paint, become more viscous, or thicker, in cooler temperatures.

It's easy to solve any potential problem by simply turning up the pump pressure to the maximum and spray. This will work, but there will be increased waste because of bounce-back and more dry spray because of the droplets drying out. The dry spray won't bond well

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and some of it might bounce off and settle back on the surface, causing it to feel rough.

Instead, find the pressure that eliminates the “tails” in the spray pattern with the least amount of pressure. Tails are the thicker lines of paint or finish at the edges of the spray pattern and slightly separated from the rest of the pattern.

As you turn up the pump pressure, these tails disappear and the spray pattern becomes even. At the point the tails disappear, stop turning up the pressure.

Keep in mind the effect of temperature on the viscosity of the coating at different times of the day so you can make the proper adjustments.

REPLACE WORN SPRAY TIPS

The spray tip is the orifice, or hole, the coating is pushed through by the pump. This hole is not round as it is with air-supplied spray guns. It is squeezed to create an elongated opening or two little “wings” of metal that are used to squeeze the pattern.

As paint or finish is pushed through this opening at very high pressure, friction wears the metal, changing the spray pattern from elongated towards circular. More of the coating is deposited in the center of the pattern than at the edges making it increasingly impossible to keep the thickness even.

The natural tendency is to turn up the pressure, but this just makes the problem worse because of bounce-back, waste and increased wear to the tip. Instead, replace the tip.

One way to determine if the tip is worn is to spray a short horizontal burst on vertical scrap wood or cardboard and look at the runs. If they are fairly even across the pattern, the tip is good. If the runs are much longer in the middle than at the edges, the tip is worn.

Another way to keep up with the wear to a tip is to create a control by spraying a burst using a new tip, then periodically compare the pattern of the tip you’re using with the control pattern. When the elongated pattern of the tip you’re using shrinks by several inches, replace it.

USE A PROPER SIZE TIP

Tips vary in size. The larger the elongated orifice, the more coating can be deposited and the more pressure is needed to atomize it well. Or, thought of another way, the smaller the elongated tip, the less pressure it will take to atomize a liquid, but the more difficult it will be to atomize thicker and more viscous coatings well.

So you would choose a smaller tip for a clear lacquer or varnish and a larger tip for latex paint. You can also choose tips for wider and narrower spray patterns.

Tips are usually labeled with a three-digit number such as 309 or 517. These could also be the last three digits of a model number. The

first digit is one-half the fan width in inches with the spray gun held 12 inches from the surface. The last two digits tell you the size of the orifice in thousandths of an inch.

So a 309 tip would spray a six-inch-wide pattern through a .009-inch orifice. A 517 tip would spray a 10-inch-wide pattern through a .017-inch orifice.

As a guide, for spraying clear finishes, 409 to 511 tips work well. For spraying latex paint, 517 to 619 tips work well. But a lot depends on the object you’re spraying. Most important to consider is whether the surfaces being sprayed are narrow or wide. For narrow surfaces, you would choose a tip with a small first number. For wide surfaces, such as tabletops or the sides of a building, you’d choose a larger first-number tip.

USE FINE-FINISH TIPS

To reduce orange peel, check if your brand of airless offers a fine-finish tip. This type of tip has two orifices. The first pre-atomizes the coating so the second can create a smaller particle size.

Another advantage of fine-finish tips is that good atomization and a good spray pattern can be achieved with less pump pressure.

KEEP THE FILTERS CLEAN

There are typically three filters the coating passes through. It’s important to keep these filters clean to prevent clogging, prevent damage to the piston and, of course, to get the most debris-free results.

The first filter the coating passes through is at the inlet to the siphon hose. This filter is sometimes referred to as the “rock catcher” because it catches large debris that could damage the piston.

The second filter is in the sprayer’s manifold and catches globs of paint or finish before they reach the spray gun.

The third filter is in the spray gun. These three filters use increasingly finer mesh to catch increasingly finer debris.

Check these filters often to be sure they’re clean. Keeping them clean will reduce the pressure you’ll need to get good results.

SAFETY TIPS

Always use a tip guard when spraying.

Always engage the trigger lock on the spray gun when it isn’t in use.

Don’t make adjustments to the spray gun or pump without first shutting off the pump and releasing the pressure.

Be sure that hoses and all fittings meet the pressure requirements for use with the pump pressures you’re using. **W**

Bob Flexner is author of “Understanding Wood Finishing” and “Flexner on Finishing.”

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THE CUTTING EDGE

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The CNC purchase is mere prologue

Once you begin to install and use your new technology, you'll realize that there is a lot of foresight and planning involved

Introducing a CNC router to a wood-working business is more than just buying the machine and putting it in the shop. Like all management or market-driven changes to an existing business that introduces a new technology, there needs to be planning beyond the financial arrangements.

A CNC router is several technologies under one banner and identifying each of these technologies is the path to a successful transition. To accomplish this, shop management should

be focused on issues of space, place, people and processes.

SPACE

A CNC router for cutting sheet goods will require some real estate. To fit a machine with a 4' x 8' table, you'll need at least a 7' x 11' area to accommodate the machine's footprint and sufficient safety and operator pathways. Plan for clear access at one end or side of the machine to load panels

and another avenue for removing parts and scrap.

CNC routers with a vacuum work holding system require a vacuum pump, usually placed in an interior enclosure or outbuilding. A new or larger compressor might also be needed for an automatic tool changer.

Proper dust collection will eat up more space. Expect to add ducting, upgrade or replace a collector and to collect piles of sawdust. You'll need a place to store bags of sawdust (and a plan to dispose), replacement filters and scraps.

PLACE

By place, I'm referring to the property and buildings where the CNC router will be located.

First, verify that by adding CNC equipment the property doesn't fall into a different land-use category.

Study the condition of the building. Be sure the floor can take the static and dynamic loads of a CNC router. A steel-framed router with a steel gantry, large spindle motor and tool carousel weighs plenty just sitting in the shop. Considerable motion adds some sway. Consult with a structural engineer to be sure.

Verify clean electrical power of the appropriate type, voltage and phase for the router and ancillary equipment. Traditional woodworking

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machines can typically tolerate a wide variation of electrical power. But it's vital for servo or stepper motors, controllers and the machine's other computer hardware to have clean stable power. Additional equipment might be necessary to correct a power issue, plus the services of electrical professionals.

Anticipate moving costs and production downtime. Whether you're rearranging or decorating a new space, adding a CNC router can be a monumental task. Walls, floors and ceilings have been removed to squeeze one in. Have industrial moving equipment ready to go.

Once everything is in place, there will be a break-in period, full of troubleshooting and fine adjustments as the new processes and equipment are dialed in.

In my experience, computers hate dust and programmers dislike noise, so a solid barrier is essential. Your place will become part shop, part climate-controlled offices with the addition of CNC.

PEOPLE AND PROCESSES

I've heard about a couple guys who thought they could buy a CNC router, run it themselves and hire cheap unskilled labor to assemble parts into cabinets and make a small fortune. It's not that simple.

While other technologies introduced in the past, say a Festool Domino or wide-belt sander, were no doubt gradually introduced into the workflow process, the introduction of a completely new technology such as a CNC router will require operations to be thought out all at once and should be done in the planning stages rather than after the CNC router is installed.

There are two skills that have to be added to your worker mix to make a CNC router in the shop even possible. First is finding someone capable of mastering computer-aided drawing (CAD) programs. Often this person will become the lead designer and rather indispensable, so an understudy should also be groomed.

You'll also need a CNC operator and there are two schools of thought: train an existing employee or hire someone with experience. Both have an upside. It's becoming somewhat easier to find young, skilled CNC operators, the result of the industry's educational outreach to high school and college woodworking programs.

In my opinion, the owner of a small CNC shop should become an expert on programming and operation — for backup purposes, obviously, but also as the go-to guy for problem solving.

But perhaps the shop owner has too much else with which to deal. Adding CNC will increase the costs of running the business with machinery and necessary software and tooling purchases, reconfiguration of the shop and offices, training expenses and hiring new employees.

Most successful CNC shops bill by the hour for machine use. This covers required maintenance by outside contractors, replacement parts, software licenses and upgrades, utilities and more.

As you should know by now, buying a CNC router is only a tiny piece of the puzzle. **W**

Decore-ative Specialties adds online ordering

Decore-ative Specialties, a supplier of custom cabinet components in El Monte, Calif., now offers online ordering.

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PRO SHOP

with MARK E. BATTERSBY

At tax time, be careful with moving money around

There is always the risk the IRS might view the movement of funds from a business to an individual as a taxable event

Putting money into a woodworking business — or taking money from the business — is not something to be tackled by amateurs. Admittedly, a surprising number of woodworking professionals do depend on themselves when it comes to financing their businesses. Thanks to our complex tax rules, however, getting money invested out of the business can be expensive.

Quite simply, money invested in the business can be withdrawn — with a tax bill on any profits from the sale of that capital investment. A loan made by a shop owner to his or her woodworking business can, on the other hand, be repaid tax-free only if the ever-vigilant IRS accepts it as a bona fide arm's-length transaction.

On a similar note, it can also be expensive for any owner, partner or officer who attempts to take money from their woodworking business. Once again, there is the risk the IRS might view the movement of funds from the business to the owner, partner, officer or shareholder as a taxable event.

IMPUTED INTEREST

It should be increasingly obvious that some-

thing as apparently simple as taking money from the woodworking business or even putting funds into the business can be painfully expensive under our tax rules. Those tax rules are quite clear — only bona fide loans and contributed/invested funds qualify for any sort of tax break. When either lending to or borrowing from the shop or business, every woodworking professional should keep in mind that in order to count in the eyes of the IRS, any transaction must be a legitimate, interest-bearing loan. Under our tax rules, an owner, partner or shareholder borrowing from his or her business can face a hefty tax bill should the IRS view the transaction as a dividend payout rather than a loan.

All too often, it is below-market interest rates or the lack of evidence of an arm's-length transaction that draws the attention of an IRS examiner. The IRS is particularly interested in (1) gift loans, (2) corporation-shareholder loans, (3) compensation loans between employer and employee or (4) loans between independent contractor and client and (5) any below-market interest loan in which the interest arrangement has significant effect on either the lender's or borrower's tax liability.

Should the IRS re-characterize or re-label a transaction, the result is an interest-expense deduction when none was previously claimed by the borrower and the addition of unexpected taxable interest income for the lender. The lender's higher tax bills — tax bills that can date back several years — are usually accompanied by penalties and interest on the underpaid amounts.

ALWAYS A BORROWER BE

For many woodworking businesses, borrowing means a loan from the owner or shareholder. In some cases, it is the owner or shareholder who borrows funds from the woodworking operation. Loans and advances between these so-called "related parties" are quite common in closely-held shop or businesses. Corporate loans to shareholders are probably the most commonly seen by IRS auditors, with advances from shareholders to the incorporated woodworking business running a close second, particularly in the early years of closely-held but thinly capitalized corporations.

The IRS's interest in these transactions stems from the tremendous potential for tax avoidance — inadvertent or intentional. When an incorporated woodworking business makes an interest-free (or low-interest) loan to its shareholder, in the eyes of the IRS, the shareholder is deemed to have received a non-deductible dividend equal to the amount of the foregone interest. The incorporated woodworking business is, at the same time, deemed to have received a like amount of interest income.

Fortunately, there is a \$10,000 de minimis exception for compensation-related and corporate/shareholder loans, at least those transactions that do not have tax avoidance as one of the principal purposes.

Although this transfer of taxable income between entities might appear to be offsetting, there can be a significant tax impact on the reallocation, depending on the relative tax benefits to the borrower and to the lender and the deductibility of the expense deemed paid.

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DOWNSIDE: STOCK OR LOAN

When IRS examiners review loans from shareholders and the common stock accounts of a woodworking business, they often encounter what can only be called "thin capitalization, which occurs when there is little or no common stock and there is a large loan from the shareholder. A special section of the tax law, Section 385, Treatment of Certain Interests in Corporations as Stock or Indebtedness, governs whether a loan is one to an incorporated business or treated as debt.

The IRS's objective when it encounters thin capitalization is to convert a portion, if not all, of the loans made by the shareholders into capital stock in the business. Naturally, this conversion requires an adjustment to the interest expense account because at this point the loans are considered non-existent. The interest paid by the incorporated business on these disallowed loans becomes a dividend paid to the shareholder in an amount equal to the operation's earnings and profits.

RECOVERING FROM BAD LOANS

Under our tax laws, a business bad-debt deduction is not available to shareholders who have advanced money to a corporation where those advances were labeled as contributions to capital. However, a business owner or shareholder who incurs a loss arising from his guaranty of a loan is entitled to deduct that loss — but only where the guaranty arose out of his trade or business or in a transaction entered into for profit. If the guaranty relates to a trade or business, the resulting loss is an ordinary loss for a business bad debt.

SALE-LEASEBACKS

When attempting to take funds from the woodshop business, one option involves taking tax benefits instead, especially where the business might profit from an infusion of badly needed cash. If the business is in need of an infusion of cash and the owner is reluctant to invest additional money, an answer could lie with the tax benefits. Are the operation's tax benefits being wasted because of low or non-existent profits?

A one-transaction-cures-all, all-purpose solution involves the sale-leaseback of the woodshop business's assets. Generally, the business sells its assets, the building that houses the operation, the equipment used in the business, its furniture, fixtures or other property it owns. The buyer of those assets, usually using borrowed funds, is often the owner, partner or shareholder.

When the owner or shareholders in a woodworking business own the assets of the operation, the business makes fully tax-deductible lease payments for the right to use those assets in its operation. The business is exchanging depreciable equipment or its building for badly-

needed capital and immediate deductions for the lease payments it is now required to make.

The new owner of that shop or equipment, whether the business's owner, shareholder or, perhaps, a trust established for the benefit of the woodworking professional's children, will receive periodic lease payments. With one transaction, the shop owner has found a way to get money from the woodworking business without the double-tax bite imposed on dividends and a tax write-off as the owner of the property or equipment. Even more importantly, the business receives an infusion of badly-needed cash.

Unfortunately, under our tax laws, specifically Section 469, that deals with passive activities and losses, income from rental real estate is generally considered "passive activity" income, regardless of the woodworking professional's level of management involvement. The tax rules clearly state that a taxpayer can use losses from a passive activity only to offset passive activity income.

In other words, passive losses cannot shelter other income including profits, salaries, wages or portfolio income such as interest, dividend or annuity income.

A loophole built into the rules states that rental realty income is not passive activity income if the property is rented for use in a trade or business in which the taxpayer materially partici-

pates. This rule prevents taxpayers with passive activity losses from artificially creating passive activity income to absorb the losses.

THE COST OF SELF-FINANCING

With conventional financing still difficult to obtain, it is little wonder that "self-financing" remains a popular form of financing and is used by small-business owners. It's quick, doesn't require a lot of paperwork and is often less expensive than conventional financing.

Unfortunately, when investing in their businesses, many shop owners overlook the cost of self-financing. The cost everyone using his or her funds should consider is the so-called "lost opportunity" cost, the amount that could have, or might have, been earned had those funds remained in savings or invested elsewhere.

However, in the current topsy-turvy economic climate, doing it yourself or keeping financing within the family frequently produces the fastest and best results. Unfortunately, our tax laws create obstacles that must be overcome to avoid penalties and corresponding higher tax bills.

The complexity of the tax rules obviously requires professional guidance especially for any woodworking professional wishing to avoid paybacks and those dreaded "accuracy-related" penalties down the road. **W**

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▶▶ **ACCURIDE** introduced a new dampening mechanism, the Easy-Close, for its 115RC linear motion track system. The Easy-Close is simple to install as an add-on device to help slow and control component movement at the end of travel, according to the company. In addition to dampening the action on either end of the track's travel distance, the device has a 3-lb. pull force, which provides enough resistance to hold components in place at either end point. The maximum load that can be dampened is 44 lbs., though installers are recommended to test applications for best results. For information, visit <http://bit.ly/115RC-EC>.



▶ **VERSIDEX** introduced the 31" Mega-nw, a mobile indexing fixture designed to assist a hand-held biscuit joiner. The fixture allows for repeatable, indexed mortising of all three types of butt joints without any change-out. It can also index-mortise four styles of miter joints. The exchangeable template system creates unlimited custom mortise arrays for any length panel up to 31" wide. A host of accessories increases the Mega's efficiency, according to the company. It also can help CNC shops with faster mortising of specialized jobs. For information, visit www.versidex.com.

Laguna Tools has a new California location

Laguna Tools will move in March to a new and larger facility about a mile from its current location in Irvine, Calif.

The move will allow the company to consolidate operations that were previously conducted at two separate facilities, according to company vice president Catherine Helshoj.

The new facility is about 60,000-sq.-ft., providing office and warehouse space, and a product showroom.

For information, visit www.lagunatools.com.

Techno CNC Systems

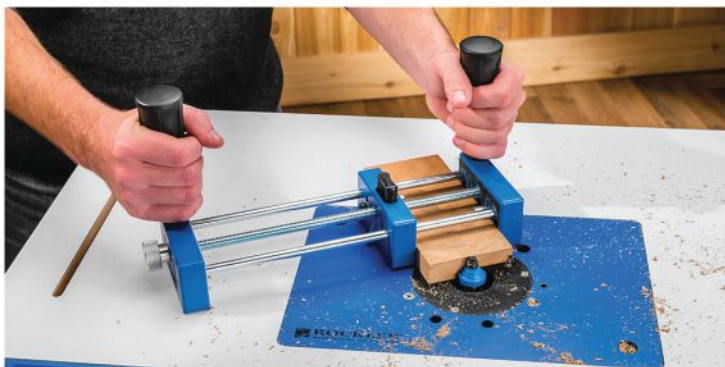
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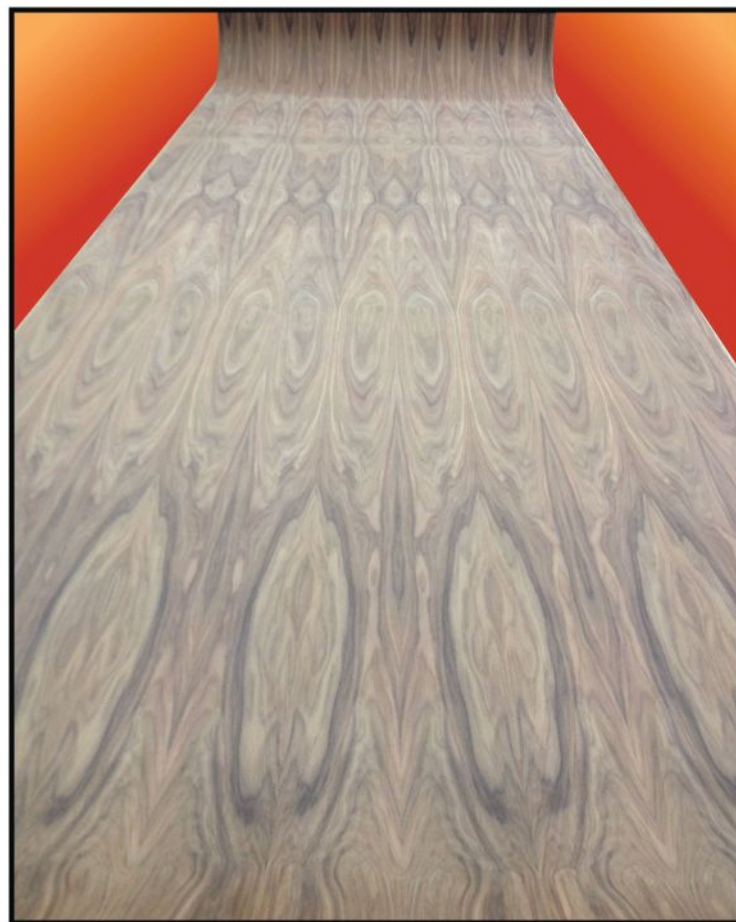
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▶ **SUPERIOR VENEER** is offering 4' x 12' and 5' x 12' sizes of sheet veneer, available in a choice of layup styles and sequence runs. All sheets can be produced on 10-, 20- or 30-mil paper, 2-ply wood on wood or SuperBack laminate backings, according to the company. Available species include maple, cherry, birch, walnut, wenge, waterfall bubinga, zebrawood, ash, mahogany, oak, pine, sapele, teak and rosewood. For information, call 855-940-7827 or visit www.superiorveneer.com.



▲ **ROCKLER WOODWORKING AND HARDWARE** introduced the Small Piece Holder, a clamping device designed to confidently hold small project pieces when machining on a router table. The holder features abrasive faces that sandwich small pieces to secure them while they are machined and large handles for control and stability, according to the company. The Small Piece Holder retails for \$49.99 at www.rockler.com.



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Maples sales are strong in winter months

By Jennifer Hicks

Both hard and soft maple are steady movers, according to lumber suppliers interviewed by Woodshop News. Interest is particularly strong for highly figured and slab stock.

"Winter is typically the season when maple gets cut because if you cut it in the summer months, you risk spoilage with the warmer temperatures. It oxidizes and you lose color," says Alan Zablonksi of Berkshire Products in Sheffield, Mass. "There's plenty of maple out there now in hard and soft. The low grades are moving a little slower, but the upper grades are strong."

"I'd say it's been pretty steady," adds Leroy Mast of Kiem Lumber in Millersburg, Ohio. "It's been picking up now since the [Great

Recession] when everything went down. It's been improving.

"We're pretty dedicated to people using great big wide boards for tabletops, bar tops and similar things. Customers want the 'live edge' look and they're specifying big-leaf maple because you can get it with a lot of figure in it."

Clint Dillon of the Steve Wall Lumber Co. in Mayodan, N.C., says that while hard and soft maple sales have remained steady, he's seen an increase in demand for figured and ambrosia maple.

"We sell a bunch of soft maple and hard maple to our cabinet-shop people who are generally doing odds and ends, but the figured maple and ambrosia maple has spiked up a

little in demand due to people wanting something that's going to stand out and have sort of a pizzazz to it when they make a tabletop or jewelry box or something like that," he says.

"I think people now want something that really stands out nowadays. There used to be a time where everybody just wanted cherry and walnut and things like that and those sales are still good, but people just want something different. Ambrosia maple used to be considered odd and got thrown out, but now people are finding a use for it."

Prices haven't changed much recently, with 4/4 FAS hard maple retailing for about \$5.25/bf nationally. The same size and grade of soft maple is selling for about \$4.50/bf. **W**

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- Scoring blade size: 4 3/4" • Scoring blade arbor: 22mm
- Scoring blade speed: 8000 RPM
- Scoring blade tilt: 0-45°
- Depth of cut: 4 1/8" @ 90°, 2 1/4" @ 45°
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- Max. cutting depth: 1/8"
- Feed rate: 16 FPM & 20 FPM
- Cutterhead diameter: 3 1/8"
- Cutterhead speed: 4800 RPM
- Number of cutter spirals: 4
- Table size: 20" x 25 1/4"
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REAPING THE REWARDS

A gamble on an apprenticeship and a national show schedule has paid off for G. Keener & Co.

BY JENNIFER HICKS

A strong believer of reaping what you sow, Gary Keener is proud of the business he has worked so hard for through the years. On a daily basis, the owner of G. Keener & Co., a custom furniture shop in New Carlisle, Ohio, lives his dream of running his own business on his property in the serene countryside of western Ohio.

Keener and his four employees build custom furniture pieces for clients across the nation based on their requests. The company also offers

four furniture lines featuring functional pieces for living rooms, bedrooms and other rooms of the home. These can be found in the ever-expanding product catalog he refreshes annually.

"There've been times when we've been slow and I'll think I have to get a job, but I don't know what to do — I don't have any desire to do anything else," Keener says.

Keener & Co. offers the Zacappa collection, designed with simplistic formation and a slight Asian flair with bold joinery; Carlisle Collection



inspired by the Arts and Crafts movement and Asian design; Tremont Collection emphasizing smooth surfaces and wood grains and Lullwater Collection featuring the classic aesthetic of Shaker design.

ALWAYS BUILDING STUFF

Keener grew up in Wooster, Ohio, several hours away from his current location. As a child, he quickly learned he was a hands-on kind of person.

"I had a really good industrial arts teacher in high school. My dad was a mechanic and always working on engines and I never took to that; I was always building stuff out of wood. So in high school, the sky was the limit to what you wanted to build, from a birdhouse to a giant hutch to bedroom stuff. I built my first bedroom set when I was in high school and through that process I wanted to become a teacher, so I went to college at Bowling Green State University and took up education."

After college, he taught industrial arts from 1996-1999 at Perkins High School in Sandusky, Ohio, near Lake Erie, focusing on programs such as hand- and CAD drafting and construction.

"During that time I was there, the school was gracious enough to let me build after hours so I was building furniture all of the time. In that time my wife Andrea said I was much happier doing that than teaching so I needed to make a career out of it. We were young, had just gotten married and didn't have any kids, so from that point I started looking for a way to start a business, but I didn't feel comfortable just hanging a sign outside my garage."

He stumbled across an advertisement in a magazine for an appren-

ticeship at M.T. Maxwell Furniture Co. in Bedford, Va., and instead of going back to teaching in '99, the Keeners made a big move.

"We drove down there and it was in the middle of nowhere in the hills of Virginia. We drove to this shop and it was like this little compound and they said it was free housing for the year. There were primitive shacks up on a hill, these small block buildings with a bathroom and woodstove and a kitchen and a loft to sleep in. I interviewed, got the position and did that from 1999 to 2000."

Through the process, he learned every aspect of building furniture, but wanted to learn the business end of things when he completed the program. Having family back home, he and his wife moved back to Ohio. Andrea took a teaching position, while he started his own business at age 26. With each and every move, he knew he had to think of the best choices for the big picture if he wanted to make a living at furniture making.

While his wife started her new job teaching economics and consumer science, Keener got to work with his designs, working out of a garage for the first six months. He started building his current shop in 2001, adding to it every couple of years. It's about 5,000 sq. ft., including office and showroom space.

ON HIS TOES

Keener sought a little bit of business coaching when he first got started. He knew he'd have to take his work to furniture shows and sought out venues all over the country. Some of his regular shows include the Fine



Keener's 5,000-sq.-ft. shop is only 75 yards from his home.



Keener & Co. assembling dining chairs from the Zacappa Collection.

Furnishings Shows in Rhode Island and Wisconsin, the American Craft Council shows in Baltimore and Atlanta and the Philadelphia Invitational Furniture Show.

Recently, Keener has started to exhibit closer to home. "I'm getting older and need to be with my kids more now. My time is very valuable to me and the whole idea of having a shop at the house was so I could be available and have that flexibility. I keep traveling these long distances and it doesn't make sense. I work 75 yards from the house and I put 40,000 miles on my truck every year. We do all of our own deliveries, all of the shows and we're on the road a lot. I feel like a carnival guy with a traveling booth."

He'd like to have a bigger showroom and have more customers come to him, but that project always seems to be on hold.

"This past year was really hard," he says. "We had a great year sales-wise, but I lost one of my good, well-trained employees who'd been here almost five years. I had started working on new designs when he upped and left. I scrambled all year trying to find help. We maintained this year because I spent a lot of hours in the shop. Ideally, my goal is to reach the point where I can keep production going with the guys I have in the shop and spend time in my office working on the business, selling and designing new designs and prototypes."

RUNNING THE SHOP

Keener currently has three full-time employees and one part-timer. He does what he can to keep them happy.



Bar-height versions of the Zacappa Collection chairs.

"I've tried to make the work environment more of like a family than a factory and be flexible with time. One of my guys was a stay-at-home dad. He now comes in after he takes his kids to school and leaves when they get out of school. I try to be flexible where it's like an employee benefit. I allow them to be in the shop whenever they want to build projects for themselves or other people. I try to put these benefits above the pay to where it's an attractive place to be and a positive place to be."

He admits that in the past he got jaded with the employee situation. There were instances where newly hired individuals would work for several day and then leave. In all of his frustration, Keener considered running and operating the entire business as a solo shop, but he hung in there.

"It's so hard when you get somebody in here and you don't want to spend time training them if they're not going to stick around."

THE JOURNEY WILL CONTINUE

Keener still marvels at the risk he and his wife took to get started in this business.

"We quit two good teaching jobs, moved to Virginia and paid \$4,000 to work for a year for free. It seems insane," he says.

Keener, 40, believes his dream has been fulfilled with hard work, dedication and faith. He's making a living doing what he loves and now has much more time with his wife and four children.

"It's been a journey and it's been a blessing. There've been ups and downs both in my professional and personal life. I could have had huge setbacks, but by the grace of God we're still here and still in business." 

Contact: G. Keener & Co., 2936 Liberty Road, New Carlisle, OH 45344. Tel: 937-308-2303. www.gkeenerco.com.



The Zacappa 'Y' panel bed (above) and a recent built-in.



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MAKING THE BEST CABINETS & FURNITURE

Compiled by BHSW Inc

Accuracy is an elusive concept, and one that every woodworker chases and cherishes. Our mission is to tame nature, to put organic materials to work in a controlled manner. There are a few companies out there that can help us do just that, and make the best furniture and cabinets.

Massachusetts-based Versidex LLC, for example, has developed a joinery workstation for biscuit and tenon joinery that uses templates and a custom table to deliver incredible accuracy during milling. And the folks at TigerStop have spent more than twenty years developing rip and crosscut solutions so that woodshops can make more accurate parts.

Once the parts are cut, they need to be assembled. The team at BESSEY Tools North America has come up with a series of parallel clamps that help parts avoid wandering under glue-up pressure – and we're talking significant pressure here, up to 1,500 lbs.

Another assembly solution, the Lamello P-System from Colonial Saw, helps woodworkers save time, space and freight charges by adding RTA capability to every box they build. And if building boxes is a challenge, think about ordering in. The people at Elias Woodworking make doors, drawers and ready-to-assemble cabinets quicker and less expensively than most woodshops can. That leaves us free to do the custom part – design, accessories and hardware.

Part of that process is choosing the right slides, and the folks at Accuride have offered a few guidelines here for making those critical decisions. They understand that making the right choice is part of making the best cabinets and furniture.

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Powerful, Parallel Clamps Deliver the Ultimate Glue-up

No wonder woodworkers are calling them the new industry heavyweights. A single K Body REVO™ parallel bar clamp can exert up to 1,500 lbs of clamping force on a glue joint. That's about the same as parking the rear axle of a half-ton pickup on the assembly!

But the K Body REVO isn't just immensely powerful – it's also accurate. Talk about parallel parking! The 3¾" deep jaws stay perfectly true in the correct plane, even under extreme tension – not a big surprise as BESSEY Tools North America actually invented the parallel clamp category in the late 1970s.

Delivering all that pressure has never been so ergonomic, thanks to a superb quality composite handle with a soft plastic insert. It's a real boon for woodworkers with a touch of arthritis.

Three large pressure caps on the K Body REVO jaws can be removed for cleaning, but you won't have to do that very often as they are resistant to glue, paint and solvents. And each clamp also comes with a couple of rail protectors designed to help prevent glue dripping on the steel – a simple but brilliant solution that woodshops have needed for a long, long time. Those rails come from BESSEY's own precision steel mills in Europe, and the clamps are assembled in Leroy, New York.

The end-clip on these clamps is removable when you need to reverse the sliding arm for use as spreader. Clamps can be connected together for extended reach, too. Other options include pivoting jaws, and KP Blocks that transform the clamps into a jig for gluing up raised panel doors.



BESSEY has also introduced the REVO JR (which has about the same strength as other non-BESSEY parallel clamps, but at a much better price), and the VARIO REVO. On the latter, both jaws can be moved at the push of a button, so you can add parts, extend the reach, or even handle multiple glue ups simultaneously.



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Choose The Right Drawer Slides



While doors and countertops may put on a great show, a cabinet's reliability is determined by joinery and slides. If a drawer sticks, falls, wobbles (wracks) or won't close, one's overall impression of the entire kitchen is instantly diminished.

It only takes a few minutes to choose the right drawer hardware, but your customers will live with that decision for decades. So, choose an exceptional manufacturer such as Accuride, and then begin by matching your slides to the drawer width (to avoid wracking) and the safe maximum load rating. For example, Accuride's 7957 is beefy, while the 3832 works well for standard loads like dish towels.

The depth of the cabinet determines the length of the slide, but you get to decide the extension. Slides that open three-quarters work well for placemats and sweaters. But your customers will silently thank you for installing full extension slides on shallow drawers where hands can't reach, and also when they have to bend over for a pot lid in a large base drawer. There are also over-travel slides that are a blessing with file cabinets, in particular. A drawer slide shouldn't be too tall: choose low profile ones like the 2132 for small drawers.

Slides also allow you to design some 'custom' features into the project. For example, Accuride's 3832EC has a soft close (the EC stands for Easy Close). And the company's Touch-Release slides are ideal if a drawer lacks pulls.

You can even choose a slide with a lock out feature like the model 340 for cutting boards or printers.

Think, too, of where the slide will live. In a commercial rather than a residential environment, go beefier like the 4032. And if the project will be exposed to weather, Accuride offers slides with special coatings such as CH3832 (eight times more resistant to humidity), or the stainless steel SS2028.

More than silverware is riding on the slides you choose. They also carry your reputation as a quality builder.

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Since inventing biscuit joinery in 1955, Lamello has been the global leader in the field. Given their engineers' dedication to research and development, it's no surprise they've now revolutionized the woodworking industry for a second time.

The ingenious Lamello P-System mills T-shaped grooves, using either a hand-held joiner (the Zeta P2) or a CNC router. More complex than a biscuit joinery slot, the T profile adds great strength to a joint. It also locks Fiber-glas™ reinforced plastic connectors into the grooves without having to glue them. The two

halves of the connector are locked together with a cam that is activated by simply turning an Allen wrench. The result is a tight, accurate joint that can be disassembled in seconds. Unlike other RTA hardware components, the Clamex connectors allow some lateral adjustment. That means an assembler can simply align the work pieces easily by hand, and then engage the locking cam mechanism.

The P-System opens up great possibilities for a cabinet shop. Casework can be built and finished in the woodshop, disassembled and shipped flat to the jobsite, and then reassembled in short order. Reducing the volume of the cabinets to a few inches on a pallet can have a huge impact on freight charges, and it also saves warehouse space. And because the P-System adds knockdown capability to cabinets, large assemblies can be made ready-to-assemble (RTA), which allows them to access to stairwells, narrow doors and elevators – a real boon for residential woodworkers. The system

also holds countertop (waterfall) and window or doorframe miters tight.

Two types of P-System connectors, Clamex (where gluing is optional) and Tenso (fast gluing without clamps) are revolutionizing how wood components are assembled. They are giving custom woodworkers, store fixture manufacturers and high-volume cabinet shops some attractive new options that simplify how work is done in the shop, delivered to the jobsite, and installed.

For precision, Swiss-made components and world-class support, America's woodworkers have been relying on Lamello USA, a division of Colonial Saw Inc., for more than forty years.

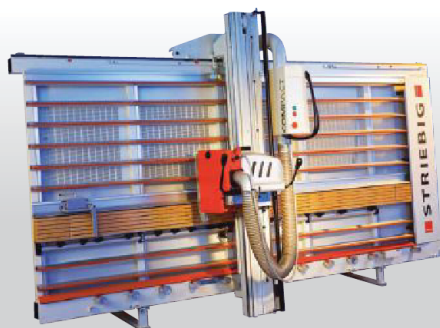


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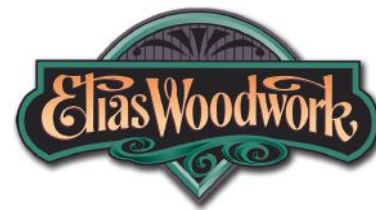
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Outsourcing helps shops be more creative, and more efficient.



to think outside the box, and the result is a long history of sustained growth. Adding those 270 new members to your shop's team is the smartest way to build better cabinets and furniture.



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Outsourcing boxes, drawers and doors is the best way to add 'custom' to cabinetmaking and furniture building. With a reliable parts supplier on board, a woodshop owner can offer more creative drafting, and also choose from a much wider range of profiles, species and finishes. Plus, with costs determined up front, it's easier to meet budgets and deadlines.

The two keys to outsourcing are superb quality and great pricing – and that's where Elias Woodwork & Manufacturing comes in. Located at the geographical center of North America (which helps both shipping costs and timeliness), Elias takes cost control very seriously, using lean manufacturing and just-in-time principles to be more than merely competitive. The company builds raw or finished wood cabinet doors, dovetail drawer boxes, custom ready-to-assemble (RTA) cabinet boxes, moldings and accessories in its 250,000 square foot facility. Elias's wide range of products let small shops think big, and bigger shops grow at a comfortably exciting pace. An innovative shipping program keeps costs to a minimum, and because they are a one-stop solution, you spend less time ordering and tracking parts.

An example of Elias's constant striving toward excellence is the company's 22,000 square foot, highly computerized, pre-finishing facility that delivers consistent, top quality finishes for their customers. And it's not just the hardware that's state-of-the-art. Last December, the company introduced a new Ceruse Glaze method that accentuates grain, particularly in quarter sawn and rift cut oak. The new glaze delivers a unique look that can blend modern greys with a rustic touch for that ultimate custom look.

Since 1983, managers at Elias have understood the need to earn and keep the respect and trust of woodshop owners. Their highly trained team on the shop floor is encouraged

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Every woodshop manager faces the same dilemma: how does one significantly reduce costs while improving product quality?

There are three types of direct cost: overhead, materials and labor. Overhead includes items such as workers' comp, the light bill and the dumpster, and all of those can be reduced if the number of hours being worked are reduced, or made more productive. One key to reducing the amount of labor in every cabinet or piece of furniture is automation. Take face frames or doors, for example. How many times does an employee reach for a tape measure when cutting stiles and rails? Why is he/she making pencil marks on dozens of hardwood sticks, when all of the cabinets are the same height? Wouldn't a stop – a reliable, accurate stop – on the miter saw be a great upgrade? And how about an intelligent stop: one that remembers lengths and can move to different positions at the touch of a button?

The materials themselves offer some cost-saving potential, too. Wouldn't it be nice to have a machine that works around loose knots and other terminal defects in a board, and then optimizes the remaining wood so that it yields the most parts? If we could do that, we could perhaps look at less expensive grades of hardwood, and that can add up to very significant savings.

Saving time on labor and materials definitely affects the bottom line, but improving quality can do more than that. Fewer mistakes, more accurate cuts and better joinery don't just save time: they also build a shop's reputa-

tion. A woodshop doesn't need to make a sale: it needs to make a customer – one who comes back again and again. Tight, accurate joinery is the core facet of great casework. Adding precise, repeatable automation to the cutting process can considerably speed up production, noticeably reduce waste, and most definitely improve the quality of joinery.

TigerStop LLC has been helping woodshops do all of those things for more than twenty years. Based in Vancouver, Washington, the company has developed an entire range of products that are designed to make the most of materials, and your employees' time. Their flagship product (called TigerStop, and there are over 30,000 in the field) is an automated fence with a moveable, programmable stop for positioning material exactly where it needs to be. It's intuitive, rugged and extremely accurate. The company's SawGear is a miter saw stop that is both simple to use and tough enough to go to the jobsite. It works with proprietary software to calculate the stop's position, which makes manually nesting angled parts both simple and math free.

Last year, the company rolled out two new products that are revolutionizing how small and medium-sized shops manufacture cabinets and furniture. This tandem delivers big shop performance and efficiency at an affordable price.

The TigerSaw 1000 is a heavy-duty, rugged 18" saw that offers an accurate, powerful pusher system. It features crayon marking of defects, for maximum material yield.



"TigerSaw 1000 allows shops to start optimizing and defecting raw materials themselves," says Spencer Dick, TigerStop's founder and president. "They can now purchase and process lower grade lumber, while reaping the same or better yields and quality as expensive, higher grades."

The other half of the solution, TigerRip 1000, maximizes the potential of random width lumber. It automates ripping, and provides shops with unsurpassed material yield. Its software also has the ability to track cut list progress, and it can provide inkjet labels for each part, so a shop can process several jobs simultaneously without losing track of parts.

The bottom line is that TigerStop is all about affordable automation, and the company has a solution for every shop, no matter how small... or large!



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Faster, More Accurate Plate Joinery

The three biggest challenges with milling slip-tenon joinery are efficiently securing the workpiece, accurately indexing the mortises, and milling them quickly without confusion.

Large parts and a small machine have always meant that each cabinet side or shelf needs to be individually clamped to the workbench, and that takes time. Marking out pencil lines takes too long, whether measuring with a tape or using a story stick, and sometimes we just don't have the patience to do it right. Keeping track of faces and edges can be plenty confusing even for old hands, and absolutely mystifying for new employees. How many times have mortises been mismatched because somebody referenced off the wrong face?

Steve Lanning of Versidex LLC, a Massachusetts based company, has developed the MEGA-ncw to solve these production problems. It's a joinery workstation obviously designed by a woodworker for woodworkers. Everything about it is intuitive, attentive to the small-



est details, and superbly crafted.

The MEGA-ncw is extremely well thought out. It's designed to interface with both biscuit joiners and mortising machines in the most efficient, error-free and time saving manner. It has pneumatic clamping, and can include a compressor and vacuum system. Flip up shelves hold the joiner away from the platform, and a blow gun controls dust.

The MEGA comes with guidelines that make orienting parts very simple, even for shop floor rookies. Their system keeps left and right-handed cuts organized using fences that are matched to differently colored lines, which are inscribed on a library of customized templates. The lines are always predictable, don't have to be removed later, and the operator uses them to guide the joiner to the correct mortising locations on the workpiece.

Changing template sets for different cabinet depths is quick and easy. The Versidex MEGA-ncw handles parts up to 30¾" wide and 1½" thick.

If your shop is looking for a high production, dedicated, and mobile solution to plate joinery, start your search with the introductory video on the Versidex homepage. The speed and dependable accuracy of this workstation are just what you need to make the best cabinets and furniture...

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BY DUST

Your dust control system needs to collect virtually
all the residue in your shop in order
for you and your employees to remain healthy
By John English

We breathe in two types of wood dust — organic and inorganic. The former can be spores or fungi released by deteriorating lumber, pollens, seeds, oils, plant toxins, pesticides and so on. Inorganic dust in the woodshop is primarily composed of dead cell walls ground fine (such as sanding dust) or residue from MDF, plastic laminates, finishes and other chemicals used in furniture and cabinet building.

Here's what happens when a woodworker breathes in dust:

The largest particles are trapped by nose hair and eliminated when we sneeze or blow our noses. Finer particles that the nose doesn't capture reach the windpipe. This passageway leads to two large pipes

going to the lungs, which are called bronchial tubes. Each of these organs produces mucus that traps fine dust and eliminates it by expelling the mucus. Small hairs known as cilia do this and the action induces a reaction that causes us to spit or cough.

In the lungs, any fine particles that finally make it through all of these lines of defense are trapped in alveoli (air sacs), where they are surrounded by cells called macrophages that are then moved back up the system through the bronchial tubes and into the mouth and throat.

All in all, the body is extremely well-equipped to deal with dust. But our natural defenses can give way over time because of long or intense levels of exposure.

If a woodworker's nose is constantly being clogged year after year, this can lead to rhinitis, which is an inflammation of the membrane that produces mucus in the nasal cavities. Untreated and constant irritation over several years can cause the tissue to develop cancerous cells.

Farther down the pulmonary system, between the mouth and the lungs, dust can cause bronchitis or a condition known as tracheitis, which the National Institutes of Health defines as "a bacterial infection of the windpipe (trachea)."

The bottom line is that the health of woodshop owners and their employees is a significant reason to take a good look at a shop's dust control system. There are other reasons, too. For example, the quality of sprayed or brushed finishes relies on clean air, especially during the curing process, and both walkways and workstations need to have clean floors.

Collecting most of the dust really isn't good enough. A dust control system needs to collect virtually all the residue, especially fine particles that are light enough to become airborne.

DUCTWORK

The first place to look for problems (and possibly upgrade) is the ductwork. A few rolls of duct tape can be a really good investment here. Metal ductwork expands and contracts through the years, especially in parts of the country that have wide variances in climate. Every year, joints in the system move a little and this can create small gaps that leach fines into the shop's atmosphere. Remember that the air inside the pipes is under a lot more pressure than ambient air in the woodshop, so small gaps become avenues of escape. Sealing these with silicone caulk (when the system is turned off or the leak will blow the seal away) or using duct tape can eliminate the problem.

Are your ducts sized properly? Running the same diameter pipe throughout the shop is not an efficient or effective way to manage airflow. Ducts should reduce in diameter as they traverse distance and as branch lines intercept them. That is, the pipe should get smaller after each Y-joint or as they travel farther from the dust collector. For help here, visit the website of almost any ductwork supplier and they will offer a design service that suggests the correct diameter pipes for your shop's floor plan. Air Handling Systems (www.airhand.com) offers a free downloadable guide to building a dust collection system that answers virtually any technical question you might have on design.

One of the basic elements of any great design is the length of the runs. To keep them short, one can either place the collector in a central location or install a smaller unit in each "nest" of machines. The latter is a better choice when a shop has more than one area where it makes parts. For example, one collector can handle saws and milling, while the other is designated to sanding operations. Trying to do everything with one collector could mean that nothing is done well. The only other viable option is to install a system that is so oversized for the task that inefficiencies don't matter. That can be expensive to buy and expensive to run.

A professional designer will take into consideration the dust collector(s) you already own and the type of machines you are running. That's important, because the residue from a wide belt sander is a whole lot different in both texture (particle size) and volume than, for example, the residue from a thickness planer.

A design service is also going to be able to point out some problems with your existing system and might even be able to help you upgrade without replacing a whole lot of ductwork. One of the most common problems is undersized pipe, especially near the collector. Go with the biggest diameter you can for a main duct and resist the temptation to turn the inlet close to the machine into two smaller and relatively ineffective main runs.

When transitioning down in size, it's better to use a tapered fitting rather than a stepped one. That is, allow the pipe to get smaller gradually, rather than in one dramatic step. This will more aptly maintain



Servair's sanding booths clean the air and return it to the shop.

the level of static pressure, which is essentially a measurement of loss in both speed and volume of airflow. Think of it as "resistance."

One should also try to avoid inexpensive flexible hose. A lot of shops install a great system until they get close to the machine that's producing dust and then they make the final connection with cheap, ribbed, flexible hose. Low-end hose is often corrugated and this disturbs and reduces air flow. A little research online will reveal several manufacturers who make flex hoses that provide excellent flow and virtually no resistance. They're more expensive, but their application usually calls for short lengths, so the cost isn't prohibitive. And the results can be quite impressive.

If the ductwork turns a corner, it shouldn't have an L-joint. The transition needs to be smooth and gradual. One solution is to replace a 90 with two 45s that have a short length of straight pipe (maybe a foot or so) between them. This allows the air flow to change direction in two small steps rather than one large one.

For smaller shops, an easy way to reduce lots of bends near the collector is to build a platform that raises the unit as high off the floor as the ceiling will allow. That way, any ceiling-mounted pipe-work doesn't have to travel all the way to the floor to get connected, so it doesn't have to try to carry its load through several changes in direction.

COLLECTORS

Choosing the right collector requires quite a bit of thought. For larger shops, the best answer is perhaps to employ a consultant or a knowledgeable salesperson from a reputable company. For small- and medium-sized shops, the process can be broken into two stages — design the system and then go shopping. Knowing exactly what is needed is essential, before looking at shiny new toys.

Oneida Air Systems offers a very handy flowchart, walking a shop owner through the various choices, at www.oneida-air.com. There's a pretty good basic guide to designing a system for a small shop at www.artofwoodshopdesign.com.

Building a system that can't handle expansion is a fairly common error and overbuilding can be expensive. One should also take a look at aftermarket filter bags. On a lot of smaller dust collectors, efficiency can be greatly improved by swapping out the factory filter for a custom bag that either increases the air volume or air flow. And it's not just size and shape that can affect airflow. The actual fabric material plays a big role, too. American Fabric Filter (www.americanfabricfilter.com) manufactures a huge range of fabric products such as optimized air filtration/dust containment bags and sleeves in any shape and size.

It also customizes products with inlets, outlets, flanges, support hardware, windows and other options, such as maybe adding a few loops so you can hang the bag from a ceiling hook.

Machinery is always evolving and sometimes two technologies combine to create a new and better one. Manufacturers have understood for a long time that a cyclone system can separate fine and gross particles, allowing filter bags to do a better job. And filter manufacturers have been steadily working on the problem of catching smaller particles while still allowing air to flow freely.

Recently, Grizzly introduced a new line of dual-filtration, HEPA filter, cyclone-style dust collectors. What HEPA does for a filtering system is that it catches those very small particles that escape our natural defenses and cause harm over time. The Grizzly models have a primary filter efficiency of 99.9 percent at 0.2-2 microns and a secondary HEPA filter efficiency of 99.97 percent at 0.3 microns in size. That is, they can catch particles that are less than a micron in size and do so more than 99 percent of the time.

A new approach to dust control is being pioneered by Servair. The company's sanding booths are available in 5-, 10- and 15-hp models that use a bank of pleated filters to scrub the air and return it to the room. That means heating and cooling costs are no longer major issues. Previously, booths that evacuated dust outside also eliminated pre-cooled or warmed shop air, and running a furnace or AC unit to compensate for that was expensive. The new booths are quiet (less than 80dB), the filters self-clean, and each unit comes with filter monitoring gauges.

Sanding booths can be even more effective if the task is being done on a downdraft table. Marrying these two technologies can potentially remove all volatile particles from the sanding process. Companies such as Sandman Products (www.sandmanproducts.com) have developed a range of tables in various sizes, so choosing the right one is as simple as measuring the parts that



Grizzly's new dual-filtration, HEPA filter, cyclone-style dust collector.

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Festool promotes dust collection at the tool with its system.

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will be processed on it. When a downdraft table is in place, much less dust makes it to the booth filters, so they can go a lot longer between cleanings.

The idea of collecting dust at the source (the point where it is generated) has been raised to a fine art by engineers at Festool (www.festoolusa.com) and several other manufacturers are now following. Many of the company's sanders deliver virtually dust-free sanding when used with one of their HEPA CT Dust Extractors. The more dust control that happens at the tool, the less needs to be handled by a large central vac system.

The Danish company Nilfisk-Alto has been around for more than a century and offers four different models of extremely rugged wet/dry vacs that are ideal for cleanup on kitchen installations. The filters clean themselves and these little machines even have two-stage collection, which helps them last a long time. They can also be fitted with a HEPA exhaust filter that captures 99.97 percent of particles down to 0.3 microns.

SCRUBBERS AND GATES

If a shop doesn't have efficient collection at the tool, a lot of fine particles escape into the air and remain in circulation until they come to rest. Then, every time a board is moved or an employee walks by, those particles are again propelled into the breathable air in the shop. The only way to tackle this problem is to scrub the air. A host of small, ceiling-mounted options are available (search for "hanging air filter"). Among the most robust is the 0-600CI from General International (www.general.ca). It has three air speeds, five timer settings (to shut it down when nobody is in the shop), a 1/3-hp motor and two filters — a fine and a coarse. It also comes with a remote control, so employees can turn on this ceiling-mounted unit when it is hung higher than their heads (maximum distance is 49 feet).

Several manufacturers also tackle the age-old problem of woodworkers forgetting to close blast gates. A dust control system is essentially sealed, so the fewer "holes" in it, the better it works. In a small shop, if blast gates are left open at three or four machines, the collector won't be able to generate a vacuum with enough volume and speed to do its job. A California company called Grn Gate (www.grngate.com) has developed simple control systems that are easy to install on new and existing ductwork and they close all but the one gate where any dust-making machine is turned on. Ecogate (www.ecogate.com) is combining simple blast gate controls with advanced electronics.

Dust control is all about air volume, especially when it comes to scrubbing the air. One way to maximize the performance of collectors and filtering systems is to break a large space into smaller ones and to confine the contaminated air in a limited space than can be more effectively controlled and cleaned. Rather than build permanent walls that might not work well when production routines change, a woodshop can install relatively inexpensive curtain walls to do the job.

One last thought: dust isn't the only problem with shop vacuums, especially the small ones found in a lot of one-man or hobbyist shops. Some of them create a heck of a lot of noise for their size. One solution is to locate them in another room or a closet and run a hose to the workstation, but that's not always feasible.

Another relatively inexpensive solution is to add a muffler. For shop vacs, there are brand-specific versions that are available from big box stores and for small dust collectors. Penn State industries sells a product called the Suppressor Dust Collector Muffler, which will reduce the noise from a typical collector by 5 to 10 db. That doesn't sound like much (no pun intended), but it's enough to cross the line between detrimental and innoxious noise levels. **W**

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Something
in the

air

Sprayed finishes are becoming more popular, so here's a guide to what delivery system is best for you

By John English



There will always be debate about whether a hand-applied finish or a sprayed one is better and there are advantages and disadvantages to both. As the volume of work in a shop increases, woodworkers tend to lean more toward the speed of sprayed coatings over the personal experience of rubbing on oil or shellac, or even brushing lacquer and varnishes. If you're switching from pads or brushes to spraying, here are a few notes that could help with finishing equipment choices.

Almost every woodworker has used a spray gun at some time. While guns are generally not too expensive, there are a lot of different types and systems available, so it helps to understand their function.

Spray gun tips are designed to atomize liquid finish. That is, they reduce the liquid to very small droplets that are light enough to become airborne. In most systems, pressurized air flows through a hose from a compressor into a channel inside the gun. The air gains velocity as it exits through the tip, because the orifice (opening) is smaller than the channel. Changing the tip to one with different-sized holes or holes in slightly different locations can change the pattern of the air as it escapes. That in turn changes the shape and/or volume of vaporized fin-

ish being delivered to the surface.

Traditional spray guns are not very efficient. Roughly three-fourths of the finish ends up in places other than on the furniture or cabinet. That can change depending on how experienced the operator is and on the equipment he or she is using, but by and large three-fourths is a good rule of thumb. The problem with traditional systems is this: if the flow of finish is delivered in a small, efficient pattern, it is traveling so fast and with such force that it doesn't lay down gently on the surface: it pools, flows and dams, causing runs and uneven patches. When the spray pattern is enlarged to reduce the pressure (same volume, bigger area), most of the droplets in the pattern are delivered outside the target. They either overshoot or fall short. They also contaminate the air, so the booth's fan has to evacuate huge amounts of preheated or cooled air to the outside. Depending on the season of the year and the shop's location, this can be expensive and it is not very environmentally sound.

An industry-wide move toward water-based finishes has helped dramatically with environmental issues, but a new type of delivery system has also revolutionized the way we spray.

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HVLP AND CONVERSION GUNS

Most small- to medium-sized woodshops have switched to HVLP turbines during the last couple of decades. Very large shops use expensive, fully automated systems to apply and dry the finish almost instantly. But most shops are still spraying by hand and they have embraced HVLP technology. The acronym stands for High Volume, Low Pressure. These machines deliver a lot of vaporized finish, but the air carrying them isn't moving as fast or as aggressively as the stream delivered by traditional guns.

The core of the system is a self-contained air pump or turbine. Most of these run on household (110-volt) current, so wiring isn't an issue. Unfortunately, these small units don't have a lot of power, so they can experience resistance when trying to spray thicker, heavier fluids. Thinning, and subsequently the need to apply more coats, is routine.

A newer arrival on the scene is a bit of a mongrel: it combines aspects of the old standard guns and the newer HVLP systems. Known as a conversion gun, it has the power to spray thick and thin finishes because it uses compressed air rather than a small electric turbine. The gun is modified to convert high-pressure, compressed air into high volume, low-pressure air. So it delivers a gentle pattern with a lot of finish on board. But there is one drawback. For larger jobs such as casework, you'll need to have a fairly sizeable compressor with a large storage tank to keep up with the amount of air it uses. If you already own one, then this is probably the best way to go for most shops.

When shopping, you'll notice that the guns are configured in a number of ways. Some have a hopper on the top and this feeds the finish to the tip by gravity. The weight of the fluid pushes finish through the bottom of the hopper into the airflow. Other guns have a bottle attached to the bottom and this uses pressure to force-finish up a tube into the air flow. And a third version uses a hose attached to a regular drum of finish or a special drum that incorporates a pump. Hoppers and bottles use small amounts of product (the typical hopper capacity is about the size of a large coffee at a gas station), primarily because the operator would experience fatigue if he/she had to hold up a lot of weight for a long time. The logic here is that 15 or so fluid ounces will actually go a long way on most spray jobs, so the hopper only needs to be topped up a couple of times. However, the hose arrangement allows non-stop spraying of an entire project and probably with less fatigue — although those hoses can get heavy, too. The disadvantage is that two hoses aren't as flexible as one, so movement is somewhat curtailed. But an open-topped hopper imposes limitations on physical movement, too.



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The size and number of jobs a shop processes has a lot to do with which system works best.

BOOTHS

There are lots of reasons to hesitate when thinking about installing a finishing spray booth. Among them are explosion-proof fans and city permits, insurance premiums and fire exposure. But the advantages of having an in-house booth are considerable, especially in terms of time spent finishing, but also when it comes to quality. A well-sprayed finish is both durable and beautiful. And by not shopping out the finishing, at least one employee is going to become pretty good at spraying. That can be a real boon when it comes to warranty and repair work.

The booth itself doesn't have to cost a fortune: there are some quite affordable versions on the market. For example, Grizzly's G0532 open-face spray booth is under \$2,000. And *paint-booths.com* has 16 models on its woodworking page, starting with an 8' x 7' x 6'-5" deep unit at \$2,899.

There are several configurations for booths. Some vent out the back, others through the roof, and some pump air out while others pump air in. That is, some systems (downdraft) increase the air pressure inside the booth and the only way it can escape is through an exhaust duct, while other booths (cross flow) suck air out of the booth, creating a vacuum that is made up when shop air flows into the booth through filters, usually in the walls or doors. An open-faced booth would be categorized as cross flow.

If a woodshop wanted to build a booth from scratch, the Carl J. Busch Co. in Rochester Hills, Mich. (*www.carljbuschcompany.com*) sells explosion-proof paint booth extraction fans.

Make-up air is a big issue, especially in smaller buildings. When a fan expels a couple of thousand cubic feet of exhaust through the wall, that's the equivalent of all the air in an average office leaving the building every minute. It doesn't take long to cool down a shop with

that kind of air flow. A designated make-up air heater (one source is Grainger) can run two or three times the price of the spray booth, so it might be less expensive to add an auxiliary furnace if there is going to be a lot of spraying. Check with a licensed HVAC contractor who will know local regulations and will be able to assess any potential dangers.

The loss of treated air can be mitigated somewhat if spraying is done on warmer days in cold climates or in the evenings in places where air conditioning is an issue.

An alternative to installing a booth is to make arrangements with a local body shop to rent its booth by the hour. This seems to work better when the woodshop brings its own equipment (perhaps an HVLP turbine and guns), so cleanup or damage/wear-and-tear don't become issues. If the cabinet spray job is started at the end of the normal business day, the woodshop crew won't be in the body-shop workers' way. Plus, any finishes that need time to cure can stay there overnight and get picked up in the morning. Renting a neighborhood booth can be a good way to learn what works best for the types of jobs being sprayed, before the woodshop invests in buying or building a booth.

One last thought: there is a learning curve associated with spraying. With that in mind, this might be a good time to build some shop storage cabinets or perhaps a new showroom display, rather than experimenting on a client's expensive kitchen. **W**

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Maine exhibit combines beauty and utility

Niche Awards honor American craft artists in dozens of categories

By Jennifer Hicks

An exhibition of functional products in wood is on display through April 1 at the Messler Gallery in Rockport, Maine.

The "Beautility" exhibition celebrates ordinary objects – buckets, bicycles, boats, brooms



Maple cutlery in the Messler Gallery exhibit.

and more – that achieve beauty through purpose and conscientious construction, according to the gallery.

"In researching the show, I was excited to discover a natural juxtaposition between gorgeous traditional objects that arrived at their design essence through centuries of anonymous refinement and contemporary products that have been brilliantly conceived and executed for purposes that were previously unknown," guest curator Judy Bonzi says.

The exhibit includes work from Analog Watch Co. in Philadelphia; David Rasmussen Design in Carbondale, Colo.; Erba Cycles of Boston; Grain Surfboards of York, Maine; and JD Wagner, a rod maker in Parma Heights, Ohio.

The Messler Gallery is part of the Center for Furniture Craftsmanship, a nonprofit, year-



Cabinet by Niche finalist John Williams.



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is available at www.nicheawards.com.

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The winners were announced at the American Made Show, held at the Washington Con-

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Applications for the 2016 Niche Awards will be available this spring. www.nicheawards.com

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Niche finalist, "Paris Table," by William Weber.



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CALENDAR

Organizations sponsoring meetings, classes or shows of interest to professional or hobbyist woodworkers are invited to submit items to: Calendar, Woodshop News, 10 Bokum Road, Essex, CT 06426; editorial@woodshopnews.com.

Include name, dates, location, description of event and a contact address or telephone number. Calendar items, which should be typed or printed clearly, must be received a minimum of 60 days before the event.

Please note that fees, as listed, might not include materials or shop fees. Check with a specific class for further details.

The complete national calendar of events is continuously updated at www.woodshopnews.com.

— Compiled by Jennifer Hicks

ARIZONA

March 7-11 — Joinery with Frank Klausz at the Southwest School of Woodworking in Phoenix. Fee: \$680. www.swcfc.org

April 25-30 — Curved Front Cabinet with Paul Schurch at the Southwest School of Woodworking in Phoenix. Learn design, construction and veneering of a curved front cabinet. Fee: \$816. www.swcfc.org

CALIFORNIA

Monthly — San Fernando Valley Woodworkers meetings are held on the third Thursday of each month at 7 p.m. at the Balboa Park Sports Complex, Gym Building, at 17015 Burbank Boulevard in Encino. www.sfvw.org

FLORIDA

Ongoing — The Dunedin Fine Art Center is offering six-week woodturning classes at its Cottage Campus taught by AAW professional member Tony Marsh for beginners and intermediate-level participants. Full day classes are held on Thursdays. Call 727-298-3322 or e-mail education@dfac.org for information.

Monthly — Woodcrafters Club of Tampa meets every third Thursday evening at 3809 W. Broad St. in Tampa. For information, visit www.tampawoodcrafters.org.

March 20-22 — The Tampa Woodworking Show, featuring new products and instructional seminars; Location: Florida State Fair Entertainment Hall. www.thewoodworkingshows.com

GEORGIA

March 6-8 — The Atlanta Woodworking Show, featuring new products and instructional seminars. Location: North Atlanta Trade Center, Norcross. www.thewoodworkingshows.com

NEVADA

July 22-25 — AWFS biennial tradeshow to be held at the Las Vegas Convention Center in Las Vegas. Featuring exhibitors offering new tools and products, educational seminars and networking opportunities. www.awfsfair.org

NEW YORK

Monthly — Sawdust and Woodchips Woodworking Association meetings are held on the first Wednesday of each month at 6:30 p.m. at the Canton Woods Center in Baldwinsville. www.sawdustwoodchips.org

Monthly — Northeast Woodworkers Association meetings held on second Thursday of the month at various locations in Albany area. www.woodworker.org

PENNSYLVANIA

March 27-29 — 46th Tool Sale & International Antique Tool Auction. Location: Radisson Inn, Camp Hill. www.finetoolj.com

April 10-12 — Philadelphia Invitational Furniture Show. Annual show featuring handcrafted furniture and other woodworking items. Location: 23rd St. Armory, Philadelphia. www.philaifs.com

April 17-19 — Early American Art Exhibition, hosted by the Historical Society of Early American Decoration, featuring antiques and

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RHODE ISLAND

Nov. 6-8 — The Providence Fine Furnishings Show. Annual show featuring handcrafted furniture and accessories. Location: Pawtucket Armory Arts Center, Pawtucket. www.finefurnishingshows.com

SOUTH DAKOTA

Monthly — The South Dakota Woodworkers Guild meets the last Thursday of every month (except August) at various members' shops. The club has hand tool and woodturning groups. www.sdwoodworker.org.

WISCONSIN

March 13-15 — The Milwaukee Woodworking Show, featuring new products and instructional seminars. Location: Wisconsin Expo Center Hall C, West Allis. www.thewoodworkingshows.com

Sept. 18-20 — Milwaukee Fine Furnishings Show. Annual show featuring handcrafted furniture and accessories will be held in a new venue this year at the Muellner Building at Hart Park in Wauwatosa. www.finefurnishingshows.com **W**

Biesse adds West Coast showroom and service center

Biesse is opening a new West Coast showroom and service center in Anaheim, Calif., to host hands-on machinery and software training, product support and the company's "Biesse Inside" educational events.

"We are excited to open a new Biesse facility on the West Coast," Biesse America and Biesse Canada president and CEO Federico Broccoli said in a statement.

"We are dedicated to providing the highest level of service and support to our customers with a goal to exceed all known industry standards. With local, experienced and well-trained service and sales staff resident in Anaheim, we will be able to improve our support by delivering a quicker and more efficient response to requests."

The facility will be operational on March 2 and a grand-opening event is scheduled for April 23-24.

Visit: www.biesseamerica.com.

Finishing brand makes push to expand availability

Vermont Natural Coatings, manufacturer of whey-based wood finishes, says it retained Doerrbecker Sales and Associates of Elmont, N.Y., to work with existing retail partners and bring new dealers aboard. The focus will be in the Northeast.

"We're successful because of the relationships we establish with our retail partners and we know Phillip and John Doerrbecker have built their business the same way," VNC director of sales and marketing David Dillon said in a statement.

"We're very pleased to welcome Phillip and John to the Vermont Natural Coatings family."

VNC's patented PolyWhey technology uses whey protein to displace toxic ingredients found in traditional wood finishes. The result is a durable and safe finish that performs like solvent-based finish, and applies with the ease of a water-borne, according to the company.

Visit: www.vermontnaturalcoatings.com.

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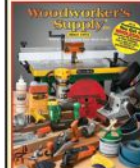
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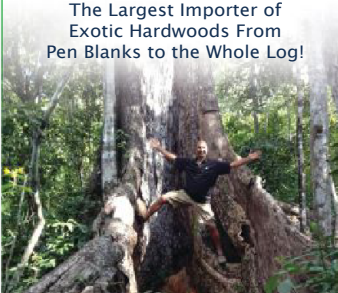
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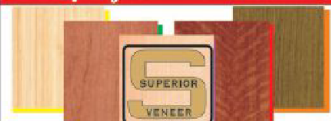
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Another piece of the puzzle

Roger Beck has been the owner of Front Door Custom Woodworking, a custom cabinet shop in Eugene, Ore. for more than 35 years. He recently embarked on a new creative project, making lamps out of hundreds of puzzle-like wooden pieces to resemble a lace pattern.

He began experimenting with the puzzle pieces or tiles years ago to make placemats, but it became so tedious he put it aside. While looking for a router bit in 2013, he found the tiles and got creative.

"I don't know what made me want to work with some of the tiles I had left over from the first time, but I took a stainless-steel bowl and glued them on the outside and made a lampshade."

Beck is hoping to retire soon and wants to keep busy making lamps. He's been making batches of tiles from different hardwood species and perfecting his techniques.

"I have two employees right now and they do most of the cabinetmaking," Beck explains. "I was diagnosed with Parkinson's disease about four years ago. I make a joke over the



fact that some of the lamp work I do is physical therapy for my Parkinson's. The tedious part of having it is the hand-eye coordination. I don't have much shaking at this point. But everyone is different, so I don't know where it will take me. Right now I'm having fun making the lamps."

The lamps are made from 600 to 2,000 tiles, made with a router and a collection of bits. Part of the challenge has been improving the production process.

"I started cutting them on the table saw, but the tiles are so little they were just going all over the place. The band saw is better. The trick to this is dealing with the fuzz on the backside. Sanding is out of the question, but I came up with the idea of putting the tiles into a pillowcase and then into a dryer. They come out without the fuzz."

The tiles are glued to a frame, creating the lamp's base. Beck is still using the bowl to form the shade. The finished product is quite durable unless it's dropped. "Then it cracks like an eggshell," Beck says.

Beck is selling the lamps through a local lighting store.

"I kept going to this store for lamp parts, like cords and sockets. Finally the salesperson asked what I was using them for," Beck says. **W**

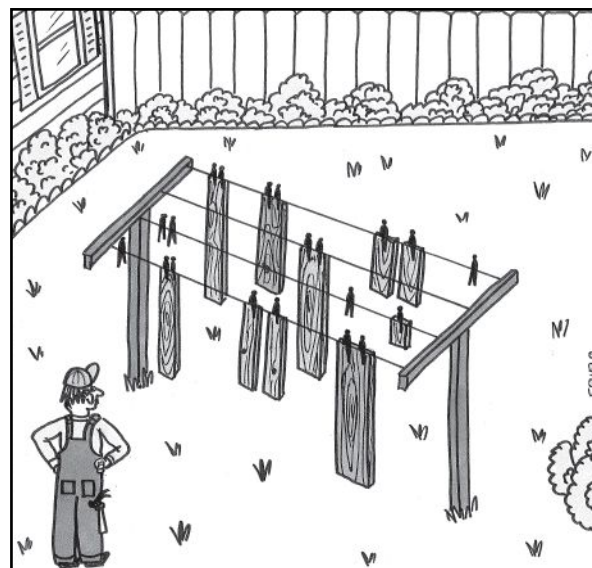
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Roger Beck's custom wooden lamps feature hundreds of wooden tiles.

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Rough humor by Steve Spiro



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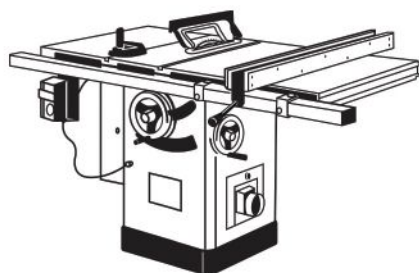
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